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The Evolving Landscape of Fashion Education:
Innovation and Adaptation

Cover design: Dimple Bahl, Head - Corporate Communication Cell

MESSAGE

I am elated to share the third volume of the NIFT Journal of Fashion that focuses on the evolving and dynamic domain of fashion education. We cannot deny the relevance of fashion, as it serves as an identity, a form of self-expression, deeply rooted in socio-cultural significance, and a significant contributor to the economy. Thus, education plays a critical role in fashion learning and training young students to seamlessly become a part of the burgeoning industry. Since 1986, NIFT has been the vanguard fashion institute, leading the way to impart the best education in the fields of design, management, and technology. The institute continues to make greater strides in fashion education by addressing the challenges, innovating curricula, pedagogy, and assessments, and collaborating with industry for a holistic learning experience.

It gives me immense pride to inform you that the NIFT Journal of Fashion also has an E-ISSN, which will ensure that the well-researched articles published in the volume reach out to a global audience, including scholars, academia, and the industry. I am optimistic that these articles will enrich the reader's knowledge and impart valuable insights about the dynamics of the changing fashion education. Let us nurture creativity and innovation and prepare professionals who have a nuanced understanding of the core issues of the fashion and textile industry.

Tanu Kashyap, IAS
Director General, NIFT

MESSAGE

I am pleased to release the third volume of our research journal, the NIFT Journal of Fashion, which revolves around the most significant and relevant domain of fashion education. Today, training young fashion professionals requires constant rethinking and innovation in education models and pedagogical approaches, not only to cater to the tech-savvy Gen Z students, but also to align with industry needs to tackle new challenges together.

The third volume on the theme 'The Evolving Landscape of Fashion Education: Innovation and Adaptation' brings together thought-provoking research articles that endeavor to provide a holistic view on the future of fashion education, from curriculum restructuring strategies, vocational learning, and best practices in the classroom to integrating sustainability in design education and collaborative projects with artisans, industry, and international associations. I am hopeful that this volume will be insightful for readers, especially in academia and industry, sharing best practices and approaches to pave the way for transforming design education for a better future.

I congratulate the Publication Unit for their consistent efforts to select and review the articles for the NIFT Journal of Fashion.

Sudha Dhingra
Dean (Academics), NIFT

From the Editor's Desk

It is our pleasure to present the third volume of the peer-reviewed NIFT Journal of Fashion, which is a compilation of ten research articles focusing on the best practices in fashion education. The volume puts forth in-depth research on critical areas of interest to academicians and the industry, incorporating pertinent themes such as evolving curricula models, industry-academia collaborations, innovative pedagogical experiments, best professional practices, and the relevance of sustainability in fashion and textile education.

In an endeavor to remodel the curriculum to align with the industry's requirements, *Dua* presents a case study of NIFT's future-ready academic strategy achieved through an intensive exercise of restructuring to address creativity, flexibility, and robust industry interface in the programs. *Wani, Geelani and Basu* conduct a SWOC analysis of vocational training in crafts conducted by District Institutes of Education and Training in Kashmir. They also examine the future scope and envision opportunities for growth and development in vocational education. Using the Technology Acceptance Model (TAM), *Krishnakumar* examines the relationship between students' belief in the usage of AI for fashion learning and their behavioral intention to adopt AI for their academic-related work. *Shresha* demonstrates the relevance of cross-cultural collaboration and industry-academia partnership in classroom learning, providing diverse perspectives and real-world experience to fashion design students. *Bahl* conducts a pedagogical experiment to expose design students to the importance of design elements drawn out from Indian crafts in contemporary graphic design education to create a visual language rooted in Indian heritage and culture. In another case study, *Hussain* undertakes a three-pronged learning approach, engaging industry-academia-experts in the classroom to develop an understanding of socially responsible design and instill sustainable mindsets in future young designers. *Dutt and Gandhi* emphasize the critical role of design education to prepare conscious, adaptable professionals capable of integrating sustainable practices into the fashion industry. Further, *Lal and Dhingra* resonate with the same sentiment, stressing the need for a strong educational framework to foster sustainable production and consumption. *Joshi* explores how academic inputs on sustainability can enhance consumers' and future professionals' understanding of sustainable practices and sustainable brands. *Sood and Sharma* study the impact of an unconventional learning model that aims to provide real-time practical learning to textile design students, leading to the development of industry-oriented professional skills and capabilities and enhancing their future prospects.

We are hopeful this volume will lead to enriching conversations and meaningful research to innovate fashion education approaches and inspire impactful learning among young design students.

Ruby Kashyap Sood
Editor-in-Chief

Deepak Joshi
Associate Editor

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CURE: Curriculum Restructuring at NIFT through Strategic Foresight

Sharmila J. Dua

Abstract

Without reflection and keeping an ear out for new developments, no institution can progress. The goal of the National Institute of Fashion Technology (NIFT) is to continuously lead the industry and produce future leaders for India's fashion and apparel sector. The academic strategy based on the curriculum and its transaction is a key factor in the capacity of the institute to address the changing needs of the industry. Regular assessment of the curriculum with inputs from our stakeholders, including the industry, alumni, and peers in fashion education, is part of the ongoing effort to improve. Each assessment provides a new journey and a more sophisticated understanding of modern practice and its portents.

In 2017, the researcher at the helm of this review process, as Dean, embarked on this journey to assess and develop a strategy to design and implement a new curriculum for the ten programs taught at NIFT. The forethought was to start from a clean slate in order to posit an academic strategy oriented to the new dynamic and keeping abreast of the economic, cultural, technological, and socio-political trends.

Curriculums are never static and can be considered as most appropriate only for a particular period in time. Therefore the curriculum restructuring, renewal, and review (CURE) process is an ongoing one that ensures constant upgradation for the curriculum to be continuously relevant and futuristic. In today's rapidly changing world, new levels of interchangeability and a thinning of disciplinary borders are emerging as professional and future practices. Soft skills are necessary to balance out technical skill sets. Enterprise should foster creativity. The academic transaction approach ought to foster resilience that encapsulates a comprehensive comprehension of settings, adaptability in embracing novel concepts, and persistence. In light of its willingness to adapt to disruptive times, the curriculum development at NIFT was undertaken.

Introduction

The word 'curriculum' comes from the Latin verb "currere," which means to run, whereas the noun curriculum verbally translates as "racecourse." Today, numerous definitions exist for the word 'curriculum'. The most widely used from the Encyclopaedia of Higher Education is "The term curriculum, broadly defined, includes goals for student learning (skills, knowledge, and attitudes); content (the subject matter in which learning experiences are embedded); sequence (the order in which concepts are presented); learners; instructional methods and activities; and instructional resources (materials)." Alternatively, a curriculum is a plan for delineating a set of learning opportunities to attain broad goals and related specific objectives for an identifiable population served by a single school center for people to be educated (Lewis, 1974).

In essence, a curriculum is a structured series of experiences that follow standards to help students become proficient in both subjects and applied learning abilities. To ensure that every student has access to challenging academic experiences, the curriculum serves as the primary source of guidance on critical teaching and learning practices for all educators. A curriculum's structure, organization, and concerns are designed to improve student learning and make instruction easier. For a curriculum to effectively support teaching and learning, it must include the objectives, procedures, resources, and evaluations that are required.

Curriculum goals are the benchmarks or objectives for teaching and learning, which are based on standards. Usually, these objectives clearly state the range and order of skills that students need to learn. The goals should include the scope and depth of knowledge a student is expected to acquire. Educational institutes use various strategies to achieve their goals. The decisions, strategies, practices, and routines used by teachers in the classroom to ensure that each student is engaged in meaningful learning are referred to as methods. These methods facilitate learning experiences to support a student's comprehension and application of knowledge and skills. Different teaching methods are necessary to cater to students' personal needs and interests, task requirements, and learning environments. Ongoing evaluation of students' progress toward achieving the objectives helps in modifying the teaching methods (Ramsden, 2003).

Assessment refers to the continuous process of acquiring data regarding a student's learning within a curriculum. This comprises a range of methods for recording the

student's knowledge, comprehension, and abilities. The assessment data decides the instructional strategies, resources, and academic supports required to enhance student opportunities and direct subsequent instruction (Fink, 2003).

The story of the curriculum of the National Institute of Fashion Technology, set up in 1986 under the aegis of the Ministry of Textiles in collaboration with the Fashion Technology Institute, New York, is a fascinating one that evolved from an American model borrowed from FIT for three diploma programs to a full-fledged indigenous degree program for ten programs encompassing both undergraduate and postgraduate degrees. The entire transformation took two decades, a parliament bill, and the sweat of the brow of dedicated faculty members. The expansion of NIFT from one campus in 1986 to ten in 2006 and eventually sixteen in 2016 led to a standardization of inputs in terms of the curriculum and its transactions. This standardization took a severe toll on creativity and flexibility.

It all started in 2016, when the questions asked by most educators at NIFT were: What is NIFT's ideology/philosophy about education? On introspection, it was ascertained that the current scenario of education at NIFT was plagued by a rigid system as a result of standardization, which came at the cost of losing creativity. The industry reiterated the fact that graduates of NIFT lacked essential skill sets due to vertical departmental structures and compartmentalized disciplinary curricula. It was also felt that there was no room for flexibility and that the traditional teaching-learning systems were not suited to the current students, the millennials.

Research shows that the evolving education landscape needs to move away from preconceived notions about students. Teachers need to understand that their efforts should not propagate rote learning in any way; rather, they should nurture students in their approach to learning. The student needs a certain kind of flexibility when it comes to deciding their portfolio of subjects/areas that they want to be exposed to. The role of the educator, from being a complex one, has further evolved into a mentor-coach-facilitator (Navaneedhan, 2012).

The curriculum for modern-day education should enable collaborative learning, promote blended learning through a flipped classroom design, encourage creative pedagogical models for increasing student accessibility, and facilitate asynchronous learning. Future curricula would focus on skill enhancement as the main learning outcome and stress developing a moral and ethical ecosystem in students, preferably through visual education and interfaces. Traditional chalk-and-talk pedagogies, vertical departmental structures, and compartmentalized disciplinary curricula are specifically unsuitable for the cognitive trends of millennials, who prefer choice and flexibility (Boddington, 2017).

The real professionals of tomorrow will effectively be hyper-experts. They will indulge in multiple careers other than just their chosen field of work or service. They could be musicians, active gamers, or a professional marathon runner along with being a designer, merchandiser, or entrepreneur.

Aim of the Study

The primary objective of the study was to review and restructure the curriculum at the National Institute of Fashion Technology (NIFT) in the years 2016-18, while the researcher was the Dean, responsible for the academic structure and delivery in all 16 campuses across the country. The sub-objectives of the study are delineated as follows:

- To examine and evaluate the current status of education and training imparted in NIFT.

- To formulate ways in which NIFT can be enhanced and upgraded in terms of policy and program to meet the expectations of the textile, garment, and lifestyle industry with a vision of the future.

- To initiate the process of curriculum reform at NIFT

- To restructure the curriculum of 10 programs at NIFT to address industry preparedness, flexibility, creativity standards, and future adaptability.

Methodology

The author followed a case study approach to document the process of curriculum reform and restructuring at NIFT. The step-by-step methodology to review and restructure the curriculum is detailed. The curriculum restructuring exercise included a series of workshops, committees, and consultations. Committees at various levels formed for a holistic revisit of the curriculum held meetings, and corresponded regularly over emails.

- **Chairpersons' workshop:** A workshop of chairpersons and senior faculty from all departments was held to develop a framework for restructuring the curriculum. The Dean of Academics initiated the discussion on curriculum restructuring with a presentation. The presentation highlighted macro-trends impacting curriculum for the future, millennial skill sets, concepts for curriculum development, transaction models for learning, and the format of the restructured curriculum.

- **Constitution of a coordination committee:** A coordination committee of senior faculty members was constituted to work alongside Dean to review

the progress. The committee members studied the curriculum, pedagogy, positioning, transaction models, and credit systems of top national and international fashion/design schools.

- **Comprehensive inquiry by department chairpersons:** The chairpersons of the ten departments were tasked with conducting an in-depth inquiry in the following areas:

  - To study the curriculum and pedagogy of the best institutes inside and outside the country that are offering similar courses.

  - To obtain industry feedback regarding areas where it was felt that the quality of NIFT graduates needed improvement.

  - To identify new and emerging areas to be incorporated into the curriculum.

  - To examine the educational needs of millennials and suggest areas of change.

  - To explore ways by which creativity and flexibility could be enhanced in the transaction of the curriculum.

  - To identify growth potentials, directions, and profiles for future graduates in the industry.

- **Chairperson faculty deliberations:** The chairperson's discussions with department faculty resulted in the following outcomes:

  - Models of majors

  - Models of deepening specializations

  - 2-3 interdisciplinary minors (IDM), which will be offered to students of other departments

  - Individual pathways that were possible.

    Teams were then formed in each department for the detailing of the majors, deepening specializations, and interdisciplinary minors.

- **The marketplace of ideas on interdisciplinary minors:** The objective of the marketplace was to decide the transactions of interdisciplinary minors between various programs. All chairpersons presented the details of the minors to be offered to the other departments, and minors were finalized, balancing what could be offered with what was demanded.

- **Presentation of the progress of the curriculum restructuring exercise before the Board:** The presentation highlighted the need to introduce flexibility, enhance millennial students' desirable skills, deepen domain knowledge and interdisciplinary knowledge, promote out-of-the-box thinking, etc. The board was informed of the parallel actions to support curriculum revision that were being taken like academic and industry consultations on each course curriculum, universal training of all faculty across campuses; mapping of space and structural requirements, recruitment and induction of new faculty; faculty orientation on new curriculum as well as pedagogic skill sets; the proposed faculty conclave on revamped curriculum; administrative arrangements for realignment of admissions and examinations; mapping of modular courses under the general themes to be taken by guest faculty; and identification of courses in new emerging areas for training of faculty and assimilation in the curriculum.

- **Campus and student consultations:** Interactions with senior students of all disciplines were held on various campuses on the contours of the restructured curriculum. The objective of the interactions was to examine whether the changes being proposed would address the challenges and inadequacies that the students experienced concerning the nature of the curriculum and the way it was transacted on campus. In particular, it was also to gauge the readiness of the campus to take on the responsibility of identifying and organizing general electives from the basket of possibilities given to the campus. The response was overwhelmingly positive, and senior students requested that the new format also be made applicable to them.

- **Interaction with industry, alumni, and academic experts:** Deliberations with the industry were initiated, with few experts taken on board for the restructuring exercise, which resulted in the finalization of:

  - Final matrix with core subjects, deepening specializations, and interdisciplinary minors to be offered by each department.
  - Clear comparison of the current and new matrix, which included the subjects, hours, and credits.
  - New/futuristic subjects that are being included in the curriculum.
  - Overall learning outcomes were articulated for each program, semester, and major, as well as the deepening specializations and interdisciplinary minors.

- **Presentations by nodal committees on curriculum restructuring:** The need was felt to define structures for the regulatory framework governing the new curriculum and create a support system for the faculty to transact the same with adequate understanding and time for professional self-development. Various nodal committees were set up to review the overall structures affecting the curriculum restructuring.

- **Faculty conclave:** The faculty conclave was organized to allow deliberation and fine-tuning of the curriculum comprehensively and cohesively. Each chairperson formed teams of faculty anchors, faculty co-anchors, and subject faculty to start the process of curriculum development. During the conclave, the subject teams deliberated, discussed, and finalized the contents, along with the learning outcomes for each subject, pathway, semester, and program. Subject teams made presentations to department faculty to ensure that the contents of the subject were coherent. Final teaching/learning methods, assignment models, and industry interaction were also discussed and finalized.

- **Presentation of the curriculum in the Senate:** The chairpersons presented the final curriculum matrix to the Senate as per the template provided. They also made presentations on the following important interventions:

  - How has creativity been addressed in the curriculum?
  - How has flexibility been brought into the curriculum?
  - How has the industry interface been emphasized?
  - How has the craft cluster initiative been incorporated into the curriculum?
  - How has entrepreneurship been emphasized?
  - What are the new, emerging areas, and how have they been incorporated into the curriculum?
  - What are the new readings that are being introduced for the new curriculum?

The program matrix, learning outcomes, and restructured format of the curriculum were approved by the Senate for the Board's consideration.

Results and Discussion

So, what entails the curriculum of the future? Curriculums are vital because they shape learning that has a lifelong impact on individuals. Traditional curriculums are highly

structured, predestined, and created by academicians with little room for co-creation by the learners. The future curriculum should make learners agile in managing the VUCA (volatile, uncertain, complex, and ambiguous) changes in the world. The world is undergoing major development in all spheres of human endeavor and can be described through certain patterns of change, termed as macro trends.

Educational research has revealed that there are top ten skills that will be essential for millennials in 2020 (Boddington, 2017). These include complex problem-solving, critical thinking, creativity, people management, coordinating with others, emotional intelligence, judgment and decision-making, service orientation, negotiation, and cognitive flexibility. The millennials excel in hands-on exploratory learning that doesn't necessarily rely on a prior knowledge base gained from in-depth readings and lectures.

The faculty team conducted a study to examine the curriculum framework, content, and pedagogy of the best international schools of design and similarly placed institutions in the country. The best practices that emerged included flexible credit regimens, transdisciplinary and interdisciplinary education, and multiple modes of study, including modular transactions, online modes of teaching, and self-learning. There was an emphasis on customized products to build on students' intrinsic strengths, individual pathways, and investment in an all-rounded personality, including providing sports/co-curricular activities.

The industry feedback collected by the chairpersons of all the departments was assimilated and analyzed. The important areas of concern identified by departments about the gap between industry requirements and graduate skills were assessed:

- The lack of skill in certain interdisciplinary areas highlighted the need for strengthening the interdisciplinary approach in the curriculum.

- Falling off in manual and hand skills was also pointed out, indicating a need for deepening specialized skills in certain areas.

- Some issues about work ethics, like high attrition and inability to persevere; reluctance to work in Tier II cities; inability to take pressure and meet deadlines; lack of aptitude and enthusiasm; lack of professionalism; and unethical work like plagiarism, pointed to need for inculcating values and deeper sensitivity to ethical concerns through the curriculum.

- The need for soft skills like presentation, effective communication, system thinking, self-belief and motivation, people skills, and interest in current affairs emerged,

pointing to the necessity of including courses that would, directly and indirectly, support personality development.

- The limitations in regard to focus, versatility, creative interpretation of briefs, lack of reflective observation, critical thinking, and the constraints regarding innovative/ creative approaches, observed by most departments, indicated the need for augmenting the creative ability of students.

- Issues about fostering entrepreneurship in the various programs were emphasized. Inadequate worldview and understanding of current events; inadequate knowledge of the legal and financial framework of business and funding options; lack of knowledge regarding developing a business proposal; inadequate understanding of the various aspects of the practice of business; and lack of business incubation facilities highlighted the need to bring entrepreneurship as an important stream of knowledge.

The departments also undertook the task of identifying new and emerging areas to be included in the curriculum. Extensive research on emerging areas and trends in design/ fashion education led to the identification of broad areas for inclusion and augmentation in the curriculum. For example, integrated specializations focus on sustainability, active experimentation, data visualization, fair trade and ethical business, smart textiles, technical textiles, engineered garments, craft studies and co-design, UI/UX, AI, robotics, business analytics, e-commerce, big data, IoT, and cloud computing.

Contours of curriculum reform

Curriculum review is done periodically every four years at NIFT. In 2016, the acronym CURE was coined at the start of the restructuring process to give an informed direction to the faculty fraternity. CURE stands for Curriculum Review/Reform/Renewal/ Restructuring.

Features of effective curriculum renewal/reform

The curriculum renewal process is done inclusively, collaboratively, and participatively when a shared vision is developed, a variety of perspectives are shared and taken into account, and decision-making and planning are open to broad engagement. To ensure success, the process needs leadership, effective, and ongoing communication; it needs to be planned, resourced, and supported; to be monitored and evaluated (Cooper, 2017).

Throughout this process of renewal, three key questions were asked.

- Why?
    - to validate decisions and actions
    - to engage stakeholders
    - to provide a context for decision making, goal setting and evaluation.

- How?
    - to determine the process
    - to develop agreed criteria for success for review and evaluation.

- What?
    - What is the intent and purpose of the program?
    - What skills and knowledge do students need to develop for the program, for the major, for the specialization, and for the course?

Broadly, the following questions were framed:

- What courses will be needed (core) and which can help (electives) to achieve the intent and purpose of the program?

- What will students do to develop the expected knowledge, skills, and application (learning activities)?

- What will students need to do to demonstrate they have achieved program and course learning outcomes (assessment)?

Many of these questions were answered through the curriculum mapping process. Of these, why? was the most important... You can't design and build something that is 'fit for purpose' if you don't know what that purpose is!

Concepts for curriculum development

Backward design (Figure 1) refers to the development of programs, courses, or lessons with the end goals of the experience in mind (Wiggins and McTighe, 2005). The term 'alignment', in its broadest sense, refers to two main theories that emerged around the turn of the millennium: L. Dee Fink's integrated design and John Biggs' constructive alignment (Fink, 2003). The tests and instructional techniques used to show that the desired learning objectives of a given educational experience have been met should be consistent with each other. In conclusion, backward design determines what the end

goals of a program (or course, lesson, etc.) should be by defining what students must be able to do, know, etc. at the end of the experience. Alignment makes sure that all the elements—learning goals, assessment, and learning experience—work together to support students in achieving these end goals.

Identify desired results

Determine assessment evidence

Plan learning experiences and instruction
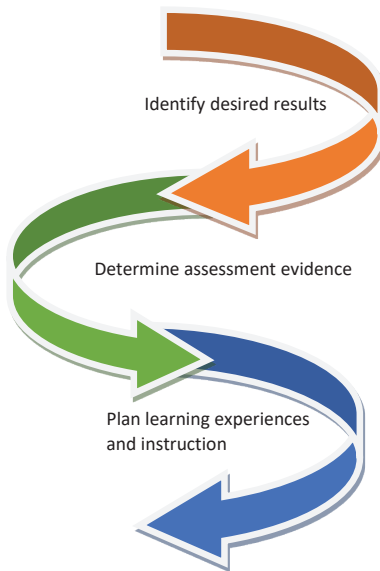
Figure 1: Backward design
Source: Wiggins and McTighe, 2005

Based on industry interactions, chairpersons along with faculty teams assessed strengths and gaps in graduating students' skillsets. Individuated pathways for required areas of focus were identified, based on core areas and including interdisciplinary minors and deepening specializations. Profiles of graduates working in the industry were studied to work on a backward alignment design to develop the learning model for the curriculum.

Learning, assessment and constructive alignment

A crucial component of course curriculum and program design, as well as a primary program quality indicator, is the alignment of teaching and learning activities, assessment, and course learning outcomes. For students to demonstrate that they have met or gone beyond the specified and intended learning outcomes, assessment is a crucial part of the learning process (Biggs and Tang, 2014). These ideas are encapsulated in the term 'Assessment FOR Learning', as opposed to 'Assessment OF Learning'. Students must be aware of both process and product learning expectations before they begin.

Assessment is part of the learning process, but it can only be effective when students receive timely and appropriate feedback. Secondly, the expectations of what they will do must be made explicit and directly related to the learning outcomes. Lastly, the learning and teaching activities are designed to allow students to develop the necessary knowledge and skills.

Learning objectives

The next step was to create the educational objectives for the course, program, and individual subject areas based on the understanding of the Taxonomy of Educational Objectives. (Bloom, et al., 1956). Knowledge, comprehension, application, analysis, synthesis, and evaluation were the six main areas that made up the framework that Bloom and his associates developed. "Skills and abilities" were the categories that followed "knowledge," with the idea being that knowledge was a prerequisite for using these abilities.

The following are succinct explanations of these primary categories by the writers from the Taxonomy of Educational Objectives appendix (ibid.).

- Knowledge: Recalling specifics and universals, methods and procedures, or a pattern, structure, or environment are all included in the definition of knowledge.

- Comprehension: The term 'comprehension' describes a kind of understanding or apprehension in which the person can apply the information being shared and grasp it without necessarily connecting it to other information or realizing all of its consequences.

- Application: The term 'application' describes how abstractions are "used in specific and concrete situations."

- Analysis: The definition of analysis is the "dissection of a communication into its constituent elements or parts such that the relations between ideas expressed are made explicit and/or the relative hierarchy of ideas is made clear."

- Synthesis: "Putting together elements and parts to form a whole" is the definition of synthesis.

- Evaluation: "Judgements about the value of material and methods for given purposes" are formed through evaluation.

Why apply Bloom's Taxonomy? The writers of the new taxonomy provided a multi-layered response to this problem, to which the author of this teaching guide has added some clarifications:

- Learning goals, or objectives, must be set for teachers and students to understand the purpose of a pedagogical interchange.

- Establishing objectives helps the teacher and the learner understand them.

- Teachers are better equipped to plan and provide appropriate instruction; create legitimate assessment tasks and procedures; and make sure that the goals are reflected in the instruction and assessment.

Bloom's revised taxonomy

In the mid-1990s, former Bloom students Lorin Anderson and David Krathwohl examined the cognitive domain and made several modifications. The three most notable changes are in the names of the six categories' names from noun to verb forms; the rearrangement of categories as indicated in Table 1; and the creation of a matrix of processes and knowledge levels (Anderson, 2001). A combination of the original and revised main domains was studied and used as the guiding principles for identifying the learning outcomes for each program, pathway, and subject by each department.

Table 1: Comparison between original and the revised taxonomy *(Anderson, 2001)*

Original Domains	New Domains
Knowledge	Remembering
Comprehension	Understanding
Application	Applying
Analysis	Analyzing
Synthesis	Evaluating
Evaluation	Creating

Conclusion

The curriculum restructuring (CURE) undertaken at NIFT was an exercise steeped in extensive deliberations that included brainstorming, in-depth research, writing workshops, and design conclaves. Apart from the articulation and documentation of the complete curriculum for ten programs ranging from three two-year graduate programs to seven four-year undergraduate programs, it was vital to align it to the vision and mission of the institute. Although the faculty fraternity in its entirety from sixteen campuses was involved in the process based on their expertise and skill set, agency, advocacy, and ownership needed to be established. Faculty conclaves and universal trainings were organized for empowering the faculty to comprehend and

transact the curriculum keeping in mind the objectives with which it was developed. Extensive capacity-building workshops on concepts like transaction models, continuous evaluation, and academic mentoring led to a change in pedantic mindsets and rigid traditional teaching and learning methods.

Committees comprising senior faculty were formulated to discuss and propose guidelines for the corollary arrangements that would be necessitated by curriculum restructuring. Policies and framework guidelines were finalized for the following areas:

- General credit guidelines
- Introduction of interdisciplinary minors (IDM) and general electives (GE) to students on campuses
- Operational instructions for selection of IDMs and GEs
- Guest faculty policy
- Terms of reference for hiring services of external organizations
- Industry engagement policy
- Integrated assignment modalities
- Framework for mentoring by faculty
- Reassessment of working hours of faculty
- Assessment of faculty through APAR
- Permanent transfer guidelines
- Common examination board guidelines
- Evaluation and assessment policy for restructured curriculum

The restructured curriculum addressed the key areas of concern, which included an emphasis on technical skills: applied and hands-on proficiency, interdisciplinary knowledge, personality and value development, out-of-the box thinking, critical reasoning, and problem-solving skills leading to opportunities to play to the strengths of career progression.

Basis of curriculum reform

The focus of the curriculum restructuring entailed flexibility by providing individualized pathways to the students, enabling them to exercise choice and develop to their full potential. This was achieved by incorporating interdisciplinary or transdisciplinary studies into the curriculum. To enhance technical skill sets, deepening specializations were planned within the program. The curriculum was designed to improve the creative

and analytical skill sets of the students through self-learning, peer interactions, library research, field explorations, etc., and also enable the development of a rounded and confident personality in students.

Framework of the restructured curriculum

The framework of the restructured curriculum encapsulated:

- Adoption of a combination of major, minor, and general credits on a 50:30:20 basis.

- Minor credits, including deepening specialization and interdisciplinary subjects in an equal combination, i.e., 15:15.

- The choice and management of general electives are the responsibility of the concerned campus.

- Credits are standardized across programs. Besides direct contact hours, credits will be allocated for self-study, studio practice, and floating subjects.

- Creative thinking and design thinking are incorporated into both the foundation program and general electives.

- Integrated projects for a convergent approach to design.

- Credit-to-hour equivalence: one credit to one hour for contact classes.

- Credits are provided in a range (an essential minimum to be covered and a maximum that can be opted for) to facilitate students undertaking workloads according to their pace and talent, enabling exceptional students to take floating credits if desired.

- Students will be given the option to take certain credits as audited subjects, where the student has attended the subject but the examination was not undertaken (zero credit).

- Academic transactions will be a combination of contact classes, studio work, workshops and seminars, industry visits and other exposure, mentoring, internships with the industry, graduation projects, and collaborative projects with faculty or industry.

- The breakdown of a 37.5 hour per week will entail classroom contact classes: 25 hours/week; studio/workshop: 4.5 hours/week; library/self-learning: 6 hours/week; and mentoring: 2 hours/week.

Important interventions in the restructured curriculum

The changes made in the curriculum were geared to address creativity, build flexibility by offering wider options to students, respond to new and emerging areas of learning,

integrate craft sensitization, and strengthen industry connections to provide a real-time experience to the students.

- Addressing creativity through the curriculum:

  - Building the required fundamental knowledge and skills to express creativity through holistic assignments and classroom projects.

  - Creating ambience and scope required for lateral and out-of-the-box thinking and exploring the same through various design subjects/studio-based projects in the majors and deepening specializations across the semesters.

  - Providing opportunities to explore creative and design thinking skills and capabilities in real-time situations through industry-oriented classroom/studio projects, internship projects, and graduation projects.

  - Encouraging the students to participate in national and international design competitions and offering free or floating credits as recognition for creative achievements.

  - Encouraging the students to explore innovative material alternates, techniques, and finishes.

  - Interactive modes of assignment evaluation through critique, discussions, and peer reviews to generate rich dialogue, in-depth discussion, enhanced presentation, and documentation skills.

- Addressing flexibility through the curriculum:

  - Direct contact hours were reduced from 37.5 hours in a week to 25 hours in a week.

  - The new curriculum design offers a lot more flexibility through choice of interdisciplinary minors. This teaches them more than one skill and empathy to collaborate across disciplines, while also trimming the redundancy. The students are empowered to design their combination pathways to enter future careers with transferable skills and flexibility.

  - Through general electives, students have the option to choose the subjects of their interest area to develop a multifaceted personality.

  - Options to earn credits by way of freelance projects, participation in fashion week, design competitions, or other industry events, or through faculty assistance in an ongoing consultancy project.

- Flexibility is practiced by variety and choice offered without compromising any academic standards through the use of technology, traditional methods, or suitable combinations.

- New and emerging areas are identified with respect to each program and incorporated into the curriculum.

- Incorporation of craft cluster initiative across design, management, and technology disciplines.

- A robust industry interface is structured into the curriculum through visits, classroom projects, special lectures, transactions of part of the curriculum in the industry, exposure to state-of-the-art machinery and processes, internships, graduation projects, and pre-placement workshops.

The restructured curriculum was implemented across sixteen campuses of NIFT in July 2018. It was offered to the newly inducted batch of students as well as third-semester students for undergraduate programs. With this new journey, NIFT hopes to establish new frameworks for technical skill cementation, new paradigms for exploring creativity, new industry connections, new evaluation criteria, and a fresh confirmation of its key strengths and ideals. An enormous undertaking that not only exposed weaknesses and challenges that would not have been discovered otherwise but also offered an insight into the journey ahead.

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Contextualizing the Role of District Institutes of Education and Training (DIETs) towards Vocational Education in Kashmir in the Light of National Education Policy (NEP) 2020 - A Perspective towards Kashmir Handicrafts

Maria Akhtar Wani, Syed Zahoor Ahmed Geelani and Nighat Basu

Abstract

The District Institutes of Education and Training (DIETs) serve as nodal agencies at the district level, providing continuous professional development, training, and orientation at the primary level of our country's educational discourse. In light of National Education Policy (NEP) 2020, mainstreaming vocational education in the educational curriculum is a subject of interest for all stakeholders, since any course or subject related to vocational studies requires relevant teacher training, resource individuals, and institutions. Handicrafts are an integral part of Kashmir's culture, emerging fashion scenario, and economy, being the major source of earning a livelihood. Given the rising rates of unemployment and underemployment, a significant challenge facing our education system is the creation of a workforce that lacks the necessary skills in traditional vocational fields unique to this region, such as Kashmir pashmina, papier-mâché, namda, gabba, willow-work, khatamband, carpets, shawl weaving, wood carving, and hand-embroidery (aari-work, tilla-work, crewel and chain stitch), among others. This emerging scenario is largely due to the disconnect between educational theory and educational practice. NEP 2020 recognizes the emerging crisis by acknowledging that educational theory and practices, while applicable in various Indian states with different geography, may not necessarily be applicable in a specific geographic region. This recognition makes the policy a visionary document. The policy addresses the grass-roots educational concerns, including the issue of teaching pedagogy and assessment aspects of our curriculum framework related to the vocational subjects. Over the years, Kashmiri handicrafts have significantly influenced both national and international

fashion trends. Therefore, in the Kashmiri context, NEP 2020's focus on indigenous vocational crafts at the grassroots level not only integrates vocational and academic streams from pre-school to higher education but also offers opportunities for the preservation of handicrafts. DIETs form the institutional backbone of the educational framework to implement NEP 2020 at the grass-roots level. The article attempts to examine how DIETs in Kashmir play a crucial role in providing academic and resource support, training, and direction. Additionally, it identifies relevant research areas that contribute to the development of support mechanisms for economic sustainability in the context of an evolving fashion scenario, as outlined in the national education policy.

Keywords: District Institutes of Education and Training (DIETs), vocational crafts, Kashmir handicrafts, National Education Policy (NEP) 2020, vocational education

Introduction

Vocational education can be described as the development of learners' expertise in a specific area of learning techniques to prepare them for the best practices related to specific trades, occupations, or vocations (All India Council for Technical Education, 2017). Vocational education also includes the education of vocational crafts, which are an important aspect of vocations practiced in India. In the Kashmiri context, handicraft and handloom practices have historically been associated with vocation, second only to agriculture. The region is home to the most luxurious handicrafts and handlooms in the world, e.g., kani-pashmina, Kashmir-pashmina, walnut wood carving, copper-work, khatamband, pinjrakari, papier-mâché, carpet weaving, namda, gabba; and embroidery like sozni, aari-work, crewel-chain stitch, hand-tilla work, etc. (Saraf, 1987). The highly specialized skill-based artists/artisans are famously referred to as 'The Golden Hands of Kashmir' as handicraft and handloom constitute the main vocational crafts. These vocational crafts serve as a vital source of income for 3.5 lac craftsmen and artisans. In 'The Wool Processing, Handloom, Handicrafts Policy Document, 2020', the Government of Jammu and Kashmir reveals that "the handloom sector provides direct and indirect employment to more than 40,000 weavers and ancillary workers in J&K, mostly belonging to SC/ST, backward, and economically weaker sections of the society." Products like carpets, fully-embroidered pashmina and kani shawls, crewel work, walnut and wood carving, papier-mâché, khatamband ceiling, chain stitch, etc. hold sway in the international and domestic markets and amply reflect the skill of 3.5 lakhs of craftsmen and artisans involved in the sector. These old-age vocational crafts have been passed down informally from one generation to another through family traditions and formally through specific institutions like Industrial Training Institutes (ITI's) and Polytechnic

Colleges offering long-term and short-term courses. The cultural and regional sanctity associated with these vocations, in addition to the low capital investment and emphatic source of earning foreign exchange, keeps these vocational sectors alive and thriving. The National Education Policy (NEP) 2020 prioritizes the integration of region-specific vocational trades into the existing educational curriculum, pedagogy, and policy, emphasizing the importance of local industrial setups and specialized skills to bridge the gap between industry and the existing educational system. The document impresses upon the need to mitigate the challenges faced by vocational education in India through restructuring and proper implementation of the National Skills Qualification Framework (NSQF) in collaboration with the Ministry of Education, non-governmental organizations (NGOs), and civil society as a whole. It provides an inclusive approach towards a socially, economically, and culturally meaningful model of education (National Education Policy, 2020). District Institutes of Education and Training (DIETs) constitute the third tier and the foundation of the education system in our country (Dyer et al, 2004). These are the nodal agencies responsible for implementing all educational policies at the elementary level of education. The achievement of NEP 2020 at the grass-roots level is possible only when the elementary school teachers are fully trained for the purpose.

Overview of vocational crafts and vocational education in Kashmir

During the 14th century, when Kashmir was experiencing a severe economic crisis, Ameer Kabir Mir Syed Ali Hamadani (RA) changed the demographics of Kashmir by bringing in approximately 700 specialists in various arts and crafts from central Asia, who taught Kashmir's various vocational crafts for a sustainable economy. The fifteenth century witnessed the emergence of the innovated techniques in shawl weaving, learning, and manufacture of other handicrafts, which is generally ascribed to Sultan Zayn al-'Abidin (1520–70 AC). He established educational institutions that taught crafts like wood carving, carpet and shawl weaving, papier-mâché, and various types of embroidery. He established a vibrant culture of *karkhanas*/workshops, where skilled artisans taught crafts to apprentices (Bhat 2023).

The sixteenth century also witnessed rapid growth of handicrafts, and the annexation of Kashmir by Mughals extended the trade to distant lands, particularly Central Asia, thus leading to economic prosperity (Digby, 2007). The historical accounts during the Mughal era denote that the Kashmir shawl industry thrived with 40,000 looms. The development of a state-owned factory system (*karkhana*/workshop system), as well as an emphasis on royal patterns and intricate weaving, gave Kashmiri shawls the place of royal apparel in the court. (Ashfaque, 2009). During Maharaja Gulab Singh's rule in

1846 A.D., demand for Kashmir shawls rose in European countries. During the rule of Maharaja Ranbir Singh (1865–72), the production of Kashmiri shawls increased, and French agents like Messrs. Uhlan represented Kashmir in France besides others who visited Kashmir for their business concerns (Shaban, Dar and Bharadwaj, 2015).

Political unrest and natural disasters have impacted the Kashmir handicraft industry, but it has persevered over time and continues to thrive due to the fashion demand. Every gender, regardless of caste, creed, or class, engages in handcrafting as a significant hobby in rural areas, transferring skills from one generation to the next through family traditions or local apprenticeships. Currently, Kashmiri artisans practicing handicrafts such as papier-mâché, walnut wood carving, kani-pashmina, khatamband, pinjrakari, willow-wicker, namda, gabba, and embroidery such as sozni work, aari work, tilla work, crewel-chain stitch, etc. are skilled entrepreneurs and economic partners (Planning Development and Monitoring Department, 2013-14). Traditionally, Kashmiri handicrafts like wood carving, copper-work, khatamband, papier-mache are practiced in *karkhanas* which are either within the houses or in the vicinity of master artisans, under whose supervision the apprentices learn, work, and gain experience. Similarly, both male and female artisans practice hand embroidery such as sozni-work, tilla-work, and aari-work at home. The future generations become accustomed to the crafts and learn the processes from the elders at home. The looms for weaving Kashmiri pashmina shawls are also generally located in the houses of artisans, and the associated people, like dyers and washers, either work from their homes or adjacent *karkhanas*. Typically, master artisans operate the kani-pashmina shawl and carpet looms from their homes; they also teach apprentices the intricate hieroglyphic pattern known as 'taleem', which future generations learn informally at home. The vision of Ameer Kabeer Mir Syed Ali Hamadani (RA) was to instill a culture of craft entrepreneurship in Kashmiris, keeping in mind Kashmir's susceptibility to foreign invasions and harsh weather conditions. This has not only been instrumental in securing the local population economically in harsh times of conflict, floods, earthquakes, and winters, but it has also developed a sustainable economic model through localized apprenticeship.

Currently, the National Skill Development Framework (NSDF) gives secondary schools in Jammu and Kashmir the option to implement two vocational courses from Class 9th to Class 10th. These vocational subjects include IT/ITeS, Retail, Health Care, Tourism and Hospitality, Security, Agriculture, Telecommunication, Beauty and Wellness, Physical Education and Sports, Automotive, Electronics and Hardware Apparel Made-ups, and Home-Furnishing and Plumbing (Jammu and Kashmir Board of School Education, 2023). At present, the scheme does not offer a localized Kashmiri handicraft course at the

primary or secondary level. There are 27 government Industrial Training Institutes (ITIs) and 15 private Industrial Training Institutes (ITIs) in Kashmir Division. The Industrial Training Institutes (ITIs), under the designated Heritage Craft Course Scheme of the State Council for Vocational Training (SCVT), offer a one-year course in wood carving skills, papier-mâché, shawl weaving, hand embroidery, carpet weaving, and technology, as well as fashion design and technology (Directorate of Skill Development, Government of Jammu and Kashmir, 2019).

The National Institute of Fashion Technology (NIFT), Budgam, offers undergraduate degrees in fashion design, fashion communication, fashion and lifestyle accessories, and textile design, in addition to a postgraduate degree in fashion management. NIFT offers subjects/modules related to Craft Research and Documentation, Craft-Based Product Development, Design Innovation, and Leadership with emphasis on Regional Crafts (National Institute of Fashion Technology, Srinagar, 2020). In 2018, the Central University of Kashmir established the Design Innovation Centre (DIC) as part of the Ministry of Human Resource Development (MHRD), the Government of India's National Initiative of Design Innovation. This initiative follows the Hub and Spoke model, where Spoke Centers offer one-year diploma courses in various crafts, such as khatamband and wood work, papier-mâché and crewel, Kashmir craft designing, kani shawls, and pashmina, among others, throughout the Kashmir valley (Central University of Kashmir, 2018). Kashmir University offers Masters in Business Administration (Craft Management and Entrepreneurship) at Craft Development Institute (CDI), Srinagar, with special emphasis on Kashmir's regional handicrafts (Craft Development Institute, 2023). Kashmir University offers short-term courses on vocational crafts like papier-mâché. The District Institutes of Education and Training bear a significant responsibility in promoting vocational crafts at the primary level, thereby facilitating the successful implementation of NEP 2020 at the grassroots level.

National Education Policy (NEP) 2020 and vocational education at elementary level

The National Education Policy (NEP) 2020 provides a roadmap for collaborative curriculum framing among major educational stakeholders from school level to university level, paving the way for a formalized vocational education. At the primary level, NEP 2020 emphasizes the pedagogy, which is primarily based on experiential learning and discovery, play-way and activity, interactive classroom learning, and inquiry at the preparatory (Grades 3-5) and middle stages (Grades 6-8). It paves the way to restructure the National Curriculum Framework for School Education (NCFSE-2020-2022) into an arts and story-telling integrated pedagogy, thus reconnecting education with regional

culture. It integrates arts and crafts and vocational skills with academic subjects in the school curriculum to provide students with flexibility in course/subject choice. The policy envisions holistic development by providing vocational exposure to learners from pre-school to higher education level in a localized setting. Vocational skills, arts, and crafts can be improved through enrichment programs based on local skill needs, practice-based curriculum with 10-minute bag-free periods to evaluate students with vocational experts, fun courses involving vocational crafts from Grades 6–8, internships with vocational experts from Grade 6 onwards, vocational courses through online and open and distance learning (ODL) modes, and exposure to a craft environment. All of these things help students grow as a whole. It would be helpful if institutions had the right tools for vocational subjects, like skill labs and short teacher education programs that teach teachers about vocational education at the primary level. It would also be beneficial if the National Skills Qualification Framework (NSQF) was changed to include vocational subjects and Indian standards were brought in line with the International Standard Classification of Occupations maintained by the International Labor Organization. This would help things move in the right direction. Additionally, educational institutions should collaborate with the National Committee for the Integration of Vocational Education (NCIVE) to map local job opportunities and analyze skill gaps. They should also work with non-governmental organizations (NGOs), local businesses, Industrial Training Institutes (ITIs), polytechnics, Adult Education Centers (ADCs), and more to provide students with "Lok-Vidya" (vocational knowledge). This would be a big step toward creating a vibrant and multidisciplinary education system. The framework, which encourages every learner to pursue at least one vocation and engages local artists, craftspersons, and other handicraft experts as guest faculty and Artist(s)-in-Residence at educational institutions, aids in reimagining vocational education to be on par with mainstream education (National Education Policy, 2020). The document presents a unique economic model based on the promotion of craft entrepreneurship, in which even dropouts from school at any stage are able to earn as well as have a respectable position in society. Contextually, the policy eliminates the social stigmas associated with vocational crafts in Kashmir, enabling artisans or vocational instructors to secure positions in formalized teaching institutions.

Role of District Institutes of Education and Training (DIETs) towards vocational education in Kashmir as per National Education Policy (NEP) 2020 guidelines

In Kashmir, District Institutes of Education and Training (DIETs) are the major agencies to impart training and provide academic and resource support towards the professional

development of teachers and other functionaries at the primary level. The primary functions of DIETs encompass general and subject-specific training and orientation for elementary school teachers, both pre- and in-service; orientation and training for resource persons, non-formal and adult education instructors, local community leaders, functionaries of voluntary organizations, and members of various boards of education at the district or village level, such as school complexes, district boards of education, evaluation centers for primary and upper primary schools; development of teaching aids and support material; evaluation and pedagogical methods and tools; and action research at the elementary and adult education level. There are seven branches of DIETs: Pre-Service Teacher Education (PSTE) Branch, Work Experience (WE) Branch, District Resource Unit (DRU), In-Service Programmes, Field Interaction and Innovation Coordination (IFIC) Branch, Educational Technology (ET) Branch, Planning and Management (P&M) Branch, and Curriculum, Material Development, and Evaluation (CMDE) Branch (Lalsawmzuali, 2019).

There are ten DIETs in Kashmir: Anantnag, Kulgam, Shopian, Pulwama, Srinagar, Budgam, Ganderbal, Baramulla, Bandipora, and Kupwara. The Samagra Shiksha program designates these DIETs to implement NEP 2020 at the primary and secondary levels. The policy offers a platform for future generations to preserve endangered handicrafts such as namda, kani-pashmina, and willow-wicker. It unites all stakeholders, including the teacher-student fraternity, policymakers, artisans, vocational instructors, and civil society groups, in identifying and bridging the divide. As outlined in NEP 2020, DIETs are responsible for implementing the policy by creating an educational curriculum that prioritizes themes with a strong cultural, geographical, and economic foundation.

NEP 2020 bridges the gap between educational philosophy and preparation. This gap was previously caused by a lack of coordination between the student-teacher relationship, teacher-training institutions, and the social, political, and economic environment, leading to structural anomalies in our educational system. Kalyani (2020) elucidates the significance of incorporating vocational education into the educational curriculum, as envisioned by NEP 2020:

- Holistic development: social, cultural, economic, physical, and mental development
- Strengthening inquiry, reasoning, and problem-solving skills
- Empowering of local communities
- Promoting creativity, innovation, sustainable development, and entrepreneurship

-   Enhancing vocational and productive efficiency
-   Promoting and celebrating our cultural heritage and value of identity.

As a result, DIETs' role in vocational education in Kashmir has expanded to focus on local vocational crafts. This would involve training teachers, conducting craft sensitization workshops, and collaborating with various vocational education institutions, including ITIs, polytechnic institutes, and skill and technical training institutes, to support curriculum development and evaluation. Engaging actively with community leaders, village education committees, youth, and other voluntary educational organizations would be crucial in promoting vocational education and the practice of vocational crafts as a means of preserving local culture.

Aim of the Study

The objective of the study was to conduct a SWOC analysis to assess the strengths, weaknesses, opportunities, and challenges experienced by the staff of District Institutes of Education and Training regarding vocational education, with an emphasis on vocational crafts. The purpose of the SWOC analysis was to delve deeper and provide valuable insights into the current scenario of vocational training, particularly vocational crafts, and examine the scope for improvement and envisaged opportunities for growth and development in the vocational education system.

Methodology

The study employed a qualitative research design to examine the perceptions of the staff (faculty members and administrative officers) of the District Institutes of Education and Training (DIETs) in Kashmir in 2023. The researcher has also referred to the field notes taken during non-participant observations made during the ethnographic visits to the various artisans practicing traditional Kashmiri vocational crafts from 2016 to 2018. A purposive sampling technique was employed to collect data, reaching out to DIET staff from all ten DIETs in Kashmir who were willing to participate in the study and share their strengths, weaknesses, opportunities, and challenges related to vocational education. Focus group discussions were conducted by obtaining prior oral consent from 6-7 members of each DIET in Kashmir. The principles of acceptance and confidentiality were taken into consideration. Each focus group discussion lasted for 20–40 minutes and was transcribed. The data analysis was inductive and focused on generating emergent themes to elucidate the strengths, weaknesses, opportunities, and challenges faced by the DIET staff in Kashmir regarding vocational education.

Results

The researcher analyzed the findings from focus group discussions with DIET staff members and categorized the prominent themes to determine the strengths, weaknesses, opportunities, and challenges of implementing vocational education. The findings are described below.

Strengths

Implementation of orientation programmes for vocational trainers

While conducting focus group discussions, the first theme that emerged was the orientation programs for the vocational trainers at the secondary level, as per the training calendar of DIETs. According to the opinions of the DIETs' staff, the focus on vocational education and skill development has increased in light of NEP-2020. A DIET staff member opines, "The orientation programs are held by professionally trained personnel to emphasize the relevance and importance of vocational education at the secondary level. Since the role of DIET is academic enrichment, the vocational trainers are being trained as per the module specifications. We have got positive feedback on the completion of modules." Another staff member is of the view that orientation programs on vocational education guidelines are being conducted at the secondary level for different vocational subjects such as IT and ITeS, health care, automotive, etc. He adds, "We have been successful in conducting the orientation programs for the capacity building of the vocational trainers. The training sessions have been completed as per the module's requirements, and the resource persons employed for this purpose are well-trained."

The discussion with the staff members of DIETs revealed their keen interest in promoting vocational Kashmiri handicrafts. Various DIET staff members mentioned that workshops have been conducted periodically at the district level to promote vocational handicrafts like willow wicker, pottery, papier-mâché, etc. One of the DIET staff members opines, "Programs related to local handicrafts are held once or twice a year, where local artisans are invited to showcase the traditional handicrafts to acquaint the students with the regional handicrafts. The regional aspect of NEP 2020 has now been taken into consideration in addition to 'bag-less days."

Curriculum development for vocational courses

During focus group discussions, some of the staff members from Academic Unit I (DIET Shopian, DIET Kulgam, and DIET Anantnag), which has been designated for 'Art and

Vocational Education, acknowledged being part of module development for vocational courses in collaboration with resource persons. One of the staff members explains, "We are trying our level best to build rapport with the skilled people to seek help in making vocational labs in districts functional and relevant with regards to every skill and vocation." The DIET staff of Academic Unit I also prioritizes the successful development of modules. One of the staff members expresses his view: "During module development, we roped in the best resource persons and expertise and developed modules while keeping in mind various necessary regional constructs, orientations, and steps. We have submitted the modules to SCERT Kashmir."

The DIET staff members also stressed that there is a shift in policy toward the inclusion of vocational crafts in the curriculum. According to a staff member, "NEP-2020 has introduced the concept of bag-less days as an enrichment activity for 6-8 standards. This involves students visiting local artisans such as carpenters, potters, and metal workers for 10 days, aiming to familiarize them with the local vocational crafts prevalent in the area. Currently, SCERT and DIETs are actively working to alter the general perception of vocational education at both the UT and district levels. Furthermore, our organization recognizes the significance of practicing regional crafts. We occasionally invite local artisans to showcase their crafts, a practice that is expected to increase in the future due to the policy's emphasis on vocational crafts." The responses point towards the growing importance of vocational craft education and the inclusion of craft studies to sensitize students to the Kashmiri craft heritage.

Financial support

During the discussion, the participants acknowledged that they received adequate funds from their major funding agency, Samagra Shiksha, Government of India, for the successful conduct of the orientation programs. One of the section officers of a DIET mentions, "The fund flow is smooth as far as the training and orientation sessions of vocational education are concerned."

Weaknesses

Infrastructural deficit in DIETs

The researcher observed that the four DIETs, namely DIET Ganderbal, DIET Srinagar, DIET Pampore, and DIET Bandipora, don't function from their own buildings. They have been allotted government buildings for schools, which do not align with DIETs' infrastructure requirements. DIET Kulgam has an art and craft museum, whereas

other DIETs in Kashmir do not. A DIET staff member emphasizes, "The improvement in DIET infrastructure is a must in every organization; our biggest weakness is the lack of requisite infrastructure." The observation reveals that there is insufficient infrastructure for the DIET staff. Another staff member explains, "The lack of requisite infrastructure is the biggest impediment towards the smooth functioning of our DIET. If we receive the necessary infrastructure, we can significantly improve our vocational education. "We have to hire multi-purpose halls from nearby schools for every training session, which makes it difficult to conduct outreach activities." It may be concluded that most of the staff members believed that infrastructure enhancement could lead to greater work efficiency and better results.

Remuneration for resource persons

Participants in the discussions expressed the need to revisit, reorganize, and regularize the remuneration for the resource persons. During discussions, one of the senior DIET staff members opines, "While engaging resource persons, the major issue is the amount of remuneration. If a resource person or artisan earns more while working at home, it becomes difficult to attract them with the amount they get while training at DIET." Another DIET staff member says, "If we call an artisan to apprise the teachers of the local handicraft or any skill, the remuneration amount has to be sufficient to attract the artisans."

Insufficient staffing

During discussions, every DIET staff member highlighted understaffing as a major concern. One of the DIET staff members opines, "All HOD posts are vacant in this DIET; I have to also do the administrative work, which isn't my domain. The majority of the posts are vacant. The workload is heavy. The additional responsibilities due to a lack of staffing have led to less concentration in my field of work." Another DIET staff member adds, "The vacant posts in DIETs are the biggest hurdle to our organization's smooth functioning."

Opportunities

Hub and spoke model

During the focus group discussions, it emerged that the DIET staff members hoped for the effective functioning of vocational/skill labs based on the Hub and Spoke model in designated schools. One of the DIET staff members states, "Since the guidelines mention that the skill, trade, or vocation would be selected based on local relevance,

thus regional handicrafts would also get an impetus. I hope our children will celebrate regional crafts besides other vocations that are equally important." Another DIET staff member expresses, "My family has been in the handicraft sector; the social stigmas associated with handicrafts have created a negative attitude about these vocations. With the mainstreaming of vocational education, I am hopeful that the societal attitude will also change. At every level, we are promoting handicrafts like willow wicker. Our Prime Minister also wears a kani-pashmina shawl. I hope this model lets us celebrate every vocation." Understanding regional vocations at the primary and secondary levels can shift mindsets, attract children to these vocations, and help them relate to them more easily.

Integrating vocational crafts into the curriculum as per NEP 2020

The DIET faculty members expressed their support for the practical aspects of vocational education, as outlined in the NEP 2020. These include initiatives such as teaching crafts at the Early Childhood Care and Education (ECCE) level, implementing bagless days, promoting toy pedagogy, facilitating online learning of vocational subjects, and hiring local eminent artisans as master instructors, among other measures. A DIET staff member says, "We welcome the policy structure; we are at the forefront at the district level to implement NEP 2020. As far as vocational education is concerned, we see a bright future, provided we can also include chapters of vocational crafts in our mainstream subjects like English, Urdu, Science, History, Geography, etc." In addition to the practical aspect, the DIET staff member hopes that the vocations currently excluded from the mainstream will find a mention in theoretical subjects.

Challenges

Lack of coordination and consultation

During the discussion, many staff members highlighted the lack of effective coordination and consultation among the different government agencies, such as the School Education Department, Skill Development Department, Industries and Commerce Department, and Industrial Training Institutes, as well as the coordination between the Higher Education Department and School Education Department. The staff members underlined the importance of effective communication, coordination, and consultation among the various departments. During the focus group discussions, the opinions gathered were: "The approach we are following is a top-down approach; there are regional complexities that we encounter at the district level. The mandate is to address educational enrichment at the district level. The autonomy is lacking. Only three DIETs

have been given the mandate of 'Art and Vocational Education.' Effective district-level consultations are the need of the hour to increase work efficiency. The bottom-up approach needs to be considered."

Staff members proposed the need for a system that coordinates with other departments at the district level, creating a database of students excelling in various fields to prevent unemployment and provide them with opportunities to further develop their skills. In consultation with the Department of Skill Development, Industries and Commerce, and Handicrafts, the district level must create an updated data base. "It is the need of the hour to fulfill NEP 2020's objectives."

Non-inclusion of vocational Kashmiri handicrafts in vocational education curriculum

During the focus group discussions, it was observed that the staff members of DIETs recognize the importance of including Kashmiri handicrafts in the curriculum. One of the staff members remarks, "The curriculum of vocational trades at the secondary level doesn't include local vocational handicrafts. This presents both a challenge and a policy deficit. The implementation of NEP 2020 clearly mentions the inclusion and promotion of regional culture. The people in different districts in Kashmir practice various handicrafts; for example, District Ganderbal is home to willow-wicker crafts and sozni embroidery. Similarly, in Budgam, areas such as Kanihama exhibit significant potential for kani-pashmina crafts." It was inferred that though DIETs conduct workshops about culture and handicrafts and also invite artisans to showcase their talent once in a while, in real terms, vocational education would mean inclusion of major handicrafts in the curriculum.

Discussion and Conclusion

The National Educational Policy (NEP) 2020 envisions mainstreaming vocational education in the country at the national level, therefore opening new vistas for upcoming generations to work and innovate with craft practitioners with diverse geographical, cultural, ethnic, and technical craft backgrounds. It also provides opportunities to celebrate the Kashmiri handicrafts by learning about the production processes, aesthetics, uniqueness, and rich cultural heritage associated with the vocational crafts of Kashmir.

The successful execution of orientation programs and the development of modules indicate significant achievements made by DIETs. The orientation programs regarding

the importance of vocational education equip the vocational trainers to instruct the students. A faculty development program (FDP) is an established educational pedagogy that fosters knowledge skills as well as professional skills of any faculty (Bilal, Guraya and Chen, 2019). Faculty development programs help to boost faculty confidence and capacity, facilitate inter-professional learning, and foster a positive effect on future learning (Jones et al. 2015).

The Academic Unit I of DIETs conducted the crucial module development exercise to familiarize the vocational trainers with the significance and details of the trade. System-based modular development in faculty development programs emphasizes and promotes interactive teaching combined with self-directed learning. This instructional approach improves problem-solving, intra- and interpersonal skills, and attitudes toward the teaching-learning process. (Shafi, et al. 2020). As per the DIET staff, smooth fund flow from Samagra Shiksha paves the way for the successful completion of training programs about vocational education in DIETs across Kashmir.

Discussions with DIET staff members revealed the need to revisit the remuneration component, as it hinders attracting experienced and talented artisans to showcase their craft. Remuneration has a significant effect on work motivation and organizational commitment (Anggraini, Muchtar and Masdupi, 2019).

The lack of infrastructure and staff was considered a major impediment to DIETs' work in executing vocational education. Shah (2022) states that the DIET complex at Pampore is still under construction. Teachers in the district are forced to use a cramped one-room arrangement at the local higher secondary school in Pampore as a DIET center, as the building remains incomplete. Office space is one of the major physical aspects of a workplace that influences employees' performance. Poor infrastructure demotivates employees and impacts their workplace performance. (Chandrasekar, 2011). An organization with insufficient personnel experiences an increase in workload and less supervision, leading to stress, a decrease in work efficiency and effectiveness, and a decline in the overall performance of the organization and its workers (Engetou, 2017).

According to the DIET staff members, the hub and spoke model would aid in the implementation of vocational education at the district level. As mentioned by Cui (2011), the hub-and-spoke mode of secondary school organization is a potentially effective strategy for reorganizing groups of schools to support work-integrated education and training to enhance successful and smooth post-school transitions for young adults.

The DIET staff members opined that one of the biggest challenges is a lack of coordination and consultation, which leads to policy deficits. Coordination leads to

enhanced organizational performance. Planning and arranging resources in a well-coordinated work setup leads to improved internal results and a strong position in achieving internal objectives, even in the face of external competition. Furthermore, it increases organizational trust and focus, both internally and externally, which are important for organizational performance (Osifo, 2013).

The inclusion of vocational crafts in the curriculum as per NEP-2020 would be a welcome step towards the mainstreaming of vocational education in a real sense. The school curriculum must incorporate vocational courses customized to regional needs. (Biswas, 2008). According to the DIET staff members, the regional level lacks a proper framework to link vocational crafts with the curriculum, thereby hindering the development of a sustainable, formalized economic system. The handicraft sector remains informal and deprived of attention at the primary and secondary levels of education. The important role of District Institutes of Education and Training (DIETs) in devising and restructuring educational curricula with consultations from the local artisan community paves the way for skill development as well as accomplishing the objectives of NEP 2020.

Recommendations

Kashmir's handicrafts are an important part of the vocational trades practiced there. The findings reveal that Kashmir's vocational education curriculum does not include Kashmiri handicrafts. Understanding and addressing the concern through appropriate interventions is the need of the hour. To align with NEP 2020, the Curriculum Development and Studies wing of DIET, which has been allotted to Academic Unit-II of Divison Office-Jammu, must initiate dialogue with Samagra Shiksha, School Education Department, Skill Development Department, and Department of Handicrafts and Handloom. This would assist in including important vocational crafts like kani-pashmina, walnut wood carving, namda, and carpet weaving in the school curriculum.

The findings point to the critical need for effective communication, coordination, and consultation among the various departments to come forward and implement NEP-2020 in vocational education. The government needs to continuously monitor the schools to follow the hub and spoke model. The schools designated as 'hubs' must provide the infrastructure, including vocational labs and experienced resource pools. There is a need for proper utilization of resources in the labs by the students of the schools designated as Spoke Schools for vocational training needs. To impart vocational training in local crafts and celebrate regional culture, vocational labs should be well equipped with the learning materials to gain hands-on experience about the area-specific crafts.

Exposure to a craft environment by way of visits to the local karkhaanas would help in promoting vocational crafts.

DIETs are important district-level academic and resource enrichment centers for educational discourse. The inclusion of vocational education in the curriculum is still in its infancy stage. Therefore, the government must empower the teacher education institutions in terms of infrastructure, human resources, and an environment in which the regional crafts flourish. It becomes imperative for policymakers and educational planners to explore the areas of research that would help identify economic viability as well as regional aspirations in terms of vocational education.

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Adoption of AI tools in Academic Work: Exploring the Intention of Fashion Students through Technology Acceptance Model

M. Krishnakumar

Abstract

Artificial intelligence (AI) is bringing significant transformations to how organizations and businesses are delivering products or services and developing customer relationships. Numerous users are embracing AI tools across diverse fields. AI has been significantly influencing all aspects of the fashion industry, from the creative design process to product development to the ever-evolving consumer behavior. For more than a decade, the fashion industry has been using AI to forecast fashion trends and customer needs. AI is also making a significant impact in academia, and the scope for artificial intelligence in education is extensive. AI tools provide effective support to students in their learning and academic tasks, such as assignments and projects. Recently, there have been several debates about the impact of AI usage on academics and related activities, particularly in the context of students' academic work. The use of AI in fashion education appears promising for developing design explorations and other related activities. Using the Technology Acceptance Model (TAM), this study investigates the relationship between the students' belief in AI usage for fashion learning and their behavioral intention to adopt AI for their academic-related work. The primary data was collected using a structured questionnaire based on the Technology Acceptance Model (TAM). A total of 112 responses from fashion students were used to determine the correlation between their beliefs about AI and their behavioral intentions towards it. The SEM analysis discovered that beliefs on AI tools and perceived usefulness of AI tools have a significant positive impact on the behavioral intention of using AI tools for academic works, both directly and indirectly. Based on the findings, the researcher has attempted to offer managerial suggestions to stakeholders, including students, educational institutions, and AI tool developers. The study suggests clear rules and policies for integrating and using AI tools in students' academic work.

Keywords: Artificial intelligence tools, beliefs, behavioral intention, fashion students, perceived ease of use, technology acceptance model, perceived usefulness

Introduction

Fashion field is one of the leading industries which contribute significantly to the World economy with as estimated value of US$ 3000 billion (O'Connell, 2019; Fashion United, 2019). Artificial Intelligence (AI) an academic discipline that was established in the field of computer science in 1956, which enabled computers and machines to operate intelligently. AI gives an extensive impact towards all the dimensions of fashion field and more than a decade, AI has been adopted in the fashion industry for forecasting fashion trends and customer needs (Csanák, 2020). AI is also having a considerable impact in the academic field, and the scope for its integration in education is extensive (Anderson, Boyle and Reiser, 1985; Baker, 2016; Roll, Russell and Gašević, 2018; Seo et al., 2020b; VanLehn, 2011), varying from custom-made learning for students and automation of teachers' repetitive tasks to AI-powered evaluations and appraisals (Popenici and Kerr, 2017). To say, AI teaching systems can deliver personalized assistance, support, or feedback through customized learning content based on student-specific learning capabilities or knowledge levels (Hwang et al., 2020). AI teaching assistants help teachers save time to answer learners' simple, repetitive questions in online discussion platforms (Goel and Polepeddi, 2016). AI data analytics enables educators to understand students' performance, progress, and potential (Roll and Winne, 2015; Fong et al., 2019; Seo et al., 2021; Holstein et al., 2018). Similarly, students have started using the AI for their academic learning and works to complete their assignments, exercises etc., more effectively. Scholars those who are pursuing creative or design education have developed several beliefs and attitudes towards the adoption of AI for their academic learning and they have started adopting the AI in their academic work. In fashion education the students have to develop creative designs, illustrations, trend forecasts etc., where the scope of application of AI by the students is very broad. TAM postulates that perceptions about innovation are instrumental in developing attitudes that ultimately lead to behavior in the use of the system. The Technology Acceptance Model (Davis, 1989) was considered to be the most useful to predict consumer acceptance of IT. This study adopts the TAM to understand and observe the AI diffusion in the academic learning and works by fashion students. This study is aimed at to understand the fashion students' beliefs towards the AI usage in fashion learning, evaluate the perceived ease of use of the AI tools for their academic work, analyze the perceived usefulness of AI tools in their learning and work and finally examine the impact of these variables on behavioral intention towards implementation of AI tools in the near future.

Review of Literature and Hypothesis Development

Artificial intelligence

AI encapsulates machine learning, natural language processing, or different kinds of algorithms (Zawacki-Richter et al., 2019). According to Wartman and Combs (2018),

people generally think of artificial intelligence as the capability of machines or computers to think and perform as humans, representing efforts towards computerized systems to replicate the human mind and actions. Mohammed and Watson (2019) define artificial intelligence as the skillful imitation of human behavior or mind by tools or programs. Ng (2017) believes that artificial intelligence is a new type of electricity for this age. Artificial intelligence would be the fundamental building block of the Fifth Industrial Revolution by proving itself to be a powerful factor in ensuring economic development (Golić, 2019). The comprehensive development of artificial intelligence will have an impact on macroenvironments, from the restructuring of the social order in the broadest sense to the education and administration processes in classes and schools. The growth of AI could significantly impact academic institutions, particularly those that adapt to the digital era and combine 21st century skills into their primary programs (Gocen and Aydemir, 2020). Karsenti (2019) suggests that new forms of technology will fill our lives and captivate our youth, and this case may leave educational institutions with no choice but to make space for them.

Artificial intelligence in education

AI systems replicate human intelligence processes like learning and reasoning to perform tasks (Gillath et al., 2021; Glikson and Woolley, 2020; Watson, 2019). AI-powered educational systems provide new potentials such as automatization of organizational or administrative tasks, generation of course content, or learner's evaluation and feedback (Chassignol et al., 2018; Bryant et al., 2020). Educational systems and technologies powered by AI have the potential to actively develop learners, and their acceptance appears to be widespread (Williams, 2015). Recent development of AI and its applications in education have the potential to transform educational tools, tasks, and roles (Akgun and Greenhow, 2022; Ninaus and Sailer, 2022). Educational technologies seem accepted by educators in their teaching, and studies show that attitudes of US educators towards educational technologies are generally positive (Williams, 2015). Similarly, about 80% of educators in France and German academicians use educational technologies in their teaching (Sailer, Murböck, and Fischer, 2021). Manyika et al. (2017) emphasize that excellent academicians will continue to exist in the future, teaching classes designed to boost learners' intelligence, creativity, and communication skills. According to Haseski (2019), the adoption of AI in the academic field will make learning more personal, provide effective learning experiences, enable students to discover their talents, improve their creativity, and reduce educators' workload. With increased

adoption of artificial intelligence in education, significant transformations are expected in the educational systems and their processes. Sekeroglu, Dimililer, and Tuncal (2019) state that artificial intelligence could support educators to improve customized teaching for their students. Artificial intelligence can give access to appropriate and enhanced learning possibilities for excluded people and communities, people with disabilities, etc. (Pedró et al., 2019). Several studies demonstrate that AI techniques can deliver productive and customized approaches (Mohammed and Watson, 2019). Though teachers' involvement is inevitable for quality education, artificial intelligence facilitates more education and quality at all levels, particularly by providing personalization (Grosz and Stone, 2018).

AI in fashion

Artificial intelligence develops a combination of techniques that are very appropriate in the fashion industry. AI has the ability to handle big data with the attributes of uncertainty, complexity, and volatility in the fashion field and its related areas (Ren, Hui and Choi, 2018). AI techniques enable the effective analysis of various types of data, including point-of-sale (POS) data, social media data, textile physical data, virtual 3D data, and sensory data. In the fashion industry, AI technologies provide manufacturers with automated solutions. Several fashion brands and retailers have already begun utilizing AI techniques to accurately predict fashion trends that customers are likely to purchase. Some AI methods and AI-based mixed methods have shown effectiveness in forecasting fashion sales performance (Schmelzer, 2019).

Technology Acceptance Model

The Technology Acceptance Model (TAM) has emerged as a powerful model among models investigating IT adoption, including innovation diffusion and reasoned action theory (Lee, Kozar and Larsen, 2003). TAM examines that beliefs about innovation play a crucial role in shaping attitudes, which in turn influence the behavior of adopting the system. TAM demonstrates that perceived usefulness and perceived ease of use stimulate the users' intention to utilize a technology (Davis, 1985; Davis, 1989; Davis, Bagozzi, and Warshaw, 1992). Numerous technology acceptance studies have cited TAM as a crucial model for defining and predicting system use (Lee, Kozar and Larsen, 2003). Also, few researchers have effectively utilized TAM to study Internet-related technology acceptance (Davis, 1993; Segars and Grover, 1993; Tornatzky and Klein, 1982). Researchers have also utilized TAM to examine the adoption of technology in the academic field. Drennan, Kennedy, and Pisarksi (2005) find that positive perceptions of ease of usage

and benefits of online flexible learning tools influence student satisfaction. In the digital educational environment setup, personality attributes like personal innovative behavior in the domain of information technology and computer apprehension are the two variables studied in the virtual learning environment (VLE) framework. Van Raaij and Schepersa (2008) reveal that perceived usefulness significantly affects VLE adoption. Many scholars have adopted TAM in e-learning acceptance (Weerasinghe and Hindagolla, 2017; Shen and Eder, 2009) and utilization of mobile learning technologies (Mugo et al., 2017; Kim et al., 2013).

Beliefs in AI tools

Fishbein and Ajzen (1975) describe beliefs as constructs that ''represent the information'' about an object at the cognitive level, and explain that attitudes are the emotional responses that correlate regularly with cognitive beliefs. Researchers have identified a significant association between trust beliefs and trust intentions within consumers (McKnight, Cummings and Chervany, 1998). Just as attitudes and beliefs influence individuals' decision-making processes in their daily routine, they also have a significant influence on the integration of technology. This explains the direct effect attitudes and beliefs play in the technology integration process (Chen, 2008). Salleh et al. (2010) express that intentions and perceptions are major influencers on beliefs and attitudes. Eagly and Chaiken (1993) assert that beliefs serve as the fundamental building blocks of attitudes, explaining them as the subjective likelihood that a particular object possesses a particular attribute. Bhattacherjee and Premkumar (2004) explain that user beliefs and attitudes play an important role in influencing the use of information technology. They suggest that these beliefs can evolve over time as users gain initial experience with IT usage, leading to subsequent changes in their IT usage behavior. Several scholars have identified a significant positive association between beliefs and technology integration (Kagan, 1992; Pajares, 1992; Chan and Elliott, 2004; Kim, et al., 2013; Ottenbreit-Leftwich, et al., 2010), as well as adoption among teachers (Ertmer, 2005; Niederhauser and Stoddart, 2001). Judson (2006) suggests that analyzing the connection between beliefs and technology integration may help to explain the association. Based on this, the following hypotheses are formulated:

H1: Beliefs in AI tools have a significant positive effect on perceived ease of use (PEOU) of AI tools.

H2: Beliefs in AI tools have a significant positive effect on perceived usefulness (PU) of AI tools.

H3: Beliefs in AI tools have a positive influence on fashion students' behavioral intention (BI) to use AI tools for academic work.

Perceived ease of use

According to Davis (1985), perceived ease of use is defined as the extent to which an individual trusts effort-free technology usage. Therefore, in the late 20th century, Loiacono (2000) used the concept of perceived ease of use to measure the ease of reading and understanding of information displays. Belanche, Casolo, and Guinalu (2012) reveal that in the retail business context, the ease-of-use website predicted customers' satisfaction with the purchase experience and purchase intention. When it pertains to accepting AI tools in academic work, students' perception of ease of use shapes their perception of how effortless it is to use these tools for academic tasks without significant effort. Hence, the following hypotheses are formulated:

H4: Perceived ease of using AI tools positively influences perceived usefulness to use AI tools for academic work.

H5: Perceived ease of using AI tools positively influences fashion students' behavioral intention to use AI tools for academic work.

Perceived usefulness

Perceived usefulness refers to a user's belief that a particular technology or system would enhance their career performance, and it has a positive impact on their behavioral intention (Davis, 1989). Several scholars support this association between perceived usefulness and behavioral intention (Bhatiasevi and Yoopetch, 2015). Within the framework of adopting AI tools in academic work, perceived usefulness pertains to how fashion students perceive its effectiveness and efficiency in their academic work. Users perceive the degree to which they can access information through a particular technology (Gefen and Straub, 2000). Previous studies have shown that perceived effectiveness aids in the use of social networks for collaborative learning (Davis, 1989). Hence, the following hypothesis is proposed:

H6: Perceived ease of using AI tools positively influences fashion students' behavioral intention to use AI tools for academic work.

Theoretical framework

The theoretical framework was based on the technology acceptance model developed by Davis (1989). Figure 1 illustrates the research model for this study.
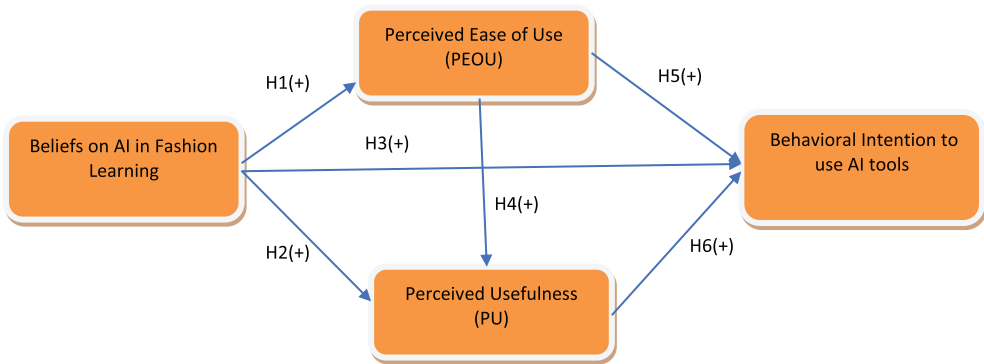
Figure 1: Theoretical framework for the study

Methodology

This research design is exploratory in nature. The convenience sampling technique was selected for this research to include fashion students currently enrolled in an offline fashion course. To maintain respondents' anonymity and overcome time and place constraints, the study conducted a web-based survey, which made it easier to contact respondents than other survey methods such as personal and telephone interviews and other self-administered survey techniques. A total of 112 usable responses were received. To provide the respondents' profile, descriptive statistics were applied. Data analysis has been done using SPSS 16.0 and SmartPLS.

Measurement development

A structured questionnaire was developed to measure the beliefs of the respondents, the perceived ease of use of the AI tools, the perceived usefulness of the AI tools in their academic learning and work, and their behavioral intention to further utilize AI tools for their academic learning. The beliefs on using AI tools for fashion learning were measured by six items; the perceived ease of use was measured by five items; the perceived usefulness was measured by five items; and the behavioral intention was measured by two items. A 5-point Likert scale was used to score all these items, ranging from strongly disagree (1) to strongly agree (5). The demographic section of the questionnaire included variables such as age, gender, type of course (UG, PG, Others), year of study, location, and frequency of AI usage.

Data Analysis

Descriptive statistics

The demographic descriptive analysis in Table 1 shows that out of 112 responses, the majority of the respondents were female (86.6 percent), and 62.5 percent belonged to the 21-23 year age group. Majority of the respondents were pursuing a PG degree (69.6 percent), and half of them were in their first year. 72.3 percent of the respondents were from Tier 2 cities, and in terms of AI usage, 46.4 percent had frequently used it, followed by 44.6 percent who had sometimes used AI.

Table 1: Demographic description of the respondents

		Frequency	Percent
Gender	Male	15	13.4
	Female	97	86.6
	Total	112	100
Age	18 - 20	19	17
	21 - 23	70	62.5
	24 - 26	17	15.2
	Above 26	6	5.4
	Total	112	100
Course	UG	34	30.4
	PG	78	69.6
	Total	112	100
Year	1st Year	56	50
	2nd year	24	21.4
	3rd year	28	25
	4th year	4	3.6
	Total	112	100
Location	Tier 1	1	0.9
	Tier 2	81	72.3
	Tier 3	30	26.8
	Total	112	100
Usage Frequency	Frequently	52	46.4
	Sometimes	50	44.6
	Rarely	10	8.9
	Total	112	100

Source: Primary data

Reliability statistics

The study uses Cronbach's alpha to check the internal reliability of the questionnaire. Composite reliability, also known as construct reliability, evaluates a measure's internal consistency by assessing its response to its items. It only applies to measuring instruments that contain multiple items. A construct captures the Average Variance Extracted (AVE) metric, which is proportional to the amount of variance due to measurement error.

From Table 2, it is inferred that the Cronbach's alpha for all the variables is greater than 0.7, which indicates a relatively high internal reliability for the questionnaire. It suggests that the questionnaire's reliability is acceptable. Cronbach's alpha results are greater than 0.7, composite reliability is greater than 0.7, and AVE values are above 0.5, indicating that the data is reliable and valid.

Table 2: Reliability statistics

Variables	No. of items	Cronbach's alpha	Composite reliability	Average Variance Extracted (AVE)
Beliefs on AI for Fashion Learning	6	0.85	0.891	0.581
Perceived Ease of Use	5	0.847	0.890	0.619
Perceived Usefulness	5	0.844	0.890	0.621
Behavioral Intention to Use	2	0.937	0.969	0.941

Source: Primary data

KMO and Bartlett's test

KMO and Bartlett's test of sphericity were done to assess the sampling adequacy and fit of the data for analysis. From Table 3, it is inferred that the value of KMO statistics for all the variables is above 0.5. The Bartlett's tests approximate chi-square values for belief in AI (χ^2=303.255, df-15, p<.05), perceived ease of use (PEOU) (χ^2=244.373, df-10, p<.05), perceived usefulness (PU) (χ^2=235.131, df-10, p<.05), and behavioral intention (BI) (χ^2=164.615, df-1, p<.05). For all the variables, the value of KMO statistics was above the acceptable limit of 0.5, and Bartlett's tests were significant, indicating the suitability of data for data analysis.

Table 3: KMO and Bartlett's test

S.No.	Constructs	KMO Measure of Sampling Adequacy	Bartlett's Test of Sphericity		
			Approx. Chi-Square	df	Sig.
1	Beliefs on AI for Fashion Learning	0.813	303.255	15	.000
2	Perceived Ease of Use	0.812	244.373	10	.000
3	Perceived Usefulness	0.754	235.131	10	.000
4	Behavioral Intention to Use	0.510	164.615	1	.000

Source: Primary Data; KMO - Kaiser-Meyer-Olkin measure of sampling adequacy

Simple regression analysis

Simple regression analysis was conducted to test the individual effect of independent variables on the dependent variables.

According to Table 4, the independent variable belief in AI (β = 0.573, t = 6.512; $p < .05$) has a significant positive effect on perceived ease of use (PEOU) as a dependent variable. This reinforces Hypothesis H1.

Perceived usefulness (PU) as a dependent variable, the independent variables Belief on AI (β = 0.724, t = 11.021; $p < .05$), and Perceived Ease of Use (β = 0.666, t = 9.358; $p < .05$) have a significant positive effect on the perceived usefulness (PU). This supports hypotheses H2 and H4.

Behavioral Intention (BI) as a dependent variable, the variables Belief on AI (β = 0.662, t = 9.26; $p < .05$), Perceived Ease of Use (β = 0.496, t = 5.991, $p < .05$), and Perceived Usefulness (β = 0.754, t = 12.038, $p < .05$) have a significant positive effect on Behavioral Intention (BI). This supports hypotheses H3, H5, and H6.

Table 4: Simple regression analysis

Independent Variables	PEOU			PU			BI		
	Beta β	t	Sig	Beta β	t	Sig	Beta β	t	Sig
Beliefs	0.573	6.512	0.000	0.724	11.021	0.000	0.662	9.26	0.000
PEOU	-	-	-	0.666	9.358	0.000	0.496	5.991	0.000
PU	-	-	-	-	-	-	0.754	12.038	0.000

Source: Primary data

Structural equation analysis

The SEM analysis was conducted using SmartPLS v.4.1.0.0 software. The present study selected a single-stage analysis with simultaneous estimation of both structural and measurement models, as the model is theoretically based on latent variables and high-reliability measures.

Measurement model

Table 5 shows the results of the measurement model. For all the items, the loadings were above 0.5. For the measurement model, the factor loadings above 0.4 are considered satisfactory (Williams, Onsman and Brown, 2010; Fabrigar et al., 1999; Yong and Pearce, 2013). The factor loadings of all the items in this model were above 0.5. This indicates that all the items under all the factors are confirmed.

Table 5: Measurement model

Variables	Items	Loadings
Beliefs on AI for Fashion Learning	1.1	0.759
	1.2	0.739
	1.3	0.851
	1.4	0.799
	1.5	0.854
	1.6	0.521
Perceived Ease of Use (PEOU)	2.1	0.765
	2.2	0.853
	2.3	0.803
	2.4	0.671
	2.5	0.829
Perceived Usefulness (PU)	3.1	0.721
	3.2	0.875
	3.3	0.840
	3.4	0.811
	3.5	0.675
Behavioral Intention to Use (BI)	4.1	0.970
	4.2	0.970

Source: Primary data

Structural equation model

The structural equation model was carried out to study the hypothesized relationship among latent variables. Figure 2 illustrates the structural equation model showing significant and insignificant paths using standardized coefficients.
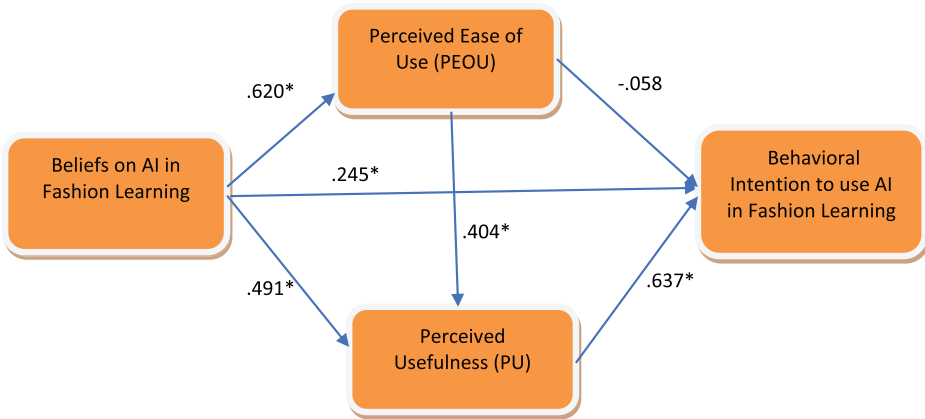

Figure 2: Structural equation model

SEM model fit

Table 6 contains the model fit indices for the SEM. The model is judged to be a good match when the standardized root mean squared residual (SRMR) is smaller than or equal to 0.08 (Jöreskog and Dag, 1996) and less than 0.10 (Henseler et al., 2014). This research model's standardized root mean squared residual (SRMR) is 0.081, indicating that the fit is reasonably good. The higher the fit, the nearer the NFI is to 1 (Kumar and Upadhaya 2017). The calculated and saturated model in this research has an NFI value of 0.812, which is in close proximity to 1. It denotes that the SEM model is a good fit. Similarly, the study model meets all of the general fit indices. These statistics and indices can be utilized to assess the model fit (Jöreskog and Dag, 1996).

Table 6: SEM model fit indices

	Saturated model	Estimated model
SRMR	0.081	0.081
d_ULS	1.221	1.221
d_G	0.619	0.619
Chi-square	383.437	383.437
NFI	0.812	0.812

Source: Primary data

SEM direct effect

Table 7 shows the direct effect of the research variables on the research model, including their standard deviation (SD), t-statistics, and p-value.

The path coefficients for the variables Belief in AI (B) and Perceived Ease of Use (PEOU) (γ =.618, t = 9.961, p<.05) and Belief in AI (B) and Perceived Usefulness (PU) (γ =.489, t = 5.914, p<.05) were both positive and significant. This result supports hypotheses H1 and H2. However, the path coefficients between belief in AI and behavioral intention (BI) (γ =.245, t = 1.939, p >.05) were positive but not significant. This result partially supports Hypothesis H3. This shows that belief in AI (B) has a partial direct effect on behavioral intention (BI).

The path values for perceived ease of use (PEOU) and perceived usefulness (PU) (γ = .404, t = 4.936, p<.05) were positive and significant. This finding supports Hypothesis H4. However, the results for perceived ease of use (PEOU) and behavioral intention (BI) were negative and not significant. This result does not support Hypothesis H5. Thus, H5 is not supported. This shows that perceived ease of use (PEOU) does not have a direct effect on behavioral intention (BI). The path coefficients for perceived usefulness and behavioral intention (BI) (γ = .637, t = 4.726, p<.05) were positive and significant. This finding supports Hypothesis H6. The R2 values for the factors perceived ease of use are 0.376, perceived usefulness is 0.640, and behavioral intention is 0.617.

Table 7: Structural equation model – direct effect

Path	St. Beta	SD	T-stat	P-value	Decision
B > BI	0.245	0.126	1.939	0.052	Partially Supported
B > PEOU	0.620	0.062	9.961	0.000	Supported
B > PU	0.491	0.083	5.914	0.000	Supported
PEOU > BI	-0.058	0.112	0.522	0.601	Not Supported
PEOU > PU	0.404	0.082	4.936	0.000	Supported
PU > BI	0.637	0.135	4.726	0.000	Supported
	R² value				
Perceived Ease of Use (PEOU)	0.376				
Perceived usefulness (PU)	0.640				
Behavioral Intention (BI)	0.617				

Source: Primary data

SEM indirect effect

Table 8 depicts the indirect effect of the variables in the research model, including their standard deviation (SD), t-statistics, and p-value. The result reveals that the indirect paths i) B > PU > BI and ii) B > PEOU > PU > BI have significant effects, while path i) B > PEOU > BI is not significant.

Table 8: Structural equation model – indirect effect

Indirect Effect	Estimate Coefficient	SD	T-stat	P-value	Decision
B > PU > BI	0.311	0.087	3.587	0.000	Significant
B > PEOU > BI	-0.036	0.071	0.508	0.612	Not Significant
B > PEOU > PU > BI	0.159	0.049	3.227	0.001	Significant

Source: Primary data

Discussion

The study aimed to examine how beliefs on AI in fashion learning, the perceived ease of use of AI tools, and the perceived usefulness of AI tools influence the behavioral intention of fashion students to utilize AI tools for their academic activities. A simple regression analysis was conducted to examine the individual influence of variables on the dependent variable. The results revealed that beliefs about AI tools have a significant positive influence on perceived ease of use, perceived usefulness, and behavioral intention. Further, perceived ease of use has a significant positive effect on perceived usefulness and behavioral intention. Also, perceived usefulness has a significant positive effect on behavioral intention.

The findings demonstrate that belief in AI tools has a partial direct effect on behavioral intention but has an indirect positive effect on behavioral intention through perceived usefulness (PU). Perceived ease of use (PEOU) does not have a significant positive influence on behavioral intention (BI), both in direct and indirect ways. Perceived usefulness (PU), both directly and indirectly, has a significant positive impact on behavioral intention (BI). In this research framework, perceived usefulness (PU) plays a crucial role as a mediator in shaping the intention of fashion students to utilize AI tools for their academic tasks. The analysis mostly aligns with the hypotheses while also revealing some unique features in the cognitive processes. Contrary to the general statement, fashion students' behavioral intention to use AI tools for academic work does not directly correlate with their beliefs about these tools. Instead, the behavioral

intention to use AI tools depends primarily on perceived usefulness, not perceived ease of use. This finding shows that the fashion students are willing to use AI tools if they are convinced of the usefulness of the AI tools in their academic work. The findings reveal a close relationship between the behavioral intention to use AI tools in academic work among fashion students and their perceived usefulness and beliefs. Therefore, awareness of AI tools needs to be more effectively done through trust enhancers, such as involving trusted professional sources, so that the beliefs on AI tools among the fashion students would increase. For fashion students to adopt AI tools in their academic work in the future, they need to gain experiential knowledge from reliable and highly credible user experiences, which can lead to a higher acceptance of AI tools.

The study's findings validate the TAM model's theoretical component, indicating that users' beliefs, attitudes, and perceptions of the new technology's ease of use and usefulness shape their adoption of new technologies. It can be concluded that fashion students who hold positive beliefs about AI tools demonstrate a higher behavioral intention to utilize them. Fashion students, who excel in the field of creativity, can utilize AI tools to enhance their creativity, particularly in the area of design thinking, thereby providing effective design solutions. Educators can encourage fashion students to use AI tools for fashion learning and related academic activities. However, appropriate ethical guidelines may be developed for the use of AI tools in student learning activities. It is also recommended that students use AI tools in the final phase of academic activities, after they have independently completed their initial contributions. Once the student has made their initial contribution, they can utilize AI tools in the final phase to improve their final designs, or they can propose or recommend design solutions. Fashion students should be provided with adequate training on various AI tools, which are highly beneficial for the fashion industry, to ensure their effective and ethical use. When using AI tools for academic work, ethical considerations are the primary concern. As AI increasingly becomes a part of regular practice, it is expected that (a) fashion students should receive courses or training, and (b) the curriculum for fashion students should be updated with a significant focus on the applications of AI tools. Fashion students and educators should undergo proper training to understand and utilize the AI implementation in fashion education. The curriculum for specializations in fashion education, where AI integration becomes a regular practice, would also require an update to incorporate new pedagogical approaches. It's crucial for fashion students and educators to understand the various AI tools and software under development. High-level committees should develop proper regulations and guidelines for using AI tools in learning and academic activities.

Conclusion

This study aimed to contribute knowledge regarding how the antecedents, namely beliefs on AI tools, perceived ease of use, and perceived usefulness of AI tools, drive behavioral intention to use AI tools for academic activities by fashion students via the Technology Acceptance Model. The findings demonstrated that the proposed model effectively explained the influencers and processes behind fashion students' behavioral intention to use AI tools for their academic work. The suggested model provides a fundamental framework to understand how fashion students can accept or reject AI in fashion learning and related academic work. The research findings have implications for using AI tools for educational purposes and for general assimilation of AI tools into the fashion education field. Empirical evidence demonstrates that beliefs about AI tools and their perceived usefulness significantly influence the behavioral intention to use them. This article also adds to the existing literature on technology acceptance research in educational settings.

Considering that this study used researcher-controlled sampling, it is important to carefully generalize the study findings. Future researchers must validate the present study's findings using a more representative probability-based sample. The current research focuses on the behavioral intention behind the use of AI tools by fashion students. Thus, future studies may validate the findings in the context of other types of students. The model can incorporate several other variables such as peer influence, gadget usage skills, academic involvement, and academic performance.

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Cross-Cultural Collaboration as a Pedagogical Approach in Fashion Design: Insights from an Industry-Academia Partnership

Shresha

Abstract

In today's fast-changing world, academic institutions are gearing toward incorporating diverse teaching methods and sustainability principles to engage Gen Z students and enhance their learning experiences. Through a practice-led exploratory case study, this research investigates the effectiveness of cross-cultural collaboration as a pedagogical tool in fashion design. The study focuses on a unique collaboration that involved multiple stakeholders, including a UK retail brand, an Indian fashion institute, a local artisan community, and a production partner who co-developed a limited-edition clothing collection.

This research examines the learning experience that resulted from this collaboration, demonstrating how cross-cultural, industry-academia partnerships can substantially enhance fashion design education. The study offers valuable insights for developing globally focused curricula that incorporate real-world collaboration, cultural exchange, and sustainability. Engaging students in collaborative projects that involve practical application and exposure to diverse perspectives can enhance the relevance and impact of fashion education, especially for Gen Z, who are increasingly prioritizing careers driven by purpose. The research highlights how collaboration and co-creation among various stakeholders enrich experiential and contextual learning in fashion education. This method fosters creativity and innovation while enhancing students' understanding of global fashion systems, traditional craftsmanship, and sustainable production techniques. These activities not only improve design capabilities but also align with the evolving objectives of the fashion industry, such as promoting sustainability and cultural awareness. Additionally, the partnerships encourage critical thinking, ethical decision-making, and adaptability—skills essential for future designers in an ever-changing, globalized market.

Incorporating cross-cultural partnerships into fashion design education presents a progressive strategy for equipping students to address the challenges and opportunities in an evolving industry. By immersing students in meaningful, globally relevant projects, fashion education can better prepare the next generation of designers to contribute to a more sustainable and culturally sensitive fashion landscape. This approach aligns educational practices and the learning experience with the industry needs and the socially conscious values of Gen Z.

Keywords: Co-creation, collaboration, fashion design, craft, fashion pedagogy

Introduction

The interplay between sustainability and fashion represents a complex and vital relationship. The fashion industry, one of the world's largest, exerts a significant influence on the global workforce, the environment, and the economy (Cline, 2019). Over the 20th century, clothing evolved from durable items to disposable commodities, with the fashion industry undergoing extensive globalization. The rise of "fast fashion" in the last 15 years has doubled production, making fashion more accessible (Ellen MacArthur Foundation, 2017). The environmental impact of fashion, including water pollution, waste, and greenhouse gas emissions (Fletcher, 2014), and its effects on worker rights, social justice, and economic sustainability are well documented. Given their vast impact and concealed production methods, greater transparency in the transition from resources to products is imperative.

Fashion is prominent in the global creative industry. The creative economy encompasses economic sectors that generate and harness creativity and knowledge. This involves adding economic value to products and services through creative content (Howkins, 2013). In this era, a product's worth is no longer tied to raw materials or production methods but is determined by creativity and innovation (Howkins, 2013). Strategies, such as co-creation and collaboration, are actively employed to enhance a company's value (Prahalad and Ramaswamy, 2004). Co-creation, a novel approach to innovation, advocates the creation of products and experiences through collaboration within an innovation network that involves companies, consumers, suppliers, and channel partners. This approach can be pivotal in promoting sustainability in the fashion industry through three strategies. First, it minimizes waste and overproduction by tailoring production to customer preferences and optimizing resource utilization. Second, it enhances product durability through customer-specific design and provides repair and maintenance services. Lastly, co-creation nurtures a sense of ownership and community,

adding emotional and social value to fashion products and fostering sustainability and longevity through attachment and shared identity.

Given the burgeoning challenges faced by the industry in addressing environmental issues, integrating sustainability into fashion education is crucial. The academic community and industry are increasingly recognizing the importance of pedagogical approaches that promote cross-cultural collaboration, co-creation, and experiential learning for their potential to address these challenges. This study investigates such an approach through a qualitative case study of a collaborative project involving a global retail brand, academic partner, craft community, and production partner. This research aims to characterize the learning experiences within this cross-cultural collaboration and explore how these insights can enrich fashion design pedagogy.

Literature Review

As a significant contributor to social and environmental issues, the fashion industry is under increasing scrutiny (Kozlowski, Bardecki and Searcy, 2012). It is a $3 trillion worldwide giant, accounting for 2 percent of the global GDP (GlobalData, 2021), with 60–75 million people employed globally in the textile, apparel, and footwear industries. This places the fashion business as the third largest industry worldwide (cleanclothes.org, 2023). The integration of sustainability into new product development is still largely unexplored, despite the rising pressure on businesses to include environmental and social obligations in their business plans (Dangelico and Pujari, 2010).

Over the past two decades, sustainable clothing and textiles have gained attention in numerous academic fields, including consumer behavior (Niinimäki and Koskinen, 2011; Niinimäki, 2011; Klepp and Bjerck, 2014; Laitala and Klepp, 2011; Klepp, 2008), design thinking (Fletcher and Grose, 2012), and practical applications (Gwilt and Rissanen, 2011). The fashion industry must change its relationship with consumers to address finite resources, which requires significant adjustments in apparel design, production, usage, and fashion design education (Riisberg, et al., 2014).

Maslow's hierarchy of needs (1943) suggests that, as people meet their basic material requirements, they shift their focus toward non-material goals. Understanding this shift is crucial for the fashion industry to adapt to changing consumer demands and to shift their offerings to enrich the experience of value-driven customers (Pink, 2006). Brands and designers are increasingly adopting collaboration and co-creation as design practices in response to changing demands to generate novelty deeply rooted in values and emotions. The future fashion designer's role extends beyond being an "aesthetic

provider" to that of a practitioner who engages in the design process with heightened empathy and a broader perspective (Faerm, 2015). Designers are increasingly working internationally owing to globalization and advances in communication and collaboration technology (Ye, McKelvey and Jefferies, 2011). Collaborative experiences nurture substantial strides in thought and innovation (Pink, 2006).

According to Frascara (2007), design students require increased exposure to emerging fields and practices in the design profession. Engaging in complex projects, especially those that immerse them in a global context, fosters enhanced growth and profound learning experiences. These initiatives should push beyond familiar territories, prioritizing communal, collaborative, and community-driven thinking and pedagogical methods. The fashion design pedagogy landscape has evolved significantly, transitioning from traditional approaches to incorporating emerging methodologies.

Traditional fashion design education emphasizes hands-on learning, craftsmanship, and technical skills, such as pattern making, sewing, and textile knowledge (Kawamura, 2011). This method often involves studio-based learning, in which students work closely with experienced instructors, fostering strong mentor-student relationships and peer learning (Aspers, 2010). The curriculum deeply integrates historical and cultural contexts, equipping students with a comprehensive understanding of fashion's evolution and societal implications (Craik, 2009). In contrast, emerging fashion design pedagogy integrates digital tools and technologies, such as CAD software, 3D printing, and virtual reality, transforming the design and prototyping processes (Gaimster, 2011). The 21st-century design education in fashion, with its heightened emphasis on sustainability and ethics, is integrating value-driven strategies in its curricula by including modules on sustainable materials, ethical production methods, and the environmental impact of fashion (Black, 2012). Additionally, modern programs adopt interdisciplinary approaches, merging fashion with business, technology, and social sciences, to prepare students for diverse career paths within the industry (Kunz and Garner, 2011). Collaborative learning and global perspectives are also central to emerging pedagogy, with students engaging in group projects, industry partnerships, and international studies (Gwilt, 2014). Moreover, there is a strong focus on entrepreneurship and innovation, encouraging students to develop their brands and explore new business strategies (Rosenau and Wilson, 2014).

A significant component of the emerging fashion pedagogy is the emphasis on cross-cultural collaboration and co-creation. These approaches are becoming increasingly prevalent in fashion education, with institutions fostering international partnerships

and exchange programs that enable students to work with peers from different cultural backgrounds. Such collaborations enhance students' cultural awareness, global perspectives, and essential skills in today's interconnected fashion industry (Stevenson, 2019). For example, initiatives such as the Global Fashion Exchange and collaborative projects between Western fashion schools and those in Asia or Africa have led to innovative design solutions that merge diverse cultural aesthetics and techniques (Smith, 2018). These experiences not only enrich the educational process but also prepare students for the global marketplace by fostering an understanding of diverse consumer bases and cultural nuances (Martínez, et al. 2010).

Contemporary design education increasingly emphasizes the integration of theory and practice to cultivate critical thinking, creativity, and practical skills for optimizing design learning (Lawson, 2005; Oxman, 2004). This highlights the evolving trends in design education and the critical role of practice-based learning in fostering essential skills, which brings collaboration and co-creation in the process. Literature reflects that these strategies bring two crucial learning conceptual models—situated learning and experiential learning. Situated learning, from Lave and Wenger's (1991) theory, emphasizes learning in real-world contexts, where students engage in authentic tasks, collaborate with industry partners, and tackle culturally relevant projects. This approach promotes socially and culturally aware design skills. Experiential learning, based on Kolb's (1984) model, focuses on learning through experience, reflection, and application. It encourages iterative problem-solving and direct engagement with materials and processes. Both approaches bridge academic knowledge with professional practice, helping students address design challenges with creativity and social responsibility.

Collaboration and co-creation are crucial for integrating situated and experiential learning in fashion pedagogy. These practices immerse students in real-world industry environments, bridging theory and practice while fostering creativity, problem-solving, and sustainability awareness. By working with industry professionals and artisans, students develop critical skills and gain a deeper understanding of global fashion systems and cultural diversity. Ultimately, collaboration and co-creation enhance students' ability to navigate the complexities of the fashion industry, preparing them to be adaptive and socially responsible designers.

Methodology

The study adopts a case study approach to uncover the learning experience of fashion design students engaged in a unique cross-cultural collaboration. The research revolves

around a partnership between Monsoon, a UK-based high-street fashion retailer, and the National Institute of Fashion Technology (NIFT) in New Delhi, India. This collaboration aimed to co-create a limited-edition women's clothing range, celebrating Monsoon's 50th anniversary and highlighting Indian cultural craftsmanship. The study involved various participants, including shortlisted fashion design students from NIFT New Delhi, design and sourcing team members from Monsoon, artisans of the Kutch craft community, faculty members from NIFT, and representatives from Mpact Sourcing Pvt. Ltd., India. The study aimed to answer the overarching question, "How does cross-cultural collaboration within fashion design education influence students' learning experience by way of cultural immersion, collaborative design process, co-creation, and reflective practices?"

The project's conceptual model is based on the interrelationship of four fundamental components:

- Cultural Immersion: Engaging with the Kutch craft community and the rich tapestry of Indian cultural craftsmanship to deepen students' comprehension of diverse cultural contexts in fashion design.

- Collaborative Design Process: The partnership between Monsoon, UK and the National Institute of Fashion Technology (NIFT) facilitates collaborative efforts among students, industry professionals, and artisans, highlighting the significance of collective creativity, and innovation.

- Co-Creation Process: The active involvement of students, artisans, and industry representatives in the design and production phases fosters a shared creative environment that enhances the outcomes and strengthens community ties.

- Reflective Practices: Implementing journaling, interviews, and observational techniques to enable students to critically reflect on their experiences, challenges, and learning outcomes throughout the collaborative project.

The research elucidates how these components interact to shape students' learning experiences, culminating in enhanced critical thinking, creativity, and practical skills in fashion design. Data was collected using multiple methods to comprehensively understand the learning experiences. The students documented their experiences, reflections, and design processes in journals during the project, which served as primary data sources. Semi-structured interviews were conducted with students, academic mentors, and industry partners to gather insights into the experiences, challenges, and perceived benefits of the collaboration. Additionally, the researcher observed

collaborative design and production processes, noting interactions, decision-making, and the integration of cultural elements. Design sketches, prototypes, and final products were collected to analyze the tangible outcomes of the collaboration.

Data was examined using thematic analysis to identify recurring themes and patterns in the learning experiences. The data from different sources (journals, interviews, observations, and artifacts) was triangulated to substantiate insights within the thematic areas of the study, ensuring the validity and reliability of the findings. The findings were presented in accordance with the theoretical models of situated and experiential learning. The initial coding of journals, interview transcripts, and observation notes helped identify significant statements and insights. These codes were then grouped into broader themes, encapsulating core aspects of learning such as social participation, contextual learning, collaboration, reflective practices, learning as a process, and experience as the source of learning.

The study adhered to ethical guidelines to protect the participants' rights and well-being. Participants were informed about the study's purpose, procedures, and right to withdraw at any time without penalty. The final report kept personal information and data confidential and anonymized. The findings were shared with the participants for feedback and validation to ensure the accuracy and representation of their experiences.

MONSOON X NIFT New Delhi: The Cross-Cultural Collaboration and Co-Creation

To commence the collaborative endeavor, Monsoon, a UK-based company, in conjunction with its Indian sourcing partner Mpact Sourcing Pvt. Ltd., took the proactive step of approaching the National Institute of Fashion Technology (NIFT) in New Delhi. The primary objective was to explore the potential for creative collaboration that would involve the enthusiastic participation of design students from the Fashion Design Department at NIFT and the skilled artisan community hailing from Kutch, India, specializing in textile crafts. The ultimate goal was to conceive and create an exclusive line of women's clothing. Under the Craft Cluster Initiative program (NIFT, n.d.), NIFT engages with several handloom and handicraft clusters across India to uplift them, incorporating craft studies as an integral part of its curriculum. The initiative has completed several projects with support from the Ministry of Textiles (MoT), Office of Development Commissioner (Handlooms), and Office of Development Commissioner (Handicrafts) in India. This advantage prompted Monsoon to decide on NIFT as their academic partner in India.

To ascertain the feasibility of this proposal, establish a shared foundation of understanding among the various stakeholders involved, and gain a deep appreciation of the rich craft culture of Kutch, a dedicated "inspiration trip" was meticulously planned and executed. This weeklong expedition served as a vital prelude to the collaborative project, allowing all parties to immerse themselves in the artistic and cultural milieu of Kutch, India. The team visited craft clusters for embroidery, weaving, printing, and dyeing in villages such as Anjar, Awadh Nagar, Sumrasar, Zura, Nirona, Kukma, and Ajrakhpur in Bhuj, Kutch (Figure 1).

Figure 1: 'Inspiration Trip'—a cultural immersion visit of delegates from the Monsoon women's wear department, Mpact Sourcing Pvt. Ltd., and fashion design faculty from NIFT New Delhi to various craft clusters in Kutch, Gujarat.

During this cultural journey, the team gathered visual and tactile samples that served as the foundation for the design direction of the clothing collection. These samples were chosen to resonate with urban customers while conveying the narratives of the Kutch community. Traditional handcrafted techniques, which are indicative of a deliberate and sustainable production process, were considered suitable for large-scale production. These materials were presented to the student participants to help them

grasp the essence of the design brief and the client's requirements. The goal was to inspire students and guide their choice of color palette and value-adding techniques in their design process (Figure 2). Additionally, the team connected with officials from the local government handloom and handicraft office in Bhuj, mapped out the artisans, and established relationships with non-governmental organizations (NGOs) operating in the area.
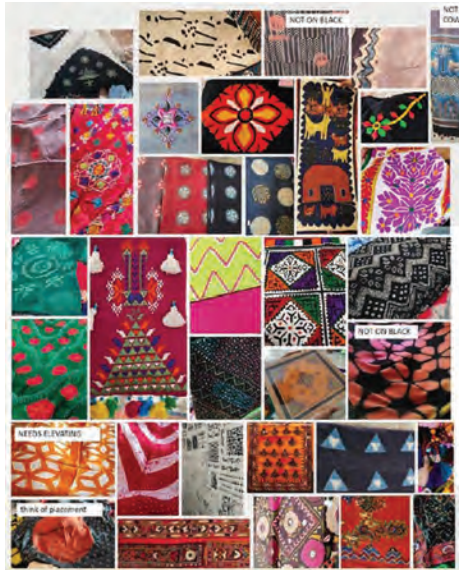

Figure 2: A visual board featuring tactile references created by Monsoon UK's design team. The board showcases various handcrafted textile techniques, such as *bandhej* (resist tie-dye), *rabari* embroidery, *ajrakh* (resist printing and dyeing), narrative textiles through applique work, and the contemporary fusion of clamp dyeing with *bandhej* and *ajrakh*.

Following their return from the craft cluster, a project briefing session was conducted at NIFT to introduce the collaboration with Monsoon, UK. During this session, students received a comprehensive presentation that included visual and tactile samples, as well as an inspiration guide. The primary purpose of this presentation was to engender thoughtful contemplation among the students. The presentation also aimed to familiarize the students with the design process typically employed by the Monsoon design team. Furthermore, it underscored the significance of a co-creative approach involving students. The overarching objective of this collaboration was to engage in a dynamic and immersive process that harmonized diverse aspects of design and craft studies. This synergistic endeavor is envisioned to culminate in the creation of novel outcomes (Figure 3).
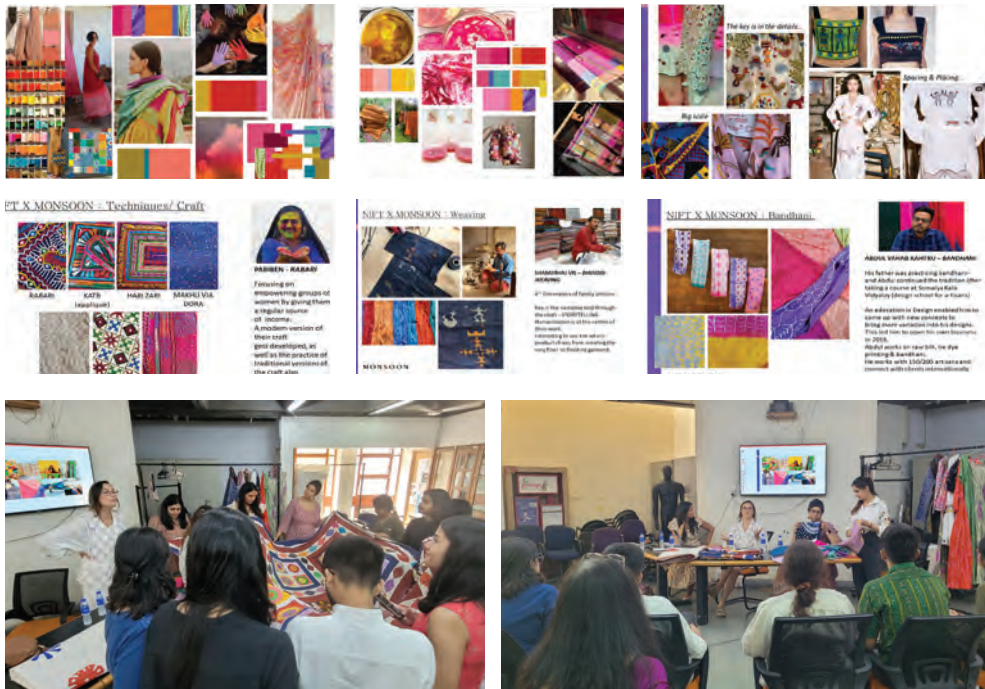
Figure 3: Snippets of the design brief created after the cultural immersion 'inspiration trip' that was presented by Ms. Caroline Jackson, Design Director, Monsoon Accessorize; Ms. Laura Liistro, Senior Fashion Designer, Monsoon Accessorize, UK; and Ms. Archita Singh, Founder, Mpact Souring Pvt Ltd, India, to the participating students to explain the cross-cultural collaboration project.

After the presentation, a selection process was conducted to identify two students from the Fashion Design (Semester VI) program. The selection followed a two-phase approach. Student participation in this study was voluntary. In phase one, the students were required to present prior design projects that showcased their design philosophy, leveraging their unique perspectives as Indian fashion design students and highlighting their aesthetics (Figure 4). Phase two was a design competition in which students had to work on a common design brief provided by the Monsoon Design Team under academic mentorship. The brief focused on the summer dress category, and students were required to generate design inspiration, apply specific techniques, and develop three paper design renderings. Their designs were expected to align with the brand's aesthetics, consider UK customer preferences and lifestyles, and introduce innovative elements (Figure 5).

Figure 4: (*Left to right*) Mr. Satyam Dey, Ms. Saumya Sharma, and Mr. Prashant Rathi, students of NIFT, FD Sem. VI, among other participating students, presenting their design projects to the Monsoon UK Design Team as part of phase one of the shortlisting process.

Figure 5: Snippets of design work done by students as part of phase two, demonstrating their understanding of the design brief provided by the Monsoon design team.

After the completion of phase one and phase two of the shortlisting process, two fashion design, semester VI students, Mr. Satyam Dey and Mr. Prashant Rathi, were selected for further participation in a six-week-long intensive internship project. This was thoughtfully crafted to align with the distinctive nature of cross-cultural collaboration and academic delivery.

Subsequently, the chosen students embarked on an "inspiration trip" to Bhuj, Kutch, aimed at immersing them in different cultures and enabling interactions with various craft communities. This journey was a vital component of the cultural immersion exercise, as per established practices. The students were instructed to document their travel and maintain journals to record their experiences, which served as a foundational element of the design process. The connections established with artisans and local government officials responsible for handlooms and handicrafts proved to be highly beneficial, enhancing the efficiency and inspiration derived from the cultural immersion visit (Figure 6).

Figure 6: Mr. Satyam Dey and Mr. Prashant Rathi, fashion design students on a cultural immersion visit to Bhuj, Kutch, seeking an understanding of craft communities, observing crafts, and developing ties for artisanal collaboration for the project.
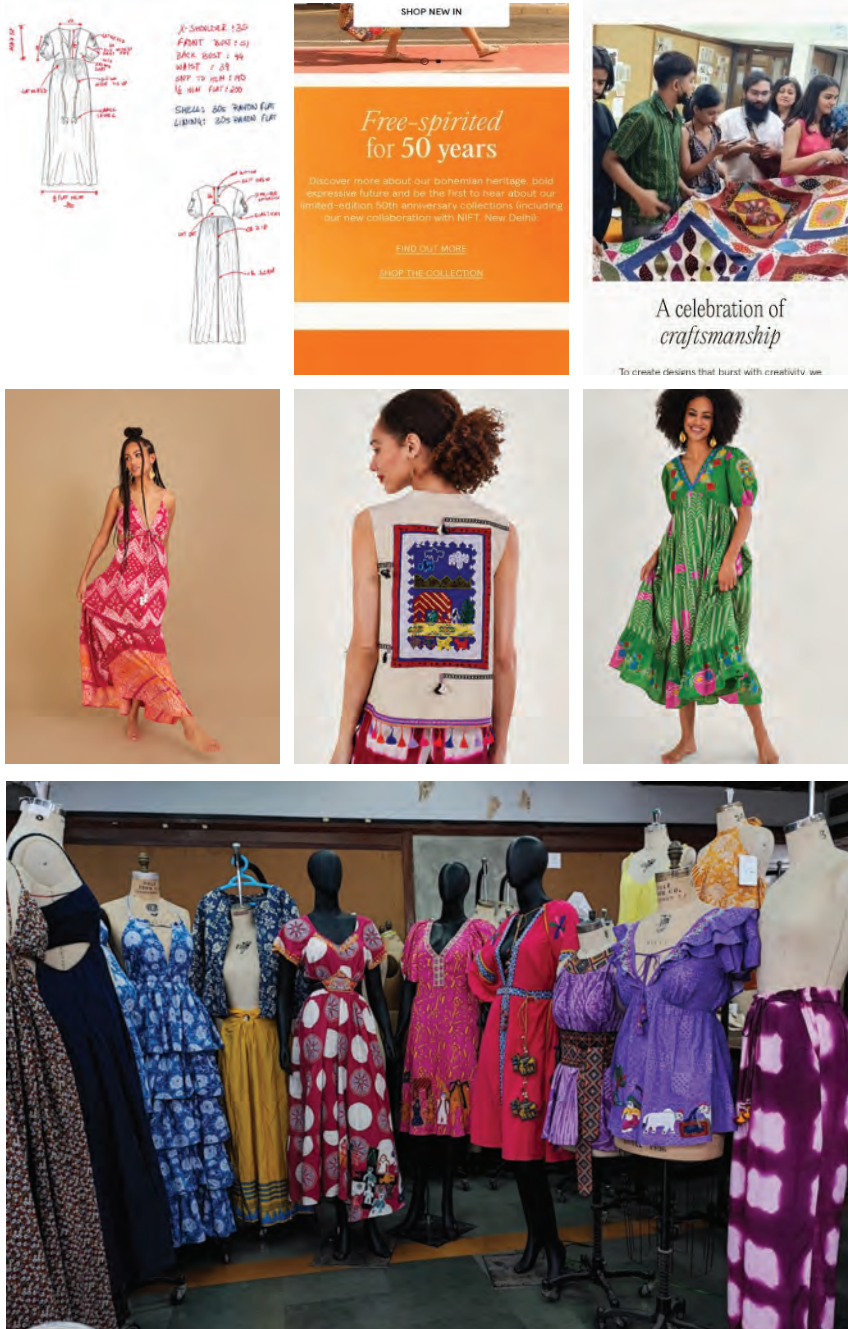
Figure 7: Snippets of the design development process of cross-cultural collaboration and the launch of the collection on Monsoon's official website and social media handles.
Source: Monsoon, UK

Upon their return to NIFT Delhi, the students began crafting designs and consulting with their academic mentor and the Monsoon UK team. This collaborative effort spanned concept development, ideation, design iterations, selection, and range development. To incorporate handcrafted details, they partnered with garment production factories and the Kutch artisans. The final collection, launched in April 2023, paid tribute to artisans and crafts and celebrated Monsoon UK's 50th anniversary (Figure 7). The collection can be accessed on the website of Monsoon, UK (Monsoon, 2023).

Findings

The observations recorded in student learning, which emerged from their field journals, discussions with academic and industry mentors, visual ethnography, and the design and sampling processes, along with the researcher's own experiences during the real-time learning process, provided a foundational basis for validating the theoretical models of situated and experiential learning. For ease of understanding, stakeholder A represents personnel from Monsoon, and stakeholder B represents personnel from Mpact Sourcing in the descriptive data presented.

Situated learning

Situated Learning Theory (SLT), originally formulated by Jean Lave and Etienne Wenger in 1991, delineates the process and progression of learning when individuals are allowed to engage within a community of practice. Within such a community, novice learners evolve into experts through repeated practice within the context of their learning. This learning is inherently unintentional, a characteristic that is referred to as 'legitimate peripheral participation' (LPP) (Lave and Wenger, 1991). In the framework of LPP, the learner transitions from the periphery of the community to its core as they acquire expertise, actively engaging and participating in the socio-cultural customs and practices of the community (Figure 8).
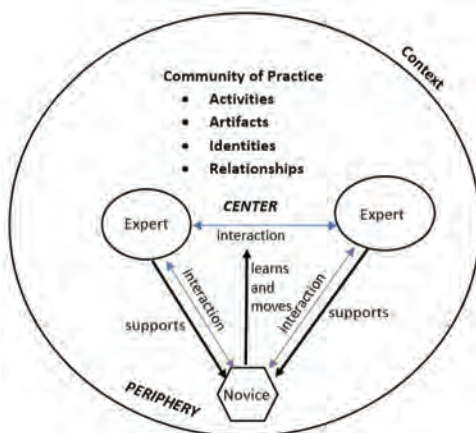

Figure 8: Situated learning theory model
Source: Lave and Wenger, 1991

In an innovative industry-craft-academia partnership, the learning environment seamlessly integrates the local city, craft clusters, *karkhanas* (artisans' workshops), and production facilities (Figure 9). This unique dynamic allowed student designers to navigate these interconnected elements fluidly, adapting to each other as their needs evolved. Through this immersive experience, students gained hands-on exposure to the diverse aspects of design and production, fostering a holistic and dynamic learning journey.

Figure 9: Student designers during their cultural immersion visit to the craft cluster of Kutch gaining situated knowledge from artisans, reflected in the implementation of their design process.

Source: Travelogue and design journals of student designers, Mr. Prashant Rathi and Mr. Satyam Dey

Following a thematic analysis of the qualitative data, the key concepts of situated learning theory that emerged and surfaced predominantly are presented below.

Learning as social participation

Learning occurs through engagement in a community of practice, where individuals participate in authentic activities and social interactions.

Student A: "Before leaving for the inspiration trip, I conducted secondary research by reading books, articles, online resources, and documentaries, which was good, but somewhere I craved for the tactile experience."

Student B: "When I was informed about the inspiration trip, I was both excited and nervous. Excited, because I will get to see the craft up close being done in front of me, and maybe I get a chance to do it myself. Nervous, because I was apprehensive whether artisans would entertain me or not, as I am different from them."

Stakeholder A: "The inspirational trip to Kutch helped us connect to the ethos of our brand and communicate our objective behind this collection to the students. We wanted students to experience the same; therefore, it was pertinent to move beyond PowerPoints and let them have a live experience."

Stakeholder B: "Though it added to the logistics, the student designs after the inspiration trip were more connected, unique, and practical..."

Legitimate peripheral participation (LPP)

Novice learners start at the community's periphery and gradually move toward full participation as they develop skills and knowledge.

Student A: "We went as strangers and had our apprehensions. But kaka and kaki accepted us with open hearts. They knew we lacked tactile knowledge and skills, so they started teaching us simple techniques before moving on to the next. By the end of the inspiration trip, I was lending my hand in their work."

Student A: "Post visit, I had the phone numbers of artisans, and I connected with them via WhatsApp. They became friends and family to me, and therefore I felt a greater sense of responsibility towards their community while designing."

Student B: "I thoroughly enjoyed the process of learning skills and techniques from master artisans. Where else would I have received such an opportunity? Their patience and handholding were commendable. They were like our professors on the field (chuckles)! Even today, if I need to understand what is possible in the technique, they are a call away."

Contextual learning and authentic activities

Knowledge is constructed in specific contexts, making real-world experiences vital for effective learning. Engaging in real-world tasks enhances learning by connecting theoretical knowledge to practical applications.

Student A: "I think the primary reason for us being motivated throughout the visit was that we were there...right there...in a rural environment. I understood the concept of cradle-to-cradle there, as nothing was wasted. There was so much to observe. Be it dressing, food, folk music they sang, their stories, their art, their craft... there was never a dull moment. They love talking, by the way."

Student B: "I was so mesmerized with how they decorate their homes with the most mundane things like utensils, which we hardly ever consider an object of admiration. Their craft has only those natural forms like flowers, birds, patterns, colors, and materials that exist in their ecosystem—nothing alien. It felt like I was in a different timeline altogether."

Stakeholder A: "We have been designing keeping in mind the Indian craft and culture for so many years; it has always been close to Peter (founder). For me, it was my first time visiting a Gujarat cluster, and I now understand why India is so close to his heart."

Collaboration

Learning is inherently collaborative, with students gaining insights through discussions and teamwork.

Student A: "When we started designing new ideas keeping in mind the traditional techniques and how we can develop products in alignment with brand ethos, there was so much brainstorming. This process was different as the decision-making had to account for artisans' skill and knowledge, our unicorn ideas, most of which had to be re-iterated due to limitations of the craft techniques, and what the Monsoon design team appreciated."

Student B: "I would say it was initially a messy process to visualize and design. But with each insight and with each intervention, the path ahead got clearer and clearer."

Student B: "I think the unique part of such live projects is that it's real and so are the challenges. It is different from how we learn in a studio setting working on hypothetical projects."

Reflective practice

Critical reflection on experiences is essential for deep learning and understanding.

Student A: "As part of our briefing, we were supposed to document each day's experiences and highlights through photographs, videos, and reflections in our journals, which we

shared with the Monsoon team. This exercise helped us to observe more closely, listen deeply, and internalize the experience. When explaining a specific motif that I found interesting to the team, I was speaking the language of the artisan—describing what the motif symbolized and how it was connected to their culture, mythology, and ecosystem."

Student B: "What stood out to me personally when reflecting on our conversations about their communal past was the hardship they faced during their migration to India. Despite being uprooted from everything familiar, they rebuilt their lives without abandoning their craft, culture, or traditions. They remain happy and content, even with less, and that sense of happiness and satisfaction is beautifully reflected in their craft and practice."

Experiential learning

Experiential learning for fashion design students provides an immersive, hands-on approach that bridges the gap between theoretical knowledge and practical applications. By engaging directly with real-world scenarios, such as craft clusters, studios, and production facilities, students develop a deep understanding of the multifaceted nature of the fashion industry. This method encourages creative problem-solving, collaboration, and the ability to adapt to ever-changing environments. It also allows students to experiment with materials, techniques, and processes tangibly, fostering innovation and craftsmanship. Through these experiences, fashion design students become better prepared for professional challenges, with a richer, more nuanced perspective.

Figure 10 illustrates David Kolb's (1984) four-stage experiential learning model, which states that learning begins with the "concrete experience," where the learner encounters a tangible and often novel experience that may be entirely new or involve a re-evaluation of existing experiences in light of new concepts. Subsequently, the learner engages in "reflective observation" of the new experience, contemplating the recent experience in the context of their existing knowledge, with a focus on discrepancies between experience and understanding. This, in turn, leads to "abstract conceptualization," where reflection generates a novel idea or a modification of an existing abstract concept, signifying the individual's learning from their experience. Finally, the learner engages in "active experimentation," during which the newly formed or modified concepts are put into practice. The learner applies these ideas to their surroundings to observe the outcomes and consequences.
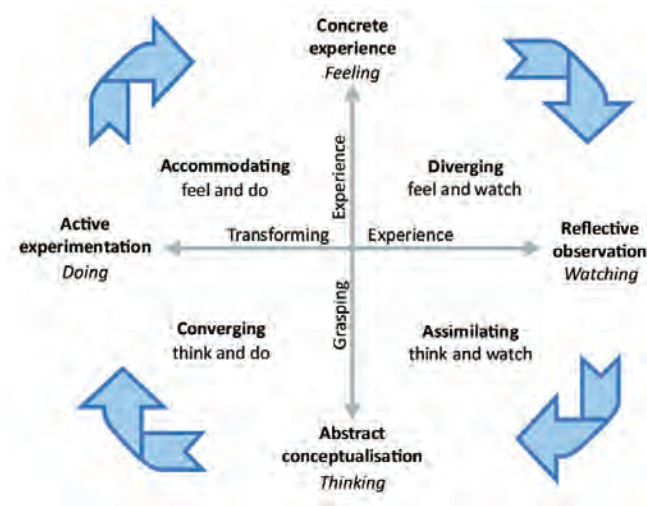
Figure 10: Kolb's learning model
Source: Kolb, 1984

Based on the thematic analysis of the qualitative data, the key concepts of the experiential learning model that came into sight are elucidated below.

Learning as a process and learning cycle

Learning is seen as a continuous process where knowledge is created through the transformation of experiences. It is not a static outcome but a dynamic process of adapting and evolving understanding.

- Concrete Experience: In the context of the collaborative project, the student designers actively indulged in concrete field experience and reflective observation, assimilating the craft knowledge through one-on-one interaction with artisans, documenting the steps through field notes, videography, and photography, and practicing the craft through hands-on experience.

- Reflective Observation: The second stage involved returning from the 'inspiration trip' and undertaking an internship to execute the collaborative project as per industry standards. This process involved developing individual design inspiration, concepts, and initial paper designs that led to abstract conceptualization (Figure 11).

- Abstract Conceptualization: This stage witnessed the convergence of design ideas through weekly review meetings with academic mentors and industry stakeholders. The discussions helped to align the designs with Monsoon's identity and values for the international audience. It was also pertinent to design handcrafted products that could meet production demand, as the collection was intended for retailing and the volumes were high.

Figure 11: Initial Inspiration and design explorations by student designers, Mr. Prashant Rathi and Mr. Satyam Dey.
Source: Students' internship documents

- Active Experimentation: The final stage entailed prototyping and sampling, a conventional process of developing apparel products. The students engaged with the factory as well as the craft community to execute the selected styles and ensure the feasibility and viability of craft techniques in context to the lead time of the product development process. The stage of prototyping and sampling (Figure 12) gave them the necessary insight into flexibility to accommodate iteration according to the different variables, which are crucial in the production process.

Figure 12: Prototyping and sampling before production to check the viability of design, technique, fit and drape.

Experience as the source of learning

Direct involvement in experiences is crucial to learning. Learners must actively engage in experiences to acquire knowledge and skills. Examining the interaction between the artisans, students, stakeholders, and educators during the 'inspiration trip' and thereafter during the design development and sampling process proved helpful in enriching the learning.

Student A: "This live project has been a bridge between designers and artisans, which, so far, we have not experienced in our studies. They (artisans) hand-held us throughout the process like our professors do."

Student B: "Artisans treated us like family, and they shared not just about the craft but their culture as well. Their hospitality, mostly lunches they offered, is something I will always remember."

Stakeholder A: "Their craft goes beyond just personal expression. Their designs interpret the spirit of the community, including the animals, houses, hardships they went through, and hope. Translating something folkloric to a commercial product without compromising the narrative was the biggest challenge for all of us."

Stakeholder B: "The highlight was the musical evening they arranged as a surprise for us, inviting folk artists to welcome us. They opened their homes. They have large hearts and a clear consciousness. Peter's vision of Monsoon is exactly about this. The wearer cherishes the pieces. That certainly was a challenge for the student designer to capture in their designs."

The learning environment and context in which experiences occur significantly impact the efficacy of learning. Real-world applications make learning more relevant and meaningful.

Student A: "The co-creation exercise made us think critically, as we were the common connection between artisans and the monsoon design team. We juggled between preserving the traditionality of the craft and the ethos and making it modern and contemporary for a western wearer."

Student B: "In the studio, we mostly work on hypothetical briefs that limit the process of iteration. In this project, I do not recall the number of amendments I had to make my design production-friendly while doing justice for craft integration. The artisans worked similarly when they developed products for commercial purposes. The commerce aspect of any design is equally crucial."

Conclusion

The cross-cultural collaboration project between the renowned global high-street fashion retailer Monsoon, UK, and NIFT New Delhi ushered in an innovative fashion design pedagogy that transcended the conventional confines of studio-based fashion design instruction. Students' engagement in a live project with authentic stakeholders, including an international brand, a garment manufacturer, and artisanal communities in India exposed them to an immersive learning environment. This unique educational experience allowed them to interact with craft communities, providing insights into the grassroots realities of India's textile clusters. The collaboration with an international brand introduced students to global design aesthetics and trends, building their understanding about diverse consumer preferences and their sensitivity to different cultures and regional needs. The project gave an opportunity to integrate local cultural elements with international trends. Furthermore, the students were exposed to sustainable indigenous techniques in textile production, the intricacies of artisanal and industrial production processes, and the decision-making involved. It also encouraged the creation of artifacts that carried a narrative reflective of the involved communities. Drawing from the students' shared experiences, it becomes evident that cultural immersion and live projects foster opportunities for cross-cultural collaboration and promote personal growth.

This study demonstrates the potential of cross-cultural collaboration and co-creation as a pedagogical approach in fashion design education. By engaging in collaborative projects that involve multiple stakeholders, students gain valuable experiential learning opportunities that prepare them for the complexities of the global fashion industry. It also allows learning to diffuse beyond the traditional studio silos, decentralizing the role of the educator by involving other experts. The findings underscore the importance of integrating such collaborative projects into fashion design curricula to foster a more holistic and sustainable educational experience.

Future research should explore similar collaborative initiatives across different cultural contexts and industries to further validate and expand the insights gained from this study. Enhancing the rigor of data collection and analysis methods will also contribute to a deeper understanding of the pedagogical benefits of cross-cultural collaboration in fashion design.

Acknowledgement

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Integration of Craft and Graphic Design to Create a New Indian Aesthetic: A Pedagogical Experiment

Dimple Bahl

Abstract

Contemporary design education, to a large extent, is reflective of Western principles that have long been guidelines for the right design aesthetic. This often overlooks the wealth of indigenous design elements prevalent in India's cultural heritage. Traditional Indian crafts embody complex design philosophies rooted in cultural traditions. Delving into these nuances is essential for expanding the global design vocabulary and promoting a deeper appreciation of cultural diversity. Indian design practitioners inherently understand these "Indian" elements, offering a distinctive perspective that can inspire others. Shilpa Shastra, an ancient text on arts and crafts, plays a pivotal role in understanding the principles of Indian aesthetics. However, its inclusion in modern design curricula remains limited. Scholars have emphasized the need for decolonizing design education by reconnecting with indigenous knowledge systems. While design schools have launched programs to integrate traditional crafts, Western design ideologies still dominate the curriculum. This article attempts to bridge this gap by presenting a pedagogical approach that integrates craft-based learning, supported by frameworks like the National Education Policy (NEP) 2020, which calls for the inclusion of indigenous knowledge and cultural heritage in higher education. This research also advocates for the decolonization of Indian design education by critically examining design structures within their cultural and historical contexts. It seeks to merge Western concepts with traditional Indian heritage, fostering a potential global design language that integrates modern Western principles with indigenous historical inspirations. The larger goal involves a comparative study with Western design and the formulation of comprehensive guidelines for more nuanced design education. The objective is to establish a coherent design philosophy rooted in Indian design elements, presenting an alternative and innovative approach to students that resonates with their cultural backgrounds. It emphasizes the importance of providing design professionals with both universal design tools and insights from Indian design, promoting a harmonious

balance between cultural heritage, design coherence, and functionality. Ultimately, this initiative aims to empower future design professionals with a distinctive style deeply rooted in India's rich cultural heritage.

Keywords: Decolonization of design education, graphic design, elements of design, Indian design, Indian crafts, pedagogy

Introduction

Culture serves as an expansive medium for civilizations to express their experiences, beliefs, and stories through diverse forms such as language, food, music, and art. Historically, societies across the globe have employed symbols and imagery, from intricate carvings to hieroglyphics, as tools for communication. These visual representations held profound significance, reflecting not only the artistic craftsmanship but also the philosophical and cultural beliefs of their times. In today's context, understanding these ancient expressions presents both a challenge and an opportunity to bridge historical knowledge with contemporary learning methods.

In antiquity, particularly in India, craftsmanship was revered as both art and science, guided by ancient treatises such as the Shilpa Shastras. These texts outlined comprehensive guidelines for various crafts, emphasizing meticulous processes and knowledge. Unlike modern divisions, the Shilpa Shastras advocated an inclusive approach, fostering the development of both practical and intangible arts. The Shilpa Shastras saw disciplines like architecture, sculpture, painting, and textiles not only as creative pursuits but also as expressions of universal principles that connected the tangible and spiritual realms. This deep cultural reverence for craftwork is a testament to a holistic worldview that saw art as a vehicle for conveying spiritual themes, value systems, and ways of life (Coomaraswamy, 1934).

In a classroom setting, these concepts can be utilized by educators to demonstrate the importance of culturally rooted practices in contemporary design and creative industries. The structured guidance from the Vastu Shastra, or the sacred principles of Natya Shastra, for example, offers more than just artistic techniques—they provide students with philosophical frameworks that connect creativity with cultural heritage. In this context, classroom action research (CAR) serves as a valuable tool to investigate how students can introduce, interpret, and apply these ancient ideas in modern design practices (Khasinah, 2013). By involving students in activities that allow them to engage with these principles actively—whether through hands-on projects in architecture, textile arts, or graphic design—they gain insight into the cultural and spiritual significance of their work.

The study conducts a design experiment by integrating these principles into classroom action research, which could be a project where students create their own designs based on the craftsman's guidelines. Through reflective cycles of planning, acting, observing, and reflecting—key components of CAR—students could explore how Indian folk art, despite its lack of formal structure, embodies sophisticated design principles passed down through generations. This practical engagement allows the students to recognize the intuitive knowledge embedded in these traditions and foster a deep connection between historical practices and modern design applications.

Moreover, classroom discussions can juxtapose the evolution of communication through visual arts, such as the development of printing technologies like Gutenberg's printing press, with India's ancient artistic traditions. In such activities, students could critically analyze how modern graphic design, often dominated by Western aesthetics, overlooks the philosophical depth present in indigenous art forms. By drawing upon cultural traditions, students not only explore diverse design aesthetics but also develop an understanding of the socio-cultural narratives that shape those designs.

The aim of this academic exploration, conducted through classroom action research, is to highlight the relevance of India's millennia-old graphic design concepts and their potential to inspire a uniquely Indian sensibility in the global design arena. Through structured classroom activities that blend theory and practice, students are encouraged to engage with indigenous design traditions. This not only nurtures a deeper connection to India's artistic heritage but also enables students to explore innovative design approaches that are both culturally authentic and globally relevant.

In summary, by employing classroom action research to explore these traditional design philosophies, educators can create learning environments that foster both cultural appreciation and practical application. By tapping into India's vast artistic heritage and applying these ancient principles to modern design challenges, students can contribute to the enrichment of both local and global design discourses.

Literature Review

Design education has long relied on Western methodologies as the gold standard, prioritizing uniformity and cohesion in design curricula. However, this approach often sidelines indigenous design elements, neglecting the rich tapestry of Indian cultural heritage and crafts that could enrich the learning experience (Charles and Eames, 1997). The dominance of Western structures in graphic design education has resulted in a lack of contextualization for indigenous design, leaving students with a superficial understanding of their own cultural identity within the field (Balaram, 2009).

The depth and diversity of Indian design heritage remain largely untapped, overshadowed by Western-centric narratives and definitions (Thapar, 2003). This study aims to rectify this imbalance by documenting examples that complement existing pedagogical frameworks, creating a more practical indigenous grammar for the Indian design language. By incorporating culturally rooted examples, the goal is to empower design students to apply these concepts effectively in their work, fostering a deeper connection to their heritage. There's also potential for a parallel medium of instruction in design curriculum, where the language remains global but the grammar is rooted in the Indian context. Exploring this possibility involves viewing Western concepts through the lens of Indian craft, leading to design experiments that highlight the nuances of Indian art within its own cultural context. By better understanding these differences, the fusion of Western and Indian design elements can take on greater meaning and relevance in contemporary design practice.

Decolonisation of design education

Teal Triggs, design historian and professor at London's Royal College of Art establishes decolonizing design as a crucial movement in the field, distinguishing it from mere diversity initiatives. Decolonization in design challenges the Eurocentric canon that defines "good" design, aiming to eliminate distinctions between traditional craft and modern design. Designers need to rethink their work, disrupt the status quo, and imagine a world beyond the current system. This process involves questioning how design choices might be experienced from different cultural perspectives. Designers must recognize the power and history behind their choices, understanding how colonialism has shaped contemporary design and the power structures that persist in society (Triggs, 2011).

In order to gain a comprehensive understanding of the role of decolonization within the domain of design, it is imperative to establish precise definitions. "Colonization" finds its origins in the experiences of indigenous populations, characterized by the subjugation and confiscation of native resources, alongside the dissemination of Western ideologies into their societies. The term "decolonization" originally denoted the process of a state disengaging from its former colony. However, its contemporary connotation encapsulates a multifaceted array of concepts. The aim needs to be to eliminate the false distinctions between craft and design in order to recognize all culturally important forms of making. Triggs says that publishing the work of emerging researchers is crucial to the development of new design narratives in contemporary design education. "By doing this, there has been a direct impact on our teaching materials, on what is being taught, and how in the design curricula" (ibid., p.13).

Western design education

Design education encompasses fundamental principles that equip students with the skills and knowledge to excel in creative fields. Design students learn to analyze and critique both historical and contemporary design works, fostering a critical eye. They gain proficiency in industry-standard software tools and technologies (Frascara, 2011). Ultimately, design education aims to nurture creativity, problem-solving, and a deep appreciation for aesthetics. It begins with teaching color theory, composition, and spatial awareness through the following core elements of design: point, line, space, shape, color, and texture. Universal appropriateness—the concept of Auchitya that pervades our aesthetic heritage—has been a hallmark of Indian design through the ages. The term universal appropriateness, though, is at best a close approximation. According to Jaitly and Bahl (2023), Auchitya is a design philosophy that encompasses the nuanced and layered meaning of each human function and the physical and psychological implications of the placement and use of objects, images, and their attendant microfunctions. This phenomenon is demonstrated by 'kala.'

Kala, in turn, is another term in Indian design philosophy that has a deeper, layered meaning. Before the decidedly western imposition of the bifurcation of art and craft— later termed charukala and karukala—the term "kala" represented the holistic concept of aesthetics. This concept encapsulated the pervasiveness of design not merely as the creation of beauty but as a part of daily life. The lines between art and craft became blurred; artisans and craftsmen were usually on an equal footing due to imperial or royal patronage, and painting, carving, weaving, and other processes of art creation occupied the same pedestal, elevated by the mastery of their creators (Vyas, 2000).

Often, these master creators did not restrict themselves to the rarefied field of sole practitioners of the arts. Homemakers, who decorated the walls of their houses with specialized art forms such as Gond art, were not obligated to adhere to the rules set by the masters of their craft. They were at liberty to use the art form as a means of house decoration. Kantha is a perfect example of what is now called upcycling—by using frayed or worn old sarees that were cut up and recrafted with hand-stitching and surface ornamentation—it has been an integral and widely practiced part of folk traditions in Bengal. It was not necessary to "learn" or be dictated by esoteric rules; the practice of creating beauty was a way of life (Bahl, 2017).

Guidelines for the Indian design language—the Shilpa Shastra

Shilpa, in the Indian design philosophy, stands for both art and craft in ancient texts. Shastra, in its indigenous definition, denotes science. The holistic meaning of Shilpa

Shastra, therefore, is the science of art and craft, illustrating again the fluidity of knowledge and its application to the various aspects of learning and creation. The series of treatises outlines the principles and rules that should ideally govern the creation of arts and crafts. (Vatsyayan, 1983). As cited in Milford-Lutzker (1999), the Aitareya Brahmana of the Rig Veda mentions, "Shilpani, works of art made by man, are imitations of divine forms; shilpa artisans, in tune with divine rhythms, produce visual interpretations in spite of the limitations of the human personality" (pp.22-30).

American art historian Stella Kramrisch analyzes that the term "Shilpa" is multifaceted in its connotation. Kramrisch (1958) posits that it encompasses a spectrum of meanings, encompassing "art, skill, craft, labor, ingenuity, rite and ritual, form and creation." Ancient Indian textual sources assert the boundless nature of artistic expression and categorize it through the utilization of sixty-four "kala," or techniques, and thirty-two "vidyas," or fields of knowledge. The concept of "Shilpa" is expounded upon in revered texts such as the Agamas, Puranas, and Vastu Shastra, where it is intricately interwoven with the mythology of Vishvakarma.

Perspectives of art historians on documentation of Indian design

As a first step, there is a need for a more concrete explanation of the lack of cultural context. The work of historians such as Parul Pandaya Dhar exemplifies how the absence of a cultural context hinders the proper delineation and utilization in constructing a unique design language with the Indian design philosophy at its core. In her work, a considered and critical gaze on the historiography of Indian art puts in perspective and lays in clearer relief the scholarly contributions on the circumstances, individuals, initiatives, and methods that have laid the informal framework of the history of Indian arts from colonial times to the present. In her book "Indian Art History," she discusses the historical context for the study of Indian art. With examples from the late 18th and 19th centuries, she lays bare the fascination and consequent colonial perspective with which Indian antiquity was looked on. She has illustrated how the study of architecture ignored Indian sculpture and painting for not aligning with Western standards of instruction. The architecture was looked at through the decidedly Western tenets of "form" and "style," ignoring the deeper cultural, spiritual, and philosophical contexts in which it was created (Dhar, 2011). Ananda K. Coomaraswamy, Stella Kramrisch, Alice Boner, and others conducted scholarly inspections on this subject. These colonial biases, however, were strong enough for the Indian nationalists to fly the flag of the "Indian-ness" of Indian art, shifting the gaze to the established tenets of symbolism in the historical design tome and accentuating the cultural context that existed and was on glorious display in its oeuvre (Boner, 1993).

During this time, Professor RN Misra also looked into the differences between artists and craftsmen, as well as the terms "art" and "craft." He illuminated a crucial aspect of ancient Indian design philosophy, previously overlooked due to its explanation in terms of Western culture. This is because the Indian design philosophy did not divide itself into art and craft, but instead, the main idea of kala included all the steps of creation in a single, fluid, cross-disciplinary whole (Dhar, 2011). Vyas (2000) had a very illuminating description: "The distinction between art and craft was non-existent at best and blurred at worst. The holistic approach to art and craft was best described with the nuances of Kala, the umbrella under which art, sculpture, and literature, among others, flourished in India" (p.33).

The Renaissance, industrial revolutions, and technological advancements forced the western world, including British-ruled India, to prioritize their design philosophy and curriculum, deliberately overshadowing the holistic approach to art and craft that was the cornerstone of Indian design philosophy. The leitmotif of the Indian aesthetic, a more holistic approach that blurred the lines between art and craft, necessitated this change because it did not fit neatly into the current concepts (ibid.).

The cultural ethos of the Indian design derives from the philosophical thought embodied in the rituals and traditions of our culture. It highlights the interconnectedness of things, and this seamlessness seemed to have been ruptured by the more rigid definitions of imported modern thought in design education. The separation of Charukala and Karukala (fine arts and applied arts) from the earlier mentioned fluid thought of kala as holistic art became a precursor to the sharper divides in the holistic thinking that were to come. The introduction of Western cultural norms into our educational patterns has made it increasingly challenging for students to naturally and effectively connect with the concepts they are learning. Moreover, practitioners are currently questioning the Western pattern of education's dependence on referencing as a means of definition (Bahl, 2017).

Exploring the Indian aesthetic language, rich in deep philosophical ideas, and combining it with the established rules of the Western design curriculum is a key way to create a design thought that is both uniquely Indian and applicable globally. There are already a number of treatises available that will facilitate this seamless integration of ideas.

Scope of the Study

This study investigates the intricate and interconnected dimensions of indigenous design, specifically focusing on graphic design education. It acknowledges the diverse

interpretations of crafts across regions, even those founded on similar principles. The research engaged graphic design students in a comprehensive exploration that yielded significant insights into the relevance of Indian crafts in modern design. It also debates the potential of these crafts to inform contemporary design practices, emphasizing their alignment with classical design philosophies and modern applications.

Objective

The objective of this research was to advocate for the inclusive integration of Indian art forms into contemporary curricula and to raise awareness among design students about the relevance of design elements derived from Indian crafts in modern design education, with the goal of creating a visual language that is more deeply rooted in Indian culture.

Research Methodology

The study adopted the classroom action research approach to conduct a pedagogical experiment, where third-year Fashion Communication students of NIFT, Delhi (2021-2025 batch), undertook a two-week module as part of the subject 'Design Strategy and Systems Thinking.' The graphic design experiment involved students studying a selected Indian craft through the lens of design elements, creating combined collateral with the artisan, and conducting research to integrate Indian design elements into specific design collaterals. The study was initiated by meticulously planning a collaborative module with eight artisans from the Dastkari Haat Samiti, who practice Madhubani, Pattachitra, Gond, Sanjhi, Kalighat, Warli, Phad, and Pichwai. The collaborative workshop with the artisans was held at Dilli Haat, INA, New Delhi. The class of forty was divided into eight groups of five students each, assigning one craft and artisan to each group.

From the initial cohort of eight groups, totaling forty students, a focused sample of five students was selected based on their engagement with the traditional Indian craft, Madhubani, from Bihar. The study combined qualitative data collection methods of observation and reflection. The researcher, who also served as the module's faculty guide, gathered data by observing participants during the module and reflecting on the co-created experiment's outcomes through visual analysis. Further, interviews were conducted with the five students to understand their experiences and learning through a unique pedagogical approach.

During the module, students worked in collaboration with artisans to comprehend the craft through various design elements, such as point, line, shape/form, space, and color,

resulting in combined artworks that reflected the craft's aesthetics. The step-by-step methodology involved visits to the engagement site, structured interviews with the artisan, visual documentation of the craft, creation of a thematic sheet, collaborative artwork that documented the artisan's journey, a detailed study of the treatment of the design elements used in the craft, and finally, an analysis to understand how traditional craft elements influence modern design outputs.

The framework for the pedagogical experiment, integrating Indian craft elements into graphic design education, consisted of the following steps:

- Planning: The first step involved creating a detailed curriculum module to conduct a collaborative study with eight artisans from the Dastkari Haat Samiti. Eight different crafts, primarily painted styles that emanated a rich visual language, were selected, also keeping in mind the availability of the artisans at Dilli Haat. The student activities envisaged with the artisans were delineated along with methodology, deliverables, and outcomes.

- Acting: The second step included a cultural immersion program, that is, the conduct of the collaborative workshop where students and artisans co-created design solutions, blending traditional aesthetics with modern design principles. The students partnered with folk artisans to facilitate a hands-on experience for better understanding of the craft and its design elements.

- Observing: The third step involved conducting interviews with the artisan and documenting the craft visually. This process resulted in design collaterals that were inspired by traditional craft techniques and design principles.

- Reflecting: The final step involved visual analysis of students' work by comparing it to both traditional craft forms and contemporary design outputs, focusing on innovation and cultural resonance. Interviews with the selected group of five students were conducted to gain insights into their experience and learning.

Results

Following the collaborative workshop between students and artisans, data was extracted and analyzed based on the outcomes of the work done by the student group, which interacted with the artisan practicing Madhubani craft from the Mithila region of Bihar, India. This traditional art form is renowned for its vibrant colors, intricate patterns, and deep cultural significance. Folklore and mythology deeply embed the origins of Madhubani in ancient times. Madhubani paintings are characterized by their distinctive

style, featuring complex geometric patterns, bold lines, and vibrant color palettes. The creation process of Madhubani art is meticulous and deeply rooted in tradition.

The workshop started with an interaction with Smt. Ambika Devi (Figure 1), a celebrated Indian artisan specializing in Madhubani painting who hails from Rasidpur village in Bihar's Madhubani district. Her exceptional talent has earned her several prestigious awards, including the National Handicrafts Award in 2009 and recognition from UNESCO. Ambika Ji's work is characterized by intricate patterns and a deep connection to cultural narratives. Her dedication to the craft and her role in empowering other female artisans make her a respected and inspirational figure in the artisan community.

Figure 1: The artisan, Smt. Ambika Devi, practicing Madhubani craft
Source: Student group documentation

The students analyzed the motifs and narratives inherent in the art form, while the artisan clarified their underlying ritualistic connotations, enabling the students to understand the art form in its appropriate context. Visual analysis of the individual design elements used in the craft was conducted.

In the realm of design education, understanding design elements is fundamental. These elements serve as the fundamental building blocks for the creation of visual compositions, making them essential knowledge for both artisans and designers. Institutions such as NIFT integrate the study of design elements and principles into their foundational curriculum, establishing them as a cornerstone of design education. The curriculum typically delves into each element and principle in detail, dedicating significant time to explore their importance individually. The students spend an entire semester focusing on the elements of design, immersing themselves in the nuances of

each element through practical exercises and art-making processes. This comprehensive approach allows students to grasp the essence of design principles and apply them effectively in their creative endeavors. Understanding the elements of design not only cultivates technical skills but also nurtures creativity and visual literacy. It equips students with the tools to create visually compelling compositions, communicate ideas effectively, and engage audiences on a deeper level.

Identification of the elements of design in Madhubani

The students created the working definitions of each element and then observed the same design elements in Madhubani (Figure 2).

- Dot: The dot is the starting point of any design, serving as the origin for subsequent elements.

  In Madhubani, the origin points of every subsequent character mark the beginning of any texture; a composition of dots creates the most detailed textures and forms.

- Line: Basic building blocks that define paths and movement within a composition.

  Madhubani paintings are characterized by the bold and intricate lines that define the shapes, forms, and patterns throughout the artwork.

- Shape/Form: Two-dimensional/three-dimensional areas, defined by boundaries, contribute to the overall structure.

  Madhubani art features a wide array of shapes, ranging from geometric patterns to depictions of animals, plants, and other everyday objects.

- Space: The area within and around objects that influences the overall balance and harmony.

  The paintings make dynamic and decorative use of space, often packing compositions densely with figures, motifs, and patterns.

- Texture: Tactile or visual qualities that enhance the surface and add richness to the design.

  While it is primarily two-dimensional, artists often create the illusion of texture through intricate line work, stippling, and dotting techniques.

- Color: A powerful element that evokes emotions, sets moods, and adds visual interest.

Color plays a vital role in Madhubani art, with vibrant hues and rich pigments adding depth, emotion, and symbolism to the compositions.

The elements and principles of design are fundamental concepts that form the basis of visual art and design. They provide the framework for designers to understand and create visually compelling works. While these concepts are heavily influenced by Western ideals, their origins can also be traced to historic Indian crafts. When examining the elements of design in general, they are clearly identifiable in the craft of Madhubani.
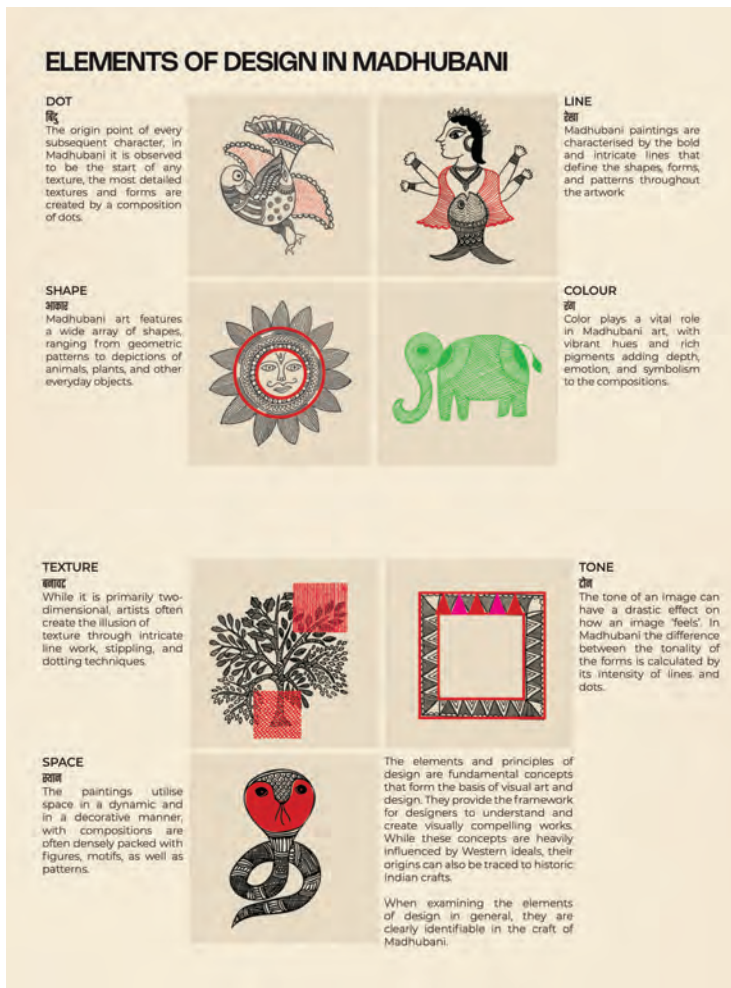
Figure 2: A visual language study through elements of design used in the Madhubani craft
Source: Student group documentation

In the next phase, the students learned the basics of Madhubani art, such as textures, dots, and lines, and how to use these elements to create natural forms. They experimented with creating different textures using pencils, pens, and brushes to understand how textures add depth to designs. They then practiced various types of lines and dots to enhance their control and precision. These skills were then applied to the previously traced natural forms, integrating basic elements into recognizable shapes (Figure 3). The assessment focused on evaluating the ability to create diverse textures, dots, and lines and their application on natural forms.

Figure 3: Exploring lines through textures
Source: Student group documentation

The students meticulously studied the design process to create a diverse range of forms and shapes, laying a rich foundation for the visual language of the craft and its resulting visual identity. The lines carved out within the forms introduced a tactile and visual texture. This nuanced approach not only characterizes this craft but also lays the groundwork for the detailed elements that will later define the brand's visual identity. Repetition of patterns was also used to create varied textures. The use of simple bold colors and the interplay of positive and negative space in the crafting process resonates with the foundational principles of design. The creation of these solid color blocks serves as a metaphor for the shaping of brand identity within a specified space. A distinctive feature of this craft is the artful use of lines of varying thickness to create patterns and shapes. This nuanced exploration of lines becomes a pivotal element in shaping the visual language, as evidenced by the student's creation of a brand identity.

In the final phase, the students used the observed details and techniques to compose original Madhubani designs. Brainstorming sessions encouraged them with new

ideas, promoting originality and personal expression. Concepts for new designs were developed, including preliminary sketches and planning, to teach the importance of planning and conceptualizing before execution. Final compositions were created on paper, applying all elements to synthesize knowledge and skills into original artworks (Figure 4).

Figure 4: Exploration of the craft, seamlessly intertwining the timeless craft with the principles of design
Source: Student group documentation

This action research emphasized a participatory approach where students explored and adapted the traditional craft within modern design frameworks, enriching their understanding and appreciation of indigenous design elements (Figures 5). The students collaborated with the artisan to create a collaborative artwork, documenting the artisan's journey and conducting a detailed study of the treatment of design elements used in the art forms (Figure 6).

Figure 5: Exploration sheet to observe a picture through the lens of Madhubani craft
Source: Student group documentation

Figure 6: Collaborative artwork documenting the artisan's journey
Source: Student group documentation

Development of the brand identity and collaterals for the artisan

Branding Ambika Ji's Madhubani craft was not merely about creating a recognizable identity; it was a move to establish a strong visual presence in the global market while fostering an art movement around the craft itself. Recognizing the need to give the craft a distinct identity, the creation of a logo emerged as a crucial step. The logo, designed to symbolize the fish motif, which Ambika Ji frequently uses, and the lotus, which symbolizes prosperity, encapsulates the essence of her craft (Figure 7). By combining these elements and retaining the intricate details of the craft, the logo served as a powerful representation of Ambika Ji's authenticity of Madhubani Paintings. The decision to hand-draw the motif underscored the importance of authenticity and uniqueness, reinforcing the artisan's commitment to preserving traditional craftsmanship alive in a contemporary context.

Figure 7: Exploration board leading to creation of logo for the artisan, Ambika ji
Source: Student group documentation

The same identity also inspired the creation of several collaterals, such as wrapping paper, envelopes with personalized branding using various motifs, and visiting cards. As a part of exploring Madhubani, several souvenirs were also designed, including a scarf, a Madhubani nib holder, a ceramic plate, a notebook, and an enamel pin. Keeping in mind the visual language of the branding, the packaging for these souvenirs was made (Figure 8).

Figure 8: Branding and packaging exploration for the artisan
Source: Student group documentation

The students did a comprehensive analysis specifically dedicated to the craft, elucidating its intricacies, design aesthetics, and contextual relevance. It is imperative to underscore that a similar methodological approach was systematically applied in the examination, definition, and documentation of the remaining crafts integral to shaping the broader framework of the Indian design language.

Students' reflections

The responses received from the interviews conducted with the five students provided insight into their experiences and learning from the collaborative module. In response to the question about how the experience shaped their understanding of the cultural significance of craft design, student A responded, "I learned that every symbol and pattern in Madhubani art carries specific cultural significance, connecting art to daily life and spiritual beliefs. This experience reshaped my approach to design, emphasizing the importance of context". Student B expressed, "This experience helped me to get a better understanding as to why a craft was initially started and how it is being passed down as a legacy, but also how different crafts have differing styles of being made and

each one is unique to its style." Student C added, "This experience has deepened my appreciation for the cultural significance of craft design. I realized that each technique and pattern embodies historical stories and community values. Observing the artisan's passion deepened my understanding of craft as a vital expression of cultural heritage, connecting past and present while fostering a sense of belonging. Student D expressed, "This experience provided a real-time glimpse into artisans' lives and experiences, fostering a closer connection with their culture and folk art."

When asked to describe the collaboration experience between artisans and design students, Student A stated, "This collaboration deepened our appreciation for each other's cultural and design backgrounds by highlighting the unique strengths and perspectives we each brought to the table. Working closely allowed us to understand the cultural significance embedded in traditional techniques and symbolism while also sharing contemporary design approaches. This mutual exchange fostered respect for each other's heritage and creativity, blending old and new influences to produce something meaningful and fresh. Student B mentioned, "The collaboration was mutually enriching for us and the artisans because we all had something to learn from each other." Student D mentioned, "I learned how you can develop your skills to break down complex shapes into simple lines and still show their details." Student E said, "It was a very innovative and, in my opinion, an important experience. Understanding their craft and culture helped us see the way we design things today." Students also felt they could share their design and technology knowledge with artisans, which was extremely helpful.

Conclusion

Integrating traditional Indian crafts into graphic design education not only fostered creative innovation but also strengthened students' cultural identities. Through direct engagement with artisans and immersion in craft traditions, the students stated that they began to view design as a culturally informed practice rather than a solely aesthetic one. The findings derived from the interviews with the students after the workshop's completion suggest that the students inculcated a deeper connection to their heritage, which in turn enhanced their ability to create original and culturally relevant design solutions.

Students systematically explored various crafts to assimilate design principles, focusing on nuanced examinations of diverse craft forms. Their analyses revealed discernible patterns, emphasizing departure from replication. Creative synthesis ensued, producing

a contemporary visual language anchored in craft-inspired insights. This approach showcased students transcending imitation, cultivating a distinctive design ethos.

The timely endeavor to decolonize design education in India seeks an alternative to the entrenched colonial legacy. It mandates a redefinition of core design education principles, incorporating diverse voices, traditions, and experiences with the Indian design philosophy as the axis. The NEP 2020 promotes the integration of indigenous knowledge systems to cultivate culturally grounded education. This shift involves moving from Eurocentric frameworks to a pluralistic approach respecting India's cultural heritage. To achieve this, the design curricula must integrate indigenous knowledge, local craftsmanship, and traditional design practices. Emphasis on regional aesthetics, sustainability, and community engagement enriches the discourse, fostering pride and cultural appreciation. Collaboration with indigenous artists and design communities bridges theory and practice, ensuring that design education is rooted in India's diverse fabric.

Apart from initiating a revised discussion on cultural resonance, it also offers the artisans a platform to showcase their skills and cultural heritage, fostering recognition, pride, and the preservation of indigenous knowledge for future generations. Integrating Indian craft into the design language is actualized through craft cluster initiatives, bringing cultural sensibilities, defining social norms, and fostering awareness and pride for traditional Indian aesthetics in design.

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About the author

Dimple Bahl is an academician and practicing graphic designer who specializes in visual brand strategy, publication design, and Indian folk media. With over two decades of teaching experience at NIFT, New Delhi, she has also completed a PhD exploring ancient Indian grid systems as a foundation for modern design language. Co-author of Inspirations for Graphic Design from India with Ms. Jaya Jaitly, Dimple bridges graphic design and craft to foster a uniquely Indigenous design vocabulary. She was instrumental in the design and conceptualization of the Shilpa Deergha at the new Parliament House of India, a project Dastkari Haat Samiti commissioned and executed. She is currently nurturing the concept of Kala Manthan, a craft design experiment between students of NIFT Delhi and artisans from Dastkari Haat Samiti. Using the methodology of reverse mentoring, the attempt is to co-create a new definition of design elements to bridge the knowledge gap between the largely undocumented yet celebrated craft traditions and modern graphic design frameworks.

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Classroom to Incubation: A Collaborative Industry-Academia Approach for Impetus to Social Design in the Indian Design Education

Preetha Hussain

Abstract

The dichotomy of design education in the current times is the perplexing task of creating designers who can cater to industry needs and design more products for society focused on consumption. As we enter the first quarter of the twenty-first century, we are reminded of the American designer and educator, Victor J. Papanek's vociferous call to pay attention to social and ethical dimensions of design that were unheeded by many. However, in the current context of social and ecological disruption, a socially responsible framework of sustainability can't be ignored anymore, and it's essential for a socially responsible framework of sustainability to be embedded in design learning. Design educators face a challenging task in the current context; there is an effort to weave sustainable design goals into the curriculum. Design for social needs was envisaged in tune with the National Institute of Fashion Technology's vision, which attributes value to building fashion and design education with an emphasis on "leadership in professional education with concern for social and human values." It seeks to provide real-life immersive experiences for future designers to inculcate and engage in social and sustainable aspects as they envision relevant products, services, or system input. As part of the Design and Society module, a collaborative partnership with the industry, Design Impact Movement (DIM), helmed by leading enterprise Titan and supported by TinkerLabs, a "behavior and innovation consulting firm," was brought into the classroom eco-system, wherein students from varied design and engineering colleges were provided a platform for incubation and funding for the innovative project. This article seeks to explore how the alternate learning and teaching pedagogy has been adopted, wherein a three-pronged approach has been utilized to inculcate sustainable mindsets in the future 'design practitioners' and the student's response to the concept of socially responsible design. The collaborative pedagogy through Industry-Academia-Expert workshops and interactions has provided the platform for a student team project chosen for enabling work and dignity among specially-abled individuals for the next

stage of incubation by industry mentors and experts bridging the gap from classroom to incubation.

Keywords: Design impact, incubation, social design, SDGs, collaborative design pedagogy, classroom project, industry-academia-expert inputs

Introduction

Design is generally envisioned as forward-thinking. It is a twentieth-century phenomenon in which design practice has traditionally dealt with anticipating and catering to consumer needs in the form of products and fashion. This has given impetus to a burgeoning industry that gratifies "wants" rather than "needs." As consciousness regarding social inequities has evolved, design practitioners have advocated the need to relook at design pedagogy and the frameworks within which design education exists at present.

It is imperative to equip the design professionals of the future with the essential skills that would help them deal with real-world challenges. As the nature of design evolves, its application extends beyond tangible artifacts to include intangible networks and ecosystems that could potentially nurture them in the future. There is a need for 'design with a purpose,' and design schools have the overwhelming duty of educating the design community and students who will inherit the earth in the future. This article aims to explore the role of an innovative alternate learning and teaching pedagogy with an incubational approach and explore how it has been adopted, wherein a three-pronged approach has been utilized to inculcate sustainable mindsets in the future 'design practitioners' and the student's response to the concept of socially responsible design.

Initially, design education envisioned designers to cater to the industry needs in the context of a burgeoning consumptive society; however, the paradigms for design education in the context of the current social and environmental scenarios need to be renegotiated. Design for Society is not a completely new concept; Tromp and Vial (2022, p.211) traced the term 'social design' back to Lazlo Moholy-Nagy (1947), who used it to emphasize the responsibility of designers in our society. One of the early proponents, Papanek (1976), argued that design should not only benefit the privileged but also benefit society and the "other 90 percent" of the world who may not have access to the benefits of a 'good' design. He went on to state that "designers... who are engaged in creating new fashion, accessories, and lifestyle products in a cyclical trend cater to the unsustainable wants of the people." When he published his treatise 'Design for the Real World' in the late 1970s, he was scoffed at by many, but the reality of his words hit home

when the world was reeling with the inequity of resources, environmental waste, social and cultural divides, and climate anxiety. Margolin and Margolin (2002) advocated a middle path where they didn't view the "market model and the social model as binaries" but as "two poles of a continuum." They advocated for designing not for a specific class of consumers but rather for marginalized individuals and communities, such as the elderly, those with special needs, those with low incomes, and those without access to resources. Manzini, a proponent of sustainable and socially oriented design, advocates for a "co-design grounded approach" for social innovation, defining it as 'everything that expert design can do to activate, sustain, and orient processes of social change toward sustainability' (Manzini, 2015; Tromp and Vial, 2022).

Design as activism has also emerged as a more forward-thinking approach. Fuad-Luke (2009) promotes design activism, which looks at design as a means to intervene, inform, and integrate design solutions for the world's 'wicked problems.' The design problems need to be articulated within the social context. Fuad-Luke (2009) opines, "It is design's ability to operate through 'things' and 'systems' that makes it particularly suitable for dealing with contemporary societal, economic, and environmental issues." The culture of consumption has been the main driving force since the twentieth century, prompting design to transform into activism for a more sustainable society. Design has the innate ability to critically approach social design issues through a critical lens and may be seen as a conscious effort to question those underlying practices. Design for social change employs design thinking to address social issues through co-design and participatory design. The criteria for "sensitizing design teams to the social domain are not enough; the designers also need to be envisioning futures of product use" and how they fit into people's lives (Postma, Lauche and Stappers, 2012, pp.30-32). Understanding the stakeholders with an empathetic approach—their motivations, needs, and aspirations within the scenario—gives the designers a holistic understanding of the social contexts they design for. The Central Saint Martins (UK) experimented with socially responsive design by creating products for public use, and Brown's (IDEO) evocative papers on Design for Social Impact paved the way for open platforms like ideo.org, which use design thinking to "improve the lives of poor and vulnerable communities around the world" (Tromp and Vial, 2022, p.212). The engagement with varied forms of social design has been pursued by design practitioners in India in various formats; however, the establishment of a formal platform to nurture the possibility of incubation of socially oriented design projects allows for a more formal approach in the education sphere. The United Nations formulated the Sustainable Design Goals, recognizing the potential of design as a potent tool for addressing real-world issues and ensuring a

more sustainable future. The UN engaged with schools by incorporating the SDGs (Sustainable Development Goals) into design thinking and STEM (Science, Technology, Engineering and Mathematics) modes, encouraging teachers and students to tackle social, economic, or environmental challenges. Balaram (2005, p.18) observes that "design educators consider the essential characteristics of a profession to be the practice as required by society," leaning towards a holistic approach to design issues. The relevance of social design in the Indian context is manifold, as it may be viewed as an enabler that can benefit a large part of the population with limited access to resources to resolve everyday problems. Sustainability as an agenda for designers has seeped seamlessly into the curriculum for fashion and design-oriented subject areas at design institutions like NID and NIFT. However, it needs to be addressed holistically, and future designers need to be apprised of the issues that affect the future ecosystem before they become practitioners in fashion and design.

Objectives

The primary research objectives were to explore the alternate teaching-learning pedagogy that was implemented through the three-pronged approach to the classroom project, leading to incubation. The aim is to comprehend the response of design students to the new format and their motivation to adopt a social design approach that incorporates the Sustainable Development Goals in the future. Armstrong and LeHew (2013) have explored the collaboration between the domains of social design and design education by incorporating the Education for Sustainable Development (ESD) framework. They envision a "new paradigm... a model of education is designed to transform the current industrial archetype and its consumptive demands, preparing learners to lead that transformation" towards socially responsive design.

Methodology

For this study, a qualitative research methodology with a case study approach was employed to get a deeper understanding of the design pedagogy followed and students' motivations through observation, interactions, a survey, and study of the research documentation provided by the students. The sample size was forty Indian design students aged 20–22 years at NIFT Delhi. The research was conducted through observation, interactions with students and DIM facilitators, discussions, and a survey through an online survey with closed-ended and open-ended questions to get uninhibited responses from the students. Given the researcher's dual role as a course faculty member, it was crucial to maintain reflexivity when conducting the research

within the student community. The inductive analysis of the data was also done from the standpoint of analyzing the responses and insights. The study of the main thematic aspects to assess the outcome of the projects from the students' perspectives revealed further insights; most of the students were enthusiastic and responsive about sharing their thoughts regarding the project.

Industry-Academia Classroom Project

The groundwork for the Design Impact Movement (hereby referred to as DIM) in India was laid in 2019 as a "grant program for product design that drives social impact in the country," pioneered by the Tata Group in India through TITAN-DIM. The forward-thinking incubation platform was visualized to create 'design practitioners for the future.' The program's objective was to "enable design students to conceptualize their ideas in the space of social impact by guiding them through the design process." This platform provided fertile young minds with the possibility of incubation, support, and funding at a student level, enabling them to grapple with issues of health, social equity, and agriculture under the framework of sustainable goals. Potential projects were recognized, and the winner received funding and incubation. It is significant to note that Titan (under the TATA Group) is one of the largest industries, with multiple brands under its umbrella that permeate the Indian market.

The evolution of roles that design and social innovation can meld themselves into has been discussed by Thackara (2013, p.25), who observes that "design and social innovation are discovering new roles too, in the creation of local living economies from ground up... understand and meet social needs, that their job is to design tools and platforms than finished artifacts as such."

TATA-DIM has demonstrated foresight by collaborating with design education institutes to cultivate an ecosystem for ethical and socially sustainable incubation, and to instill these values in emerging designers. It indicates the coming of age of the industry, wherein they have begun to acknowledge the need for sustainability by envisaging a program for design and incubation, which is a positive affirmation of corporate social responsibility that could pave the way for more collaborative ventures of similar dimensions.

Results

Collaborative teaching pedagogy

The three-pronged pedagogical approach (Figure 1) was envisaged as a collaborative approach to design pedagogy to provide holistic insights to the design students through

a connection between academia, the design industry, and design experts who provided added real-time grounded inputs through workshops and interactions. The Design and Society Module was visualized as a 3-credit course for seventh-semester students for 14 weeks inclusive of evaluation and assessments. The industry connect provided the platform and funding for the program, the knowledge partner provided specialized inputs through 2-3 workshops focused on design thinking and design research, and the in-house faculty introduced the tenets of the curriculum and provided continuous feedback and support to the design research process throughout the module.
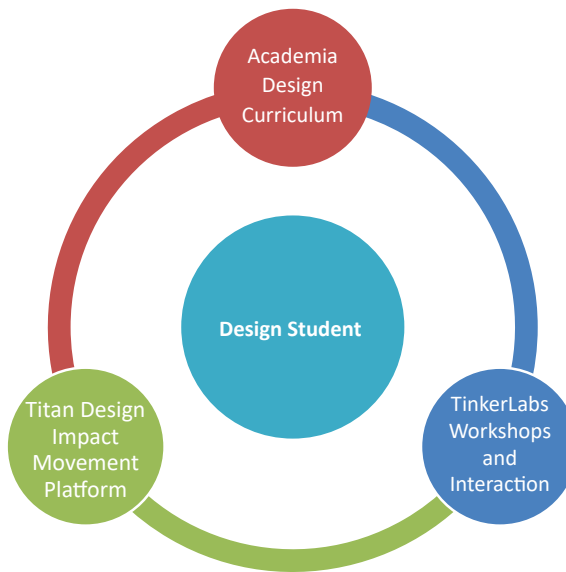
Figure 1: The three-pronged pedagogical approach

The intent of the curriculum was to introduce the students to real-life problems and the UN SDGs as the thematic framework, and immersive design research was one of the underlying strengths of the module. The collaborative model involved planning and detailed discussions between the stakeholders during pre-planning, project duration, and post-workshop to ensure focused delivery of the curriculum enhanced with real-life insights and engagements.

"Curriculum, pedagogy, and assessment are interlinked like the warp and the weave (weft). Curriculum needs to be broad and balanced. In order to transact a rich curriculum, the pedagogy becomes critical… and a variety of learning experiences can be given… to the learners" (Shankar, 2010). The framework provided by Shankar (2010) was adopted to understand the delivery, application, and implications of collaborative teaching pedagogy during a classroom project format for the student community (Figure 2). The

introduction of design process strictly aligned to the SDGs for Indian design students who have majorly worked in the context of fashion and product design.

The intended curriculum

The academic 'Design and Society' curriculum was envisaged to make design education more relevant to social needs and to inculcate an ethical, sustainable, and empathetic approach to design with regards to the UN Sustainable Design Goals to cater to marginalized communities. It strengthens the ESD framework by "broadening the dialogue, critical reflection, and active collaboration. This reinforcement of communication, teamwork, and student involvement allows for the development of skills, such as self-learning, problem-solving, and critical-creative thinking" in higher learning institutions. (Perello-Marin, Ribes-Gines and Diaz, 2018, p.3).
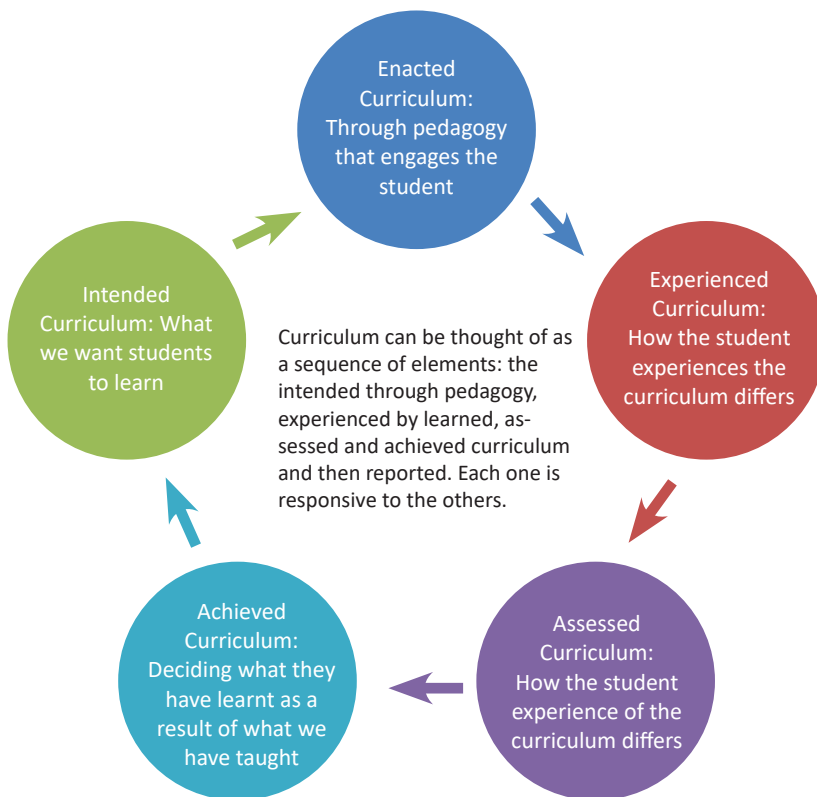
Figure 2: Curriculum, pedagogy and assessment: creating learning spaces
Source: Shankar, 2010

The enacted curriculum

The industry-academia collaborative module was integrated with the Design Impact Movement (DIM) platform. Through the discussions and case studies, design research for specific SDGs paved the way for deeper engagement with the social design domain. The knowledge partner TinkerLabs also contributed to the reframing of the learning outcome as per the guidelines with real-life scenarios that mark a "shift from teacher-centred training and instruction to learner-centred learning and capacity-building" (Perello-Marin, Ribes-Gines, and Diaz, 2018, p.3).

The co-teaching pedagogy enabled the learner to gain enriching insights. It was implemented through expert lectures, in-depth user research, workshops, and outcomes, along with immersive workshops and insights by the behavioral and design thinking firm with continuous interaction, feedback, and monitoring by the in-house faculty.

The TinkerLabs team introduced the DIM initiative, a classroom project that would culminate into a social design entry for the DIM competition at the national level and could be part of a mentored incubation model. To encourage a structured approach to critical thinking, a workbook-format social design initiative along the lines of the IDEO workbook and Frog Design's CAT (Collective Action Kit) was provided to the students. This helped to maintain and provide regular feedback regarding the application of the varied design research tools it encompassed, as explained through the three-stage social design process (Figure 3).
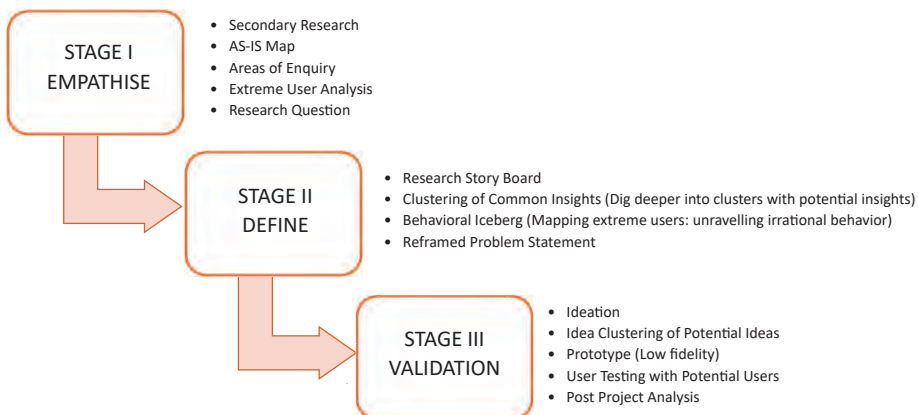

STAGE I EMPATHISE
- Secondary Research
- AS-IS Map
- Areas of Enquiry
- Extreme User Analysis
- Research Question

STAGE II DEFINE
- Research Story Board
- Clustering of Common Insights (Dig deeper into clusters with potential insights)
- Behavioral Iceberg (Mapping extreme users: unravelling irrational behavior)
- Reframed Problem Statement

STAGE III VALIDATION
- Ideation
- Idea Clustering of Potential Ideas
- Prototype (Low fidelity)
- User Testing with Potential Users
- Post Project Analysis

Figure 3: Design for social impact: social design framework for design impact movement (DIM)
Source: TinkerLabs

Experienced curriculum

The experienced curriculum refers to the transaction of the curriculum and knowledge gained during the design process. The time frame of a design project may be tight, but immersive interaction with the user was encouraged. The students' design thinking developed with the help of experts through orientation, and the faculty supported the achievement of the curriculum's goals with the SDGs through user testing on the field. TinkerLabs, a design consultancy firm specializing in behavioral analysis, conducted 2-3 workshops. The insights gained from mapping their immediate environment during the workshops demonstrated the application of methods such as observation, shadowing, and field research. A deeper understanding of extreme user behavior and analysis gave impetus to the empathetic user research and mapping done by the students; detailed analysis of scenarios, brainstorming, and creative stimuli were some of the methods that helped the students articulate the concerns linked to social design issues. The workshops, which set apart from the in-house faculty interactions, introduced students to the behavior iceberg. This iceberg highlighted extreme users and their irrational behavior, prompting further analysis or diagnosis to understand the underlying causes of their actions. The collation of data and analysis was done in detail through storyboards, thematic visual mapping, clustering of respondents' answers, and analysis to get to the root of the problems. The immersive design research, which involved in-depth user study, was one of the most significant parts of the project, supported by online tutorials, DIM Masterclass, and case studies available for students to peruse beyond the constraints of time. The students also engaged in understanding the user's worldview through observation, shadowing, and role play. For one of the projects, the students studying delivery agents used role play to experience the challenges they faced while carrying heavy bags and navigating busy streets on two-wheelers, a process they documented for the module. They also documented their journey, including studying vehicles and their dimensions to understand ergonomics and user experience (Figure 4).

Figure 4: Primary research by students
Source: Student documentation

The students worked within the framework of social design with an empathetic approach; one of the projects employed 'SDG 3: to ensure healthy lives and promote well-being' among all. The project revolved around specially-abled research participants, where one of the projects examined the problems faced by them and the effort to improve the quality of life during their day-to-day living. "Our design product (Figure 5) is to create lunch boxes for people with motor issues. We aim to make these people self-reliant and have the maximum control over their lives without requiring external assistance," was the motivating factor highlighted by the students.
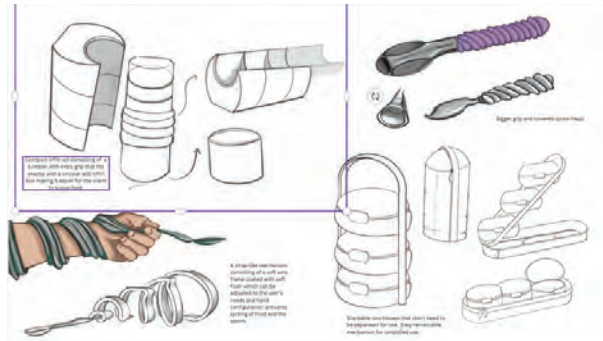
Figure 5: Conceptualization based on the special needs of the user
Source: Student project

The students were advised to look at simple everyday activities around them to empathetically identify design opportunities, trying to find connections with larger global problems and their manifestation at the local level, which would account for deeper, incisive research in these areas.

The student group envisioned the dignity of labor for users with impaired motor skills, who created products for Diwali sales through block printing. They worked on an ergonomic concept to facilitate the usability of block printing for users with special needs (Figure 6). Empathetic research of users with mobility and impaired motor skills helped them create an ergonomic concept that could be effectively managed to work out varied printing options according to the dignity of labor and a sense of achievement to the special user. This project was selected for the next phase of incubation and research.

The varied projects were based on SDGs related to food waste, woodworking solutions for carpenters, alleviating the pain points of delivery workers, issues faced by hearing-impaired youth in the retail experience, issues faced by ragpickers, shelter for the

homeless, unsustainable packaging waste due to online shopping, and re-organizing and planning the vegetable vendor cart were some of the areas of intervention envisaged by the students. As one student articulated, "We looked at how food waste is a huge problem in today's society. We looked at various types of food waste, and from a consumer perspective, we identified how many people end up throwing out their food because they might not own a refrigerator." Their insight prompted them to look at students and young professionals living alone on limited budgets and frequent shifting. They decided to harness the concept of terracotta storage units for overnight food storage.

Figure 6: Field work and deep dive user research based on the special needs of the user
Source: Student documentation

The students experimented and even did initial testing to see whether the food could be preserved in the proposed way before conceptualizing the final outcome (Figure 7). Similarly, all the other student groups also conducted in-depth product and user research, which was enriched with inputs from the design experts and deep-dive workshops with TinkerLabs.

Figure 7: Exploration and testing of low fidelity mockups
Source: Student project

Assessed curriculum

An effort was made to understand how the students experienced the collaborative curriculum and the learning outcome and to assess how it would affect the real-world application. The faculty conducted continuous assessments and detailed presentations at various stages, consulting with the TinkerLabs team based on their depth of research, performance, and conceptualization. In addition to NIFT's mid-module, end-module, and external jury assessments, industry partners evaluated the design projects at the national level, selecting one for the second phase of incubation and mentoring. There was post-module retrospection with faculty, TinkerLabs, and the TITAN-DIM team.

Student reflections

The design community is increasingly advocating for young designers to integrate social, ethical, and sustainable elements into their design practice. Design, as an activity, has traditionally catered to the privileged sections of society, using the innate ability of design thinking to apply itself in varied contexts where 'design for the other 90%' (Papanek, 1976) and 'design for the majority world' are important.

The researcher conducted discussions and administered an online survey to assess the students' learning experiences. The SDGs and their applications were discussed with the design students, which opened up new perspectives for design interventions in scenarios that had not been evinced earlier. Students expressed that this was their first experience working on a project specifically aligned with the SDGs. Some of the students felt that "design and society is the first subject that most realistically incorporated all the sustainable and social criteria." Figure 8 shows that nearly half of the class (47.4 percent) felt that the inclusion of SDGs in the design process helped them greatly. The awareness regarding the SDGs helped frame the conceptual framework for the design project to be ensconced in the concepts of inclusive design, social equity, and sustainability.
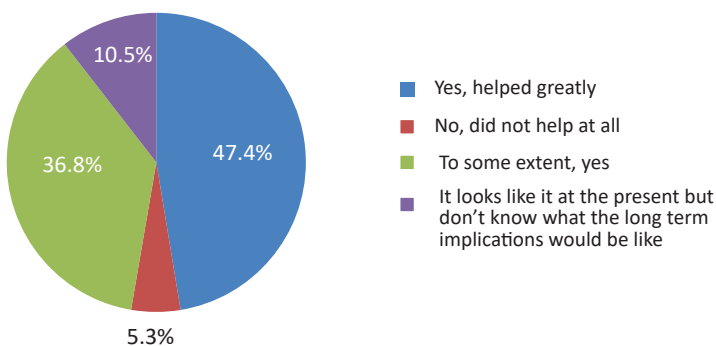

Figure 8: Students' response to incorporation of SDGs in the design process

The respondents added that the inclusion of SDGs helped them understand "the importance of user-centric design models, and as these problems are sensitive to communities, we learned that the designs should be culturally sensitive, respecting people's customs, values, and beliefs to ensure that the solutions are well received within the community." The students' ruminations highlighted the empathetic aspects of understanding the user's context and their needs.

Interestingly, in terms of the 'experienced' curriculum, the students experienced most of the critical learning outside the four walls of the classroom, which guided them through the long-term applications of their classroom knowledge. The students spent time beyond the classroom hours interacting and eating lunch with differently abled respondents to understand the challenges they face in independently navigating work and play. They also shadowed ragpickers during their daily sojourn. They observed, shadowed, and even role-played to understand the problems faced by delivery executives daily or the issues faced by homeless street dwellers. The students undertook challenges such as examining household waste from online shopping, food waste, water mobility, elder care, and hearing impaired people navigating retail spaces to gain a deeper understanding of their users. The students' meaningful interactions with the users helped define the projects, endorsing deep dive-guided research by "interacting with the users personally and understanding the root cause of a specific problem."

The 'assessed' curriculum takes into account the differences in the student experience and the methods of observation and assessment. The respondents felt that "embarking on projects like these transcends the scope of traditional assignments by cultivating critical thinking, real-world application, collaborative skills, creativity, a sense of ownership, and a commitment to lifelong learning." The DIM team also assessed the projects at the national level and selected potential projects for the next phase of the project. The team emphasized that applicable solutions and impact assessment could be eligible for recognition or incubation under the program, which greatly motivated the students. Some respondents opined: "Design thinking is like a teamwork approach to solving problems creatively. When we use it for Sustainable Development Goals (SDGs), it means bringing people with different skills together to find smart solutions for global challenges."

The 'achieved' curriculum entails what the students have learned based on collaborative input. According to the post-module experience, "The most rewarding aspects of the social project and subject include the opportunity for real-world impact, interdisciplinary collaboration with socially oriented design professionals, a heightened sensitivity to

SDGs, emphasis on user-centric design, practical application of knowledge, and the promotion of a global perspective, addressing challenges beyond local boundaries." An overwhelming majority, 57.9 percent of the students, felt that the SDGs would have long-term applicability as design practitioners in the future (Figure 9).
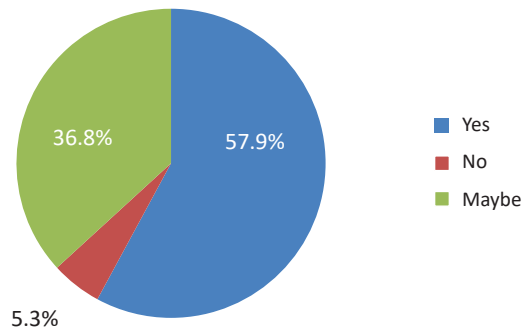

Figure 9: Students' response to long-term applicability of SDGs by students

The objective of the module was to sensitize the students to incorporate an empathetic approach within the social design domain. The respondents were of the view that "the collaborative nature of design thinking and SDGs makes them powerful tools for achieving positive change. By working together, designers, policymakers, and communities can develop and implement solutions that are both effective and sustainable." This gives an insight into how the socially relevant projects provide a holistic viewpoint to the students to enable them to tackle issues at a systems level.

Finally, the respondents were asked to reflect on how their work direction had changed and what new insights they had gained from solving the problem in their particular project. They felt that they understood how to deal with sensitive topics while designing, taking interviews, and discussing them. "In the future, if I must do something like this again, I wouldn't be going in blind." A big majority of students, 78.9 percent, confirmed the long-term application of an empathetic design process (Figure 10). They indicated their learning within the project had equipped them with skills to take on more sensitive projects in the future with equanimity, and the learning acquired during the module would find application in the future. As one of the students stated, "Through the SDG model, I will always try to embed sustainability principles in any of the design projects that I will undertake in the future. This includes considering the environmental impact throughout the product life cycle, from raw material sourcing to end-of-life disposal

and striving for eco-friendly solutions. I will also try to prioritize social inclusivity in design, ensuring that designs are accessible to diverse user groups, regardless of abilities, cultural backgrounds, or socioeconomic status." This was one of the major achievements during the collaborative module, as students found value and felt that they would apply the learning in their future design practice.
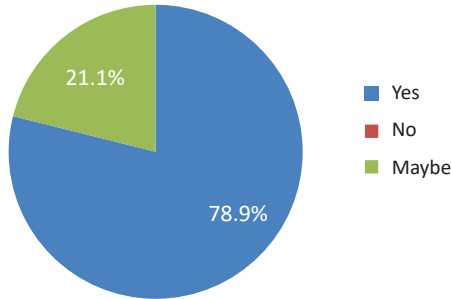

Figure 10: Students' response to long-term application of empathetic design process

Limitations

While pedagogic intervention and collaboration with professional platforms in a competitive mode are beneficial for design education, merging objectives and varied timelines may be problematic during execution. Some of the respondents felt strongly about the paucity of time for ideation after the extensive research and advocated the need for dedicated timelines for real-life projects. For better outcomes, one may consider spreading the project across two or three semesters with continuous evaluation. The relevance of the subject and its real-world implications were emphasized: "Problem-solving projects like these need a very extensive and dedicated time interval, which, if mixed up with the rest of the academic projects, might result in chaos, or the results might not be as thorough and full realization as extensively rehearsed and tested for their practical implementation."

Aligning the academic and DIM project timelines proved to be a challenge, as the academic calendar curtailed the timelines due to end-semester juries and final graduation projects, while the DIM project timelines were longer, resulting in a mismatch. The results were announced half a year later; the students had already graduated and engaged in different endeavors. Even though the majority of the students appreciated the planned and articulated design process, observations exhorted the need for more freedom during the design process.

Discussion

The dichotomy of teaching creative minds how to design more products but how to be responsible for the ecosystem that they create has always been a dilemma for a design educator. This module presented a unique opportunity to undertake projects with real-life applicability, and harnessing the enthusiasm of the student community towards the module pointed to the potential for socially oriented design with sustainable guidelines. As UAL articulates in their Responsible Design Framework (RDF) treatise, educators have the "responsibility of creating responsible designers." As design schools have realized the importance of these issues, design education in India has begun to work towards exploring varied typologies of social design intervention. This collaborative platform fostered students' sensitization to the tenets of socially responsible design, aligning with the educator's goals to make future generations of socially responsible designers who would meld SDGs into their design practice. The opportunity to engage in deep user-based research aided by behavioral and user design experts' deeply insightful empathetic research was appreciated. Responses from the students highlighted their views; one student eloquently stated, "Taking on a project with a focus on SDGs goes beyond merely completing an assignment. It contributes to a broader societal impact by addressing global challenges, promoting sustainable solutions, and fostering a sense of social responsibility. The results can have lasting effects beyond academic achievements, making a meaningful difference in real-world contexts."

The projection of the critical impact of their designed products in future scenarios was also a part of the reflective exercise and its implications for future use. A module like DIM with design mentors from the industry created a journey map for the students to reach their research journey and helped them navigate their way by providing case studies and insights in a collaborative manner.

Conclusion

The purpose of this research has been to gain a deeper understanding of the collaborative design education pedagogy and the students' understanding and response to the collaborative project. The insights provided by the students indicate a definite need and space for implementing modules along the lines of collaborative design pedagogy to create responsible, receptive, and empathetic designers for the future. There is a need for the industry and academia to re-examine design pedagogy and its alignment with industry needs and, through introspection, elucidate more areas for social design research and collaboration. The industry-academia collaborative platforms, supported through corporate social responsibility and funded incubation models, could drive

conceptual projects into the domain of real-life applications to create a positive ecosystem of growth and a mindset geared towards a more sustainable world for the future.

The collaborative pedagogy through industry-academia-expert workshops and interactions paved the way for one of the student team projects to reach the incubation stage, enabling work and dignity among specially-abled individuals for the next phase of funding and mentorship. The success of the student team selected for working on block print tools was chosen as one of the potential product outcomes amongst 3000 projects across India that progressed to the second phase for mentoring for funded research.

Professional design education greatly benefits from the real-time insights provided by practicing professionals. Design educators constantly strive to bolster classroom teaching with enriching insights and real-life applications of learning. The in-depth extreme user study and understanding of the psycho-social behavioral iceberg, which delves deeper to ascertain insights based on the three-stage approach, have the potential to be adapted into classroom teaching pedagogies. It provides the framework for a new praxis from inception to reality for projects grounded in real-life scenarios at the classroom level that have the potential for funding and incubation. The collaborative pedagogy that envisaged industry and academia working in tandem could be beneficial to society if real-world problems are resolved for communities that don't have access to such interventions.

Acknowledgement

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Cultivating Circular Design in Fashion Education: Navigating Challenges and Fostering Sustainable Practices

Prakash Dutt and Archana Gandhi

Abstract

The fashion industry's growing pursuit of sustainability has spurred interest in circular design, a paradigm aimed at replacing linear consumption patterns with regenerative models. Embracing circularity, the fashion industry could mitigate its environmental and social footprint by extending product lifecycles, minimizing waste, and emphasizing recycling and reuse. This research explores perceptions, attitudes, and challenges faced by fashion designers and design students in the context of sustainable fashion and circular design principles. A mixed methods approach was employed to analyze the data including in-depth interviews and structured survey as well as qualitative thematic analysis and quantitative analysis. The study indicated ranging familiarity with terms related to sustainable fashion among designers and students. Though the participants were aware of the value of sustainable principles in design, they struggled with integrating sustainability into their practices. The internal challenges encompassed a lack of clarity surrounding sustainable design, trade-offs with aesthetic concerns, and the absence of design-led approaches. The external challenges included navigating the sustainability landscape complexities, closing consumer demand gaps, and addressing underdeveloped business incentives.

This research underscores the importance of collaborative approaches, innovative design strategies, and industry-specific tools in fostering sustainable fashion practices within the fast-paced fashion industry. It also emphasizes the crucial role of designers in advancing circular design and driving sustainable fashion solutions, highlighting their responsibility in shaping a more environmentally conscious and circular fashion landscape. The study indicates that fashion professionals lack expertise in ethical material sourcing, traceability, waste audits, sustainable regulations, certifications, and life cycle assessments, especially compared to other sectors focused on social responsibility. Design education plays a critical role in integrating sustainable practices into the fashion system. Circular design is essential for curricula aimed at developing

innovative and adaptable professionals who can meet the evolving sustainability demands of the industry. Social, ethical, and environmental considerations are central to this approach, equipping future designers to navigate the complexities of sustainable fashion.

Keywords: Sustainable fashion, circular design, designers' perceptions, challenges, sustainable design education, social and ethical parameters

Introduction

The fashion industry, renowned for its intricate global supply chains and rapid production-consumption cycles, stands as a significant contributor to resource depletion and environmental degradation (Supriyanto et al., 2022; Johnson and Plepys, 2021). This industry's inherent complexities, driven by evolving trends and consumer demands, present a formidable challenge to achieving sustainability (Mezgebe et al., 2023). The primary objective of this study is to examine the various challenges associated with the integration of circular design and sustainable practices within the fashion industry.

The foundations of the fashion industry's current predicament can be traced back to the advent of the linear economy—the "take-make-use-dispose" paradigm that emerged during the Industrial Revolution (Thinakaran et al., 2023a). Throughout history, this model has driven global economic development, shaping patterns of production and consumption that have profound ecological and societal implications (Zeltina, 2021). In parallel, the role of designers has been instrumental in shaping this trajectory, unwittingly perpetuating a linear approach (Dam et al., 2020; Hugo, Nadae and Lima, 2021). However, this article asserts that designers, who were key facilitators of the linear economy's ascendancy, possess the latent potential to usher in a paradigm shift towards a circular economy. While the linear model once reigned supreme, the unsustainability of its practices is increasingly evident. Scarce natural resources, hazardous chemicals, social exploitation, and mounting clothing waste underscore the fashion industry's multifaceted challenges.

The linear production and consumption patterns, particularly prevalent in developed countries, have rendered the fashion sector one of the most resource-intensive and ecologically damaging (Thinakaran et al., 2023a). The study focuses on how the shift from a linear economy to a circular one can address these issues through innovative design and sustainable approaches. The emergence of a circular economy that mimics regenerative processes presents a hopeful solution. However, navigating this shift comes with hurdles and limitations that require maneuvering. Overcoming obstacles

like resistance to change and challenging consumption patterns, and reimagining design thinking are crucial steps to foster circular design.

The article highlights the importance of education, in developing curricula for sustainable development. Encouraging a transition to the circular economy requires more than just technical expertise. The shift to a circular economy demands not only technical skills but also a change in mindset and ethical obligations on the part of designers. Although there are challenges ahead education can serve as a foundation for empowering designers to lead sustainability initiatives in the fashion industry. Drawing upon insights from historical transitions, the complexities of contemporary fashion, and the transformative potential of design education, this study contributes to the ongoing discourse on circular design and its implementation within the fashion industry. Aligned with these objectives, the research investigates how professionals in the fashion design sector perceive, engage with, and navigate sustainable fashion practices. It delves into the barriers and drivers of circular and sustainable fashion design and evaluates the adoption of existing tools and resources.

Sustainability vs. circularity: distinctive approaches in fashion's eco-conscious evolution

In contemporary fashion, the terms 'sustainability'' and 'circularity' have emerged as pivotal discourses, often used interchangeably yet encapsulating distinct paradigms. Both concepts advocate for a more responsible and eco-conscious approach to fashion, but they originate from divergent principles and methodologies (Gil-Lamata and Latorre-Martinez, 2022; Ozdamar-Ertekin, 2019; Wegener et al., 2023).

Sustainability in fashion primarily emphasizes the production and consumption processes that minimally impact the environment and society (Patwary, 2020). Sustainable fashion seeks to ensure that every stage of a product's lifecycle—from raw material extraction to garment disposal—adheres to ethical and environmentally benign practices (Dominish et al., 2018). This perspective encapsulates a broad spectrum, including organic raw materials, fair labor practices, reduced carbon footprints, and minimized waste (Rani, 2019). The goal is to strike a balance, ensuring that the needs of the present do not compromise the well-being of future generations.

On the other hand, circularity, or circular fashion, draws inspiration from the cyclic nature of the ecosystem (Gomes et al., 2022; Lucchetti et al., 2019). It challenges the traditional linear model of 'take, make, dispose' that has been prevalent in the fashion

industry (Thinakaran et al., 2023b). Instead, circular fashion emphasizes a closed-loop system (Knošková, 2020) where products are designed for longevity, can be easily recycled, and ideally regenerate new products at the end of their life (Chen et al., 2019). This approach inherently reduces waste by reintroducing post-consumer items back into the production cycle, either through recycling, upcycling, or repurposing (Sung, Cooper and Kettley, 2019). The essence of circularity is not just to reduce the negative impacts but to create a regenerative system that positively benefits both the environment and society (Ghaithan et al., 2023).

While both sustainability and circularity aim for reduced environmental footprints and ethical consumerism (D'Adamo et al., 2022), their core differences lie in their approach to achieving these goals (Koszewska, Rahman and Dyczewski, 2020). Sustainability in fashion is a holistic approach, integrating ethical considerations at every step of the product lifecycle (McNeill and Moore, 2015). Circularity, meanwhile, challenges and reimagines the very lifecycle of a product, ensuring that fashion items never truly reach an 'end', but instead contribute to a continuous cycle of utility (Pal, Shen and Sandberg, 2019).

In conclusion, while sustainability and circularity in fashion share overlapping objectives and often inform one another, they are distinct in their foundational principles and strategies. Recognizing the nuances between these two is crucial for academics, industry practitioners, and consumers alike, ensuring that the fashion industry evolves in a manner that is both responsible and regenerative.

Fostering sustainability through design thinking, circular economy principles, and educational strategies

In the realm of sustainable development and the mitigation of environmental challenges, there exists a noteworthy interconnection among the concepts of design thinking, the circular economy, and education for sustainability. Design thinking as a methodology places particular emphasis on fostering empathy, encouraging collaborative efforts, and advocating for iterative problem-solving as essential components for the development of innovative solutions (Sumter, Bakker and Balkenende, 2018). Transitioning to the circular economy, this framework aims to reduce waste generation and optimize resource utilization through practices such as product and material reutilization, repair, and recycling (Mendoza, Gallego-Schmid and Azapagic, 2019). Integrating these principles into educational curricula and institutions forms the basis of education for sustainability (Tilbury et al. 2003).

Design thinking is a collaborative problem-solving and human-centric approach that fosters innovation by elevating participants' creative thinking abilities (Aflatoony, Wakkary and Neustaedter, 2017). It has drawn interest in several domains, including design, education, and business (Liedtka, 2014). To meet the demand for new skills in the twenty-first century, design thinking has been included in different secondary and post-secondary education curricula (Aflatoony, Wakkary, and Neustaedter, 2017). This helps resolve complicated issues in a wide range of non-design domains, such as business, healthcare, social science, and library services (ibid.). A thorough framework for tackling sustainability issues can be obtained by combining design thinking, circular economy, and instructional techniques. Design thinking is a useful technique in sustainability education because it helps students develop their critical and creative thinking abilities, which empowers them to address complex sustainability issues from a human-centered perspective (Clark, Stabryla, and Gilbertson, 2020). Students and professionals can create creative solutions that take into consideration the social, economic, and environmental facets of sustainability by utilizing design thinking principles (Clark, Stabryla, and Gilbertson, 2020). It is critical to build the requisite knowledge, techniques, and resources to successfully integrate design thinking and the concepts of the circular economy into educational models that support sustainability.

Furthermore, the circular economy provides a framework for incorporating sustainable practices into educational institutions. Universities have the chance to improve waste reduction, resource efficiency, and sustainable campus management (Mendoza, Gallego-Schmid, and Azapagic, 2019). Universities can create plans to reduce their environmental impact and provide a more sustainable learning environment by adopting the concepts of the circular economy (ibid.).

In conclusion, "design thinking," the "circular economy," and "education for sustainability" are interconnected concepts that can contribute to addressing environmental challenges and promoting sustainable development (Wiek, Withycombe and Redman, 2011). By integrating design thinking principles and circular economy strategies into educational curricula and institutions, we can foster creative problem-solving skills and promote sustainable practices (Wiek, Withycombe and Redman, 2011). Overall, design thinking offers a practical and effective approach for addressing sustainability challenges in education. It empowers students to think critically, consider multiple dimensions of sustainability, and develop innovative solutions. By incorporating design thinking into curricula, educators can enhance students' creative thinking abilities and prepare them for the complex challenges of the twenty-first century (Clark, Stabryla and Gilbertson, 2020). However, further research and empirical evidence are needed to fully understand

the role of design and the implementation of circular economy thinking in educational contexts (Sumter et al., 2020).

Background of Research

The essence of the fashion industry is grounded in its perpetual state of evolution and the demand for constant innovation, whereas sustainability is closely linked to durability and preservation (Hailemariam and Nuramo, 2023). The definition of sustainable fashion remains multifaceted, and there exists a notable disparity between consumers' intentions and actions in terms of environmentally conscious behaviors (Wang et al., 2022). The difficulties encountered in adopting sustainable consumption practices can be categorized into three primary domains: individual, social, and cultural experiences (Li et al., 2020; Niedek and Krajewski, 2021; Raippalinna, 2022).

The fashion industry's fast-paced consumer demand often clashes with sustainability principles aimed at long-term balance (Hur and Cassidy 2019a; Dobos 2022; Thinakaran et al. 2023c). This inherent tension highlights the disconnect between the industry's constant change and sustainability's enduring nature, which aims to balance environmental, social, and economic issues (Azam et al., 2022; Groschopf, Dobrovnik and Herneth, 2021). Previous studies show a significant gap between consumers expressed environmental concerns and their purchasing behaviors, further complicated by skepticism towards green products (Moorthy et al., 2023; Caldas et al., 2021; Mavlutova et al., 2021). Addressing these challenges requires a comprehensive approach that integrates design thinking, circular economy principles, and targeted educational strategies (Tilbury et al., 2003; Sumter, Bakker and Balkenende, 2018).

By understanding these tensions and gaps, we can better address the challenges within the fashion industry's sustainability efforts and develop strategies to bridge the disconnect between consumer intentions and actions. Addressing these challenges requires a comprehensive approach that integrates design thinking, circular economy principles, and targeted educational strategies (ibid.).

Fashion designers and design professionals now stand at the forefront of a pivotal moment, where they possess the potential to spearhead a transformative shift (Kam and Yoo, 2022). Beyond their traditional role in crafting for a "closed loop," they wield the capacity to shape both business practices and consumer behavior, ultimately extending the lifespan of products and enhancing their perceived value (Lee and Weder, 2021; Ta, Aarikka-Stenroos and Litovuo, 2022). For this vision to materialize, though, a dual transformation is imperative. Some designers must reorient their practices,

while others need to undergo a fundamental shift in both their methods and mindset (Tladi, Mokgohloa and Bignotti, 2021). Currently, sustainable design, encompassing the principles of the circular economy, remains conspicuously absent as a mandatory facet of the design profession (Ceylan, 2021; Chien, Yao and Chao, 2020). Additionally, this paradigm shift is often perceived by many established fashion designers as an unwelcome addendum to an already extensive list of design considerations (Heim, 2022). As a result, some are hesitant to embrace sustainability as an integral aspect of their work (Kam and Yoo, 2022; Nistor and Bálint, 2022). One viable approach is to encourage established designers to actively seek knowledge and expertise in circular and sustainable design through continuous professional development.

This study takes a mixed-methods exploratory approach to unpack these complexities (Jalil and Shaharuddin, 2020; Kam and Yoo, 2022). It aims to understand the views and challenges of fashion design practitioners regarding sustainable fashion, as well as their awareness of current sustainability tools and methods valuable for design. The overarching purpose is to shed light on sustainable design perceptions and strategies within fashion. Specifically, this study aims to:

- Identify key barriers to the adoption of circular design principles.
- Analyze the levels of understanding and engagement with sustainability among different stakeholder groups, including designers, students, and educators.
- Investigate the impact of these challenges on the implementation of sustainable practices.
- Propose educational strategies to address identified gaps in knowledge and facilitate the adoption of sustainable practices.

Research Methods

The current study employed a mixed-method approach, integrating qualitative and quantitative methodologies (Hesse-Biber, 2010; Youngs and Piggot-Irvine, 2011), to get a thorough examination. This investigation employed a research methodology that blended open-ended and closed-ended inquiries to comprehensively investigate the significant obstacles associated with sustainable fashion. Moreover, the study sought to explore the intricate beliefs and attitudes that are prevalent among the fashion design community. This study sought to achieve two main aims by carefully combining qualitative and quantitative approaches (Caldas, 2003; Lewis, 2015). Firstly, it wanted

to demonstrate clear relationships between variables through systematic designs. Secondly, it aimed to create an opportunity for the development of explanatory insights.

To examine sustainability issues relevant to the fashion industry, a comprehensive inventory was carefully developed, incorporating insights derived from prior academic literature. The inventory was specifically designed to encompass several aspects of sustainable fashion. Subsequently, an assessment was conducted on each category within this framework using a Likert scale (Stratton, 2018), which provided a measurable gauge of the respondents' viewpoints. Likewise, a comprehensive examination of previous studies revealed a range of obstacles that impede the smooth incorporation of sustainable practices in the fashion business (Choi and Li, 2015; Lee, Kim and Yang, 2015). The aforementioned impediments, which are indicative of a wide range of issues, were subsequently recognized and documented.

Data collection and analysis

This study conducted comprehensive face-to-face interviews (Hilgert, Kroh and Richter, 2016) with 13 professionals working in the fashion business, primarily focusing on individuals employed as fashion designers and technical designers. The purpose of conducting these interviews was to gain a thorough and genuine comprehension of the subject matter. To enhance the reliability of the research outcomes, the data underwent a process called triangulation, wherein cross-verification and corroboration were conducted (Youngs and Piggot-Irvine, 2011).

The participants were purposefully selected, with a specific focus on individuals who were actively involved in the field of fashion design. A hybrid approach involving both online surveys and semi-structured interviews was utilized, with the surveys being self-administered to cohorts of individuals affiliated with fashion design. To broaden the pool of respondents, the researchers employed the snowball sampling method, in which participants referred to or invited additional individuals.

The research sample was drawn from diverse geographical places, encompassing China, Bangladesh, India, Vietnam, Turkey, Germany, and the United Kingdom. A diverse group of people, including designers, educators, professionals employed in the fashion sector, and fashion design students, actively participated in the questionnaire. The voluntary nature of participation resulted in a sample that had a greater inclination towards environmental consciousness in comparison to the wider population within the fashion and textile design industry. The research had a sample size of 88 participants (Table 1).

Table 1: Participants' description

Fashion Designers	26
Technical Designers	12
Product Development Professionals	22
Design Students	18
Educators	10
Total	88

The data analysis process employed in this study was comprehensive, incorporating both quantitative and qualitative methodologies (Caldas, 2003; Lewis, 2015). A thematic examination of the content was performed to determine the significant themes and determinants present in the qualitative data that was supplied in textual format (Caldas, 2003; Lewis, 2015). This process entailed a thorough analysis of transcripts, systematically dissecting them on a line-by-line basis. The process of open coding was employed to categorize topics, facilitating the establishment of linkages and enabling comparisons across many thematic groups (Lewis, 2015). The utilization of a multidimensional analytical technique enabled a comprehensive and in-depth examination of the gathered data (Edwards, 2001).

Metrics explanation

To categorize the participants' levels of knowledge and engagement, specific metrics were used:

- **No Knowledge:** Participants have no prior knowledge or experience with the concepts.

- **Limited Knowledge:** Participants have some basic understanding but lack comprehensive knowledge or experience.

- **Good Knowledge:** Participants have a sound understanding of the concepts and can apply them in practical scenarios.

- **Proficient and Actively Engaged:** Participants thoroughly understand the concepts and are actively involved in applying them in their professional practices.

This categorization provided a clear framework for assessing the varying levels of sustainability knowledge and engagement among different participant groups.

Results

Circular and sustainable fashion refers to the implementation of clothing production and consumption strategies that strive to minimize waste and mitigate environmental impact. Additionally, it emphasizes the importance of durability and ethical manufacturing procedures. The participants were provided with instructions to express their current understanding of circularity and sustainability in the context of apparel and textile design.

In the pursuit of understanding sustainability and circularity within the realm of fashion design, the present research delineated 11 principal categories (Table 2). These categories were meticulously curated, drawing inspiration from distinct sustainability and circularity challenges previously identified in the literature review. These categories not only encapsulated the multifaceted nature of sustainability in fashion but also resonated with findings from prior studies, thereby reinforcing their pertinence in the ongoing discourse.

Table 2: Principal categories

Category	Relevance to Circularity	References
Materials	Pertains to the selection of sustainable raw materials and recycled materials, essential for creating products within a circular model.	(Nayak et al., 2019; Yadav, Kar and Raj, 2022)
Design for Longevity	Designing for longevity reduces the need for frequent replacements, promoting reuse and minimizing waste.	(Öndoğan et al., 2016; Stenton et al., 2021; Zakrzewska-Bielawska and Lewicka, 2021)
Waste Reduction	Central to circularity, it emphasizes minimizing waste at every product lifecycle stage.	(Chernysh and Roubík, 2020; Enes and Kipöz, 2019; Wang, Zhang and Ullah, 2022)
Circular Business Models	Business models like product-as-a-service or sharing platforms that are designed to support circular economy principles.	(Cao et al., 2022; Khajavi, 2021; Peters and Simaens, 2020)
Upcycling and Recycling	Upcycling adds value to waste materials, while recycling ensures materials are reused—both are essential in a circular economy.	(Charnley et al., 2022; Kim, 2015; Sung, Cooper and Kettley, 2019)

Category	Relevance to Circularity	References
Social Responsibility	While broader than just circularity, responsible social practices often align with sustainable and circular business practices.	(Hoejmose and Adrien-Kirby, 2012; Park-Poaps and Rees, 2009; Zorzini Linda; Huq FahianAnisul; Stevenson Mark, 2015)
Consumer Engagement	Engages consumers in sustainable practices, like returning products for recycling or buying refurbished items, supporting the circular model.	(Austgulen, 2015; Balan, 2020; Koszewska, Rahman and Dyczewski, 2020; Moorthy et al., 2023)
Lifecycle Assessment	Evaluating a product's environmental impact throughout its lifecycle identifies areas to reduce waste and increase efficiency.	(Maaß, Spruit and Waal, 2014; Moreno et al., 2016)
Regulations and Certifications	Guide or mandate circular practices, ensuring businesses adhere to sustainable and circular principles.	(Baumgartner, 2019; Hasbullah et al., 2023; Oelze, Gruchmann and Brandenburg, 2020; Sartor et al., 2016)
Innovation and Technology	Drives more efficient recycling processes, the development of new materials, or the creation of platforms for sharing and reusing products.	(Spychalska-Wojtkiewicz, 2020; Suwartha et al., 2018; Vegera et al., 2018)
Collaboration and Industry Trends	Collaborative efforts, like industry partnerships, accelerate the shift towards a circular economy by sharing resources, knowledge, and best practices.	(Arias et al., 2022; Balan, 2020; Delbufalo and Bastl, 2018; Elkington, 1998; Gonçalves and Silva, 2021; Vachon and Klassen, 2008)

Upon meticulous examination of the dataset, distinct patterns of knowledge distribution among participants across various sustainability-related domains were observed. Within the realm of sustainable material selection (Figure 1), 75 percent of the cohort demonstrated adequate knowledge or proficiency about 'natural and organic fibers'. Similarly, 62.5 percent of participants displayed strong proficiency in the 'recycled materials (fabric & trims)' domain. Conversely, certain areas exhibited a notable deficit in participant proficiency. For instance, in 'ethical material sourcing' and 'material traceability', only 36.4 percent and 35.2 percent of participants, respectively, were categorized as knowledgeable or proficient. These gaps highlight the areas in which participants lacked awareness or practical experience, pointing towards a need for stronger emphasis on ethical sourcing and traceability within fashion education programs.

In the case of waste management strategies (Figure 2), participants displayed good understanding in 'material waste reduction techniques' and 'efficient pattern making'. However, only a mere 13.7 percent exhibited good knowledge or proficiency in 'waste auditing and analysis'.
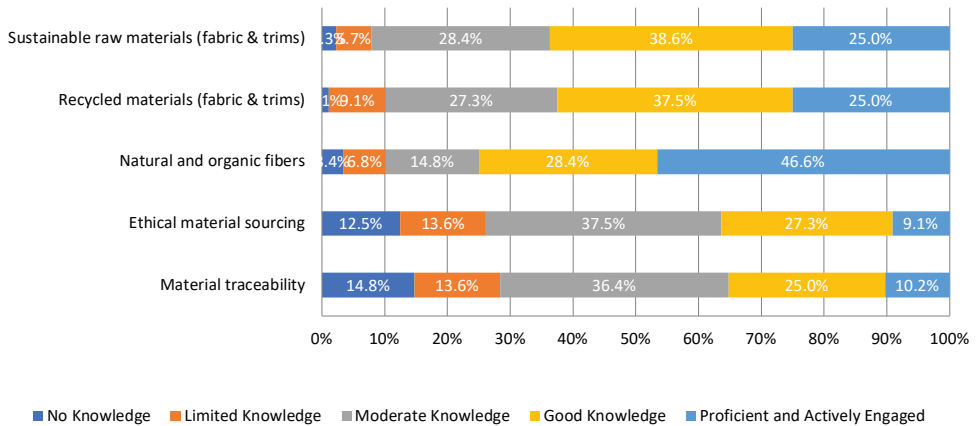

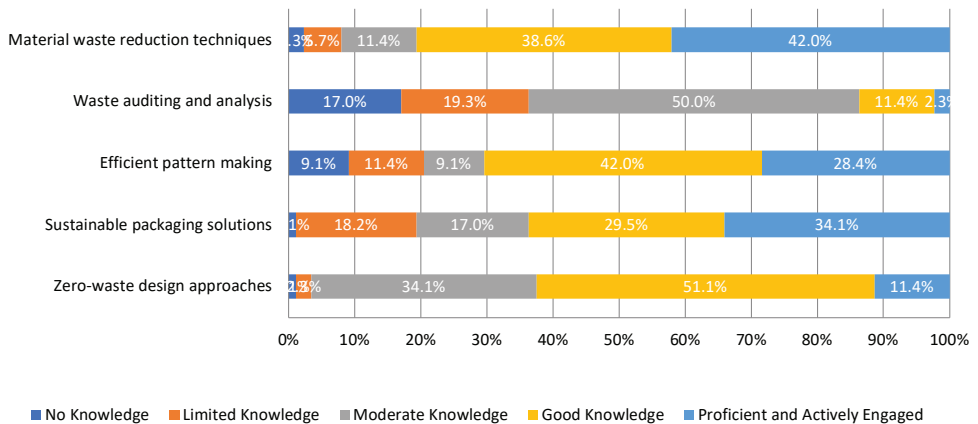**Figure 1:** Proficiency levels in sustainable material selection

Figure 2: Proficiency levels in waste reduction strategies

In the realm of designing for longevity, while many participants showcased moderate to high competence (Figure 3), there was a sharp decline in familiarity with material reuse, where participants expressed limited knowledge or engagement in circular design principles and collaborations with recycling facilities (Figure 4). Though some participants demonstrated high proficiency in 'circular business models' (Figure 5), others displayed only basic understanding, indicating inconsistent familiarity with sustainable business practices, such as product-as-a-service or sharing platforms. This lack of understanding suggests that areas tied to circular economy concepts are not being effectively covered in existing fashion curricula.
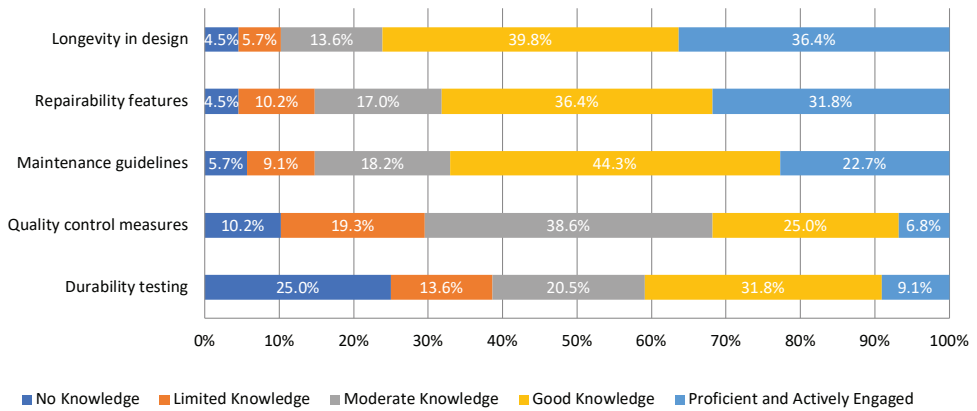
Figure 3: Proficiency levels in design for longevity
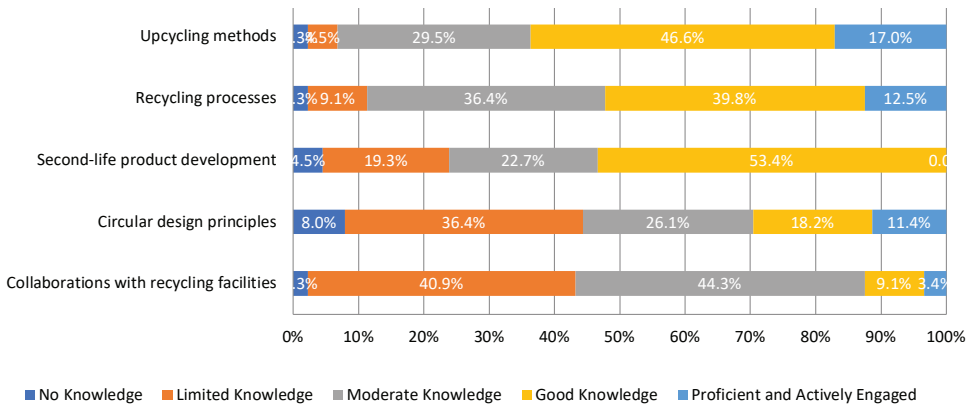
Figure 4: Proficiency levels in upcycling and recycling
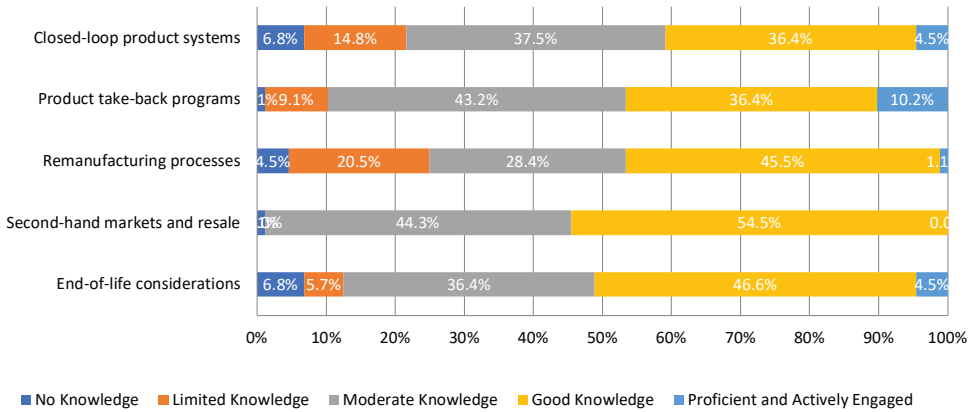
Figure 5: Proficiency levels in circular business models

The results highlighted knowledge gaps in the areas of 'industry trends and collaborative efforts' (Figure 6) and 'technological innovations in sustainability' (Figure 7). While a subset of participants demonstrated a good grasp of these domains, a significant portion reported limited awareness, reflecting a broader gap in educational focus on industry collaboration and innovation.
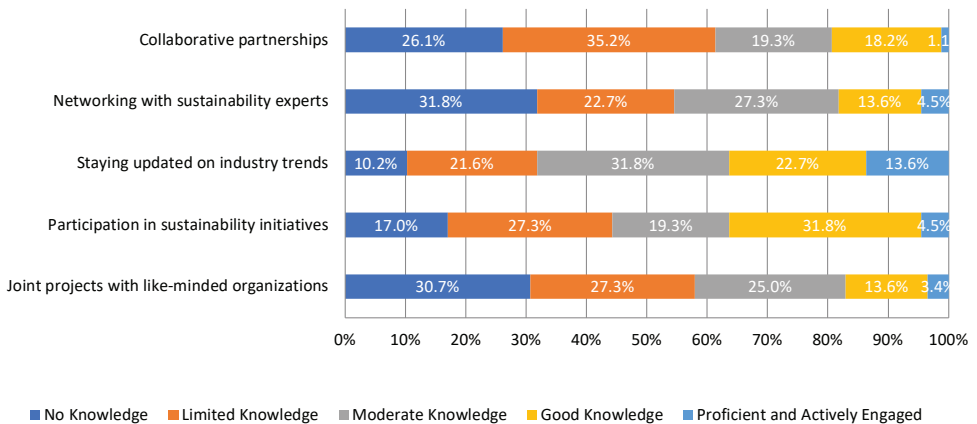

Figure 6: Proficiency levels in industry trends and collaborative efforts in sustainability
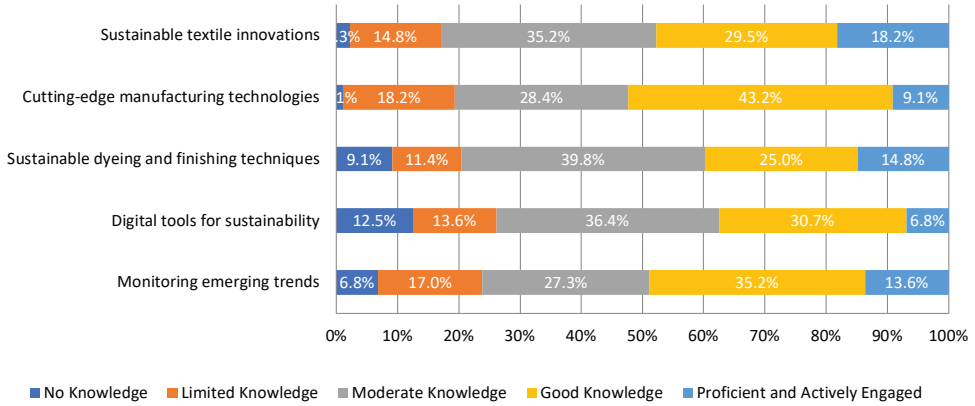
Figure 7: Proficiency levels in technological innovations in sustainability

Regarding regulatory understanding of 'sustainable fashion regulations and certifications' (Figure 8), only 14.8 percent and 15.9 percent of the participants demonstrated a thorough understanding of 'certification in audit process' and 'compliance with ethical standards', respectively. This was corroborated by Figure 9, revealing a limited proficiency in conducting Environmental Impact Assessment (EIA), especially carbon footprint analysis. These results directly relate to concerns in fashion education, where there may be a lack of regulatory knowledge and practical application of sustainability standards.
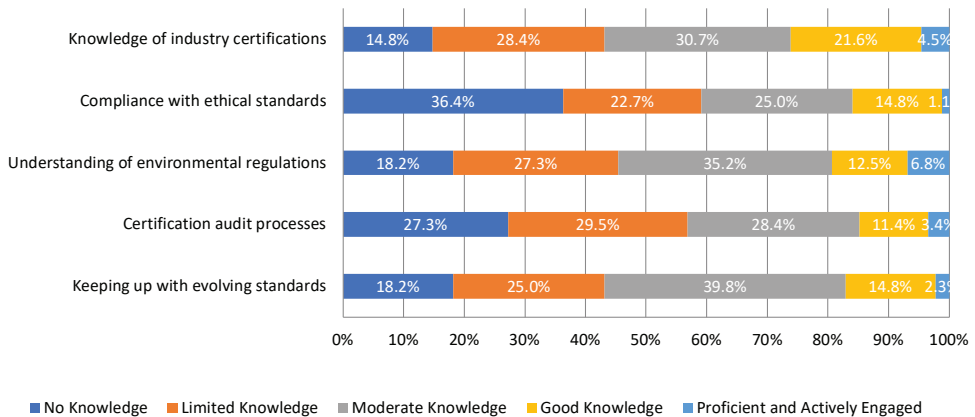

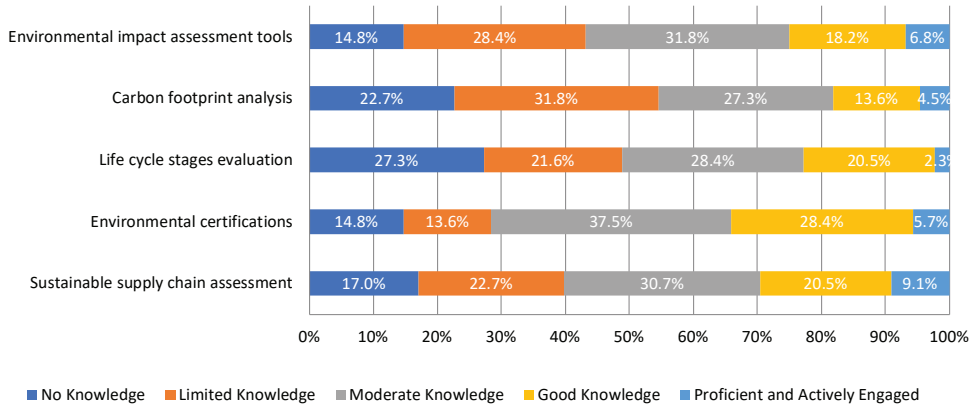**Figure 8:** Proficiency levels in sustainable fashion regulations and certifications

Figure 9: Proficiency levels in environmental impact assessment

Finally, the results from 'engaging consumers in sustainable fashion' (Figure 10) and 'ethical and socially responsible practices' (Figure 11) showed moderate levels of engagement. Although some participants actively applied these concepts, a significant number only had a surface-level understanding, which again points to an educational gap in engaging consumers and applying ethical practices.
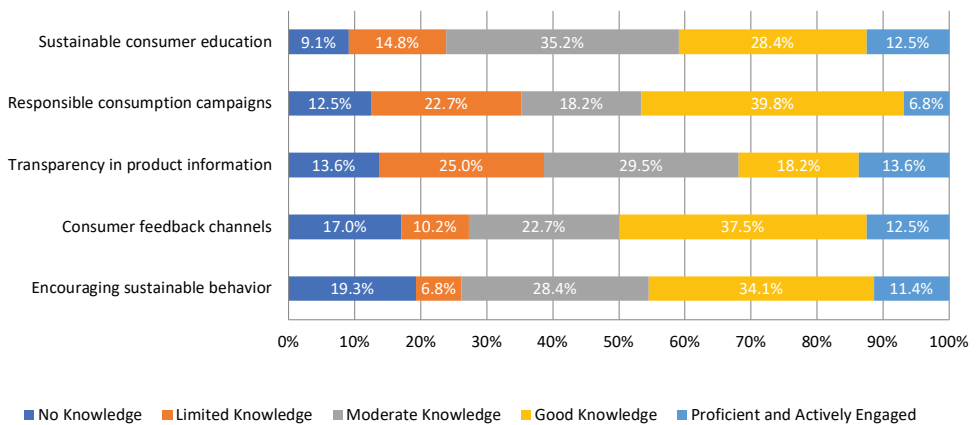

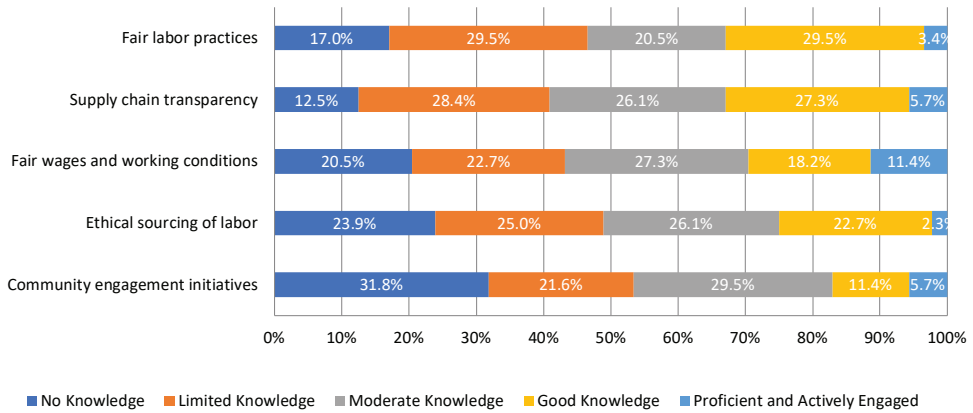**Figure 10:** Proficiency levels in engaging consumers in sustainable fashion

Figure 11: Proficiency levels in ethical and socially responsible practices

In conclusion, these findings indicate that while participants demonstrated a thorough understanding of sustainable material selection and waste reduction techniques, there were pronounced knowledge gaps in some of the key domains. These included ethical sourcing, material traceability, circular business models, and regulatory compliance. Fashion education programs can bridge these gaps by prioritizing a comprehensive approach to sustainability and circularity, equipping future designers with the necessary skills to tackle these crucial areas.

Recognizing the awareness levels and application domains in sustainable and circular fashion design

The purpose of this research was to evaluate the participants' professional involvement and awareness of circularity and sustainability in fashion design. The research encapsulated a thorough taxonomy with 13 different categories and 65 sub-categories within the broader framework of sustainable and circular fashion design. These categories are intricately linked with previous research in the realms of sustainability, circularity, and sustainable design.

'Sustainable materials', 'design for lifespan', and 'waste reduction approaches' were the three most conscious categories among the many evaluated. These groups displayed negligible standard deviations, suggesting a higher level of competence and mastery in these areas. In contrast, 'social responsibility' and 'regulations and certifications' were the least understood topics, suggesting a significant lack of familiarity among the

respondents. Additionally, the ranking of 'lifecycle assessment' showed a significantly higher degree of variance when taking the standard deviation into account. Several participants acknowledged that they had not previously thought about or were unfamiliar with these specific categories, highlighting a notable practical awareness gap.

In the survey, a majority of the respondents, precisely 60%, identified themselves as sustainable designers actively involved in practicing sustainable fashion. Nevertheless, the actual implementation and current performance of these sustainable systems appeared to be relatively suboptimal.

Discussion

The initial phases of design within the fashion business have been recognized as crucial, exerting a significant influence on approximately 80 percent of the environmental consequences throughout the complete lifespan of a product (Hur and Cassidy, 2019b; Kozlowski, Bardecki and Searcy, 2019; Teowarang, Kurniawan and Lunn, 2022; Todeschini et al., 2017). Despite the acknowledged significance of this issue, there is a lack of comprehensive academic research that specifically explores the views and attitudes of fashion professionals toward sustainable fashion. Moreover, there is a lack of research regarding the difficulties encountered in incorporating sustainability ideas into design techniques.

This study was undertaken to address the existing research gap by centering on the multifaceted challenges that are intrinsic to the implementation of circularity and sustainability within the domain of fashion design. The investigation yielded a comprehensive list of key challenges, including the following:

Ambiguity in defining circularity and sustainability: The main obstacle was the lack of agreement on how to interpret sustainability and circularity in the context of fashion aesthetics. The interpretation mostly hinged on eco-friendly design and sustainable material selections, yet a unanimous understanding remained elusive due to the complex nature of circular and sustainable concepts.

Reconciliation of circularity and sustainability with design criteria: Secondly, designers had the difficult task of balancing competing design criteria, including cost, trends, style, and aesthetics, with circularity and sustainability. Environmentally friendly practices and the use of circular and sustainable materials were seen as onerous, mostly because of the time-consuming and costly nature of these endeavors.

Comprehensive circular and sustainable strategies: Participants discussed the potential for expanding circular and sustainable processes to incorporate eco-friendly dyes, printing, and surface treatments, notwithstanding the rise of recycling to prominence as a sustainable design practice. It was underlined that comprehensive approaches, such as upcycling design and sustainable packaging, are required to handle the full product lifecycle.

Knowledge deficit: Interestingly, the poll revealed a lack of knowledge about social responsibility, ethical sourcing, and the laws and certifications about sustainable and circular fashion design. In this context, these components are seen to be crucial for achieving a thorough understanding of circularity and sustainability, underscoring the pressing need for extensive education and awareness initiatives in these fields.

Underutilization of circular and sustainable design tools and resources: Lastly, the research highlighted the underutilization of existing circular and sustainable design tools and resources among both professional designers and fashion design students. It pointed to the necessity for bespoke tools tailored specifically to the intricacies of the fashion and textile design sectors. These tools should emphasize visual and interactive components, facilitating seamless integration into the day-to-day practices of designers.

The noteworthy discovery of this study is the lack of knowledge in areas like social responsibility, compliance, waste auditing and analysis, material traceability, and ethical material procurement. The complexity of these ideas, inadequate exposure during professional training, and a scarcity of thorough instructional resources are probably the causes of these gaps. The implications of these gaps are substantial, as they hinder the ability of designers and industry professionals to implement effective sustainable practices. Addressing these gaps through targeted educational initiatives is critical for advancing sustainability in the fashion industry. The study advocates for an increased emphasis on education and awareness about various facets of ethical sourcing, regulatory compliance, certifications, and the rigorous application of scientific life cycle assessment methodologies. These efforts work together to achieve comprehensive sustainability in the area of fashion design.

Conclusion

This study explored the attitudes, engagement, and perspectives of fashion designers regarding the challenges of integrating sustainability and circularity into fashion design. Designers play a vital role in promoting sustainable design practices, as they significantly influence consumer behavior and production methods, ultimately supporting sustainable development.

The research pointed to various challenges faced by the industry professionals while incorporating circularity into the fashion design process. These challenges included human, organizational, societal, and cultural factors. Internally, there was a lack of consensus among stakeholders about the specific interpretation of sustainability in fashion design. Additionally, designers perceived a conflict between sustainability and other design objectives, such as aesthetics, cost, and current fashion trends. There was also limited awareness of the available sustainable design tools and how to apply them. The fashion industry lacked comprehensive circular design concepts and technologies necessary to promote and advance sustainability. Furthermore, external challenges included the complexity of sustainability issues, perceived lack of consumer interest in sustainable fashion, discrepancies in consumer attitudes and behaviors affecting purchasing decisions, and perceived deficiencies in business incentives to adopt sustainable design strategies.

Addressing the gaps in awareness and knowledge identified in this study is essential. Significant deficiencies were found in areas such as ethical material sourcing, material traceability, waste auditing, and analysis, as well as regulations and certifications. These gaps highlight the need for comprehensive educational programs that offer in-depth training on these topics. Educational institutions must innovate and adapt curricula to include thorough training on sustainable practices. By doing so, they can prepare future designers to tackle the complex challenges of sustainability in the fashion industry. This emphasis on fashion education underscores the vital role academic institutions play in shaping a sustainable future for fashion.

Future research can significantly advance the field by focusing on cross-comparative case studies that explore the effective challenges and solutions related to integrating sustainability into the business models of manufacturing companies, design houses, and retail brands. Additionally, investigating cross-cultural differences in the challenges fashion designers face when adopting circular design practices can provide valuable insights and foster collaboration. Moreover, comparative studies examining the varying expectations, motivations, and challenges encountered by designers and consumers in their pro-environmental actions and sustainable consumption will deepen our understanding of these vital areas and guide us toward more impactful solutions.

In conclusion, addressing the gaps identified in this study through improved educational practices can foster the development of comprehensive sustainable fashion methods. By embracing circular design and incorporating strong educational frameworks, designers can play a significant role in transforming the industry toward sustainability.

This will also encourage the evolution of fashion education to become more innovative and adaptable.

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Fashion Education Approach in India to Implement the Concept of Sustainability

Nandini Lal and Sudha Dhingra

Abstract

Today, discussions about a sustainable future are taking place all over the world, with the fashion and textile industry being the second most polluting industry after automobiles. The Agenda for Sustainable Development Goals (SDG) of the United Nations (UN) aims to protect the planet and reduce its environmental footprint by 2030, with 17 interrelated SDGs. SDG12, which focuses on responsible production and consumption, has a direct connection to fashion and textiles. To promote sustainability, this study delves into understanding the current approach to sustainable fashion education in India, particularly emphasizing educators' and industry practitioners' perspectives. A mixed method, both qualitative and quantitative approaches, was used to conduct the research, which involved a comprehensive survey targeting fashion and textile design educators and industry practitioners. The study seeks to comprehend the integration of sustainability principles into undergraduate programs, as well as the understanding and application of these principles by recent graduates. The findings indicate that educators and practitioners acknowledge the significance of sustainable practices in academic curricula. There is a sense of optimism among educators regarding the possibility of teaching and implementing sustainability principles through various strategies, including collaborative projects and practices like upcycling and recycling. Both educators and industry practitioners agree that the environmental aspect of sustainability is most crucial. Although there is a negative response to the industry's support and readiness for sustainable practices, there is a consensus on integrating sustainability into all undergraduate fashion and textile programs. Additionally, experts highlight the importance of specialized courses in this field. The discussion highlights the advancements made by academia in addressing sustainability concerns, explicitly emphasizing the role of craft-based fashion in promoting sustainable practices. The study reveals the need for a strong educational framework, and continued efforts are essential to enhance industry preparedness and increase public awareness to promote sustainable production and consumption for SDG 12. The research emphasizes the

significance of incorporating sustainability into fashion education to foster a more conscientious and sustainable fashion industry in India.

Introduction

In September 2015, the United Nations introduced the 2030 Agenda for Sustainable Development, a global plan addressing environmental and social challenges. The agenda, known as the Sustainable Development Goals (SDGs), comprises 17 objectives, such as promoting sustainable consumption, protecting ecosystems, and tackling climate change. The SDGs integrate with each other and require complex strategies for promotion. To simplify, this study focuses on SDG 12, which pertains to "responsible production and consumption," as the production and consumption patterns of fashion and textiles appear to have a direct correlation with this objective. Indian fashion and textile industries are of enormous importance on a global scale, not only for their contribution to economic growth but also for their effect on environmental and social issues. This study investigates how fashion education can promote sustainable practices in fashion and textiles.

As more individuals gain knowledge about these concerns, the significance of sustainable fashion increases (Aakko and Koskennurmi-Sivonen, 2013). When it comes to sustainable fashion, creating products that consider the environmental, social, and economic impacts is crucial. The main objective of creating sustainable products is to reduce the negative impact on the environment and the well-being of individuals involved in the production process (Brismar, 2014). Recent studies highlight the urgent need for the fashion industry to adopt sustainable practices. Braungart and McDonough (2008) designed the "Cradle to Cradle" concept, advocating for the creation of self-sustaining systems through recycling and reuse. The Ellen MacArthur Foundation (2017) emphasizes the significance of a circular economy in transforming the future of fashion. The importance of closed-loop systems is highlighted, where products are reused and recycled to minimize waste.

India is a perfect fit for this approach, as its traditional crafts and textile practices already embody principles of sustainability (Bhalla, Kumar and Rangaswamy, 2018). With its rich textile heritage and significant presence in the global market, India has a unique opportunity to integrate sustainability into its fashion industry. The study conducted by Bhalla, Kumar and Rangaswamy (2018) emphasizes the importance of conducting a

comprehensive lifecycle assessment in the Khadi-handloom industry. This assessment is essential for driving rural development and ensuring sustainable production. Furthermore, Lal (2020) highlights the increasing adoption of environmentally conscious practices within the fashion industry of the country. Several designers and brands have started adopting sustainable methodologies to lessen the burden on resources.

The education sector plays a crucial role in this transformation. The sustainable fashion movement in India is experiencing significant growth, thanks to the valuable contributions from both the industry and academia. Fletcher (2013) suggests that integrating sustainability into fashion education can empower future designers to develop innovative and socially responsible designs. Claxton and Kent (2017) emphasize the importance of integrating design management into fashion curricula to promote sustainable practices among students before entering the industry. It is widely recognized that educational institutions have a significant impact on promoting and fostering sustainable practices. Özsoy (2016) highlights the significance of arts and design education in preparing future designers to tackle environmental challenges. Khandual (2018) stresses the importance of incorporating sustainability into fashion education to develop a more mindful and accountable workforce. Furthermore, it is essential to integrate sustainability into fashion and textile education to cultivate a culture of innovation and responsibility. Claxton and Kent (2017) emphasize the significance of design management strategies that prioritize sustainability. Their work aims to empower students with the knowledge and skills needed to drive positive change. The partnership between educators and industry practitioners in India is pertinent for a profound commitment to sustainability.

Approach to sustainability in fashion

Sustainability in fashion and textiles can be achieved through many approaches, as has been demonstrated by many researchers and experts in this domain. Mittelstaedt, et al. (2014) emphasize the importance of fostering collaboration among scholars, practitioners, and policymakers. They argue that this collaborative approach allows for a comprehensive exploration of the relationships between phenomena, institutions, and consumers, considering the influence of technological, political, and economic forces.

In the realm of fashion, Fletcher (2008) presents sustainability initiatives that incorporate ethical trading principles, recyclable and organic materials, and long-lasting design. These initiatives not only tackle environmental concerns but also prioritize fair treatment of employees and the long-term usability of clothing items. Aakko and Koskennurmi-Sivonen (2013) present the concept of "Considered Take and Return" for sustainable

fashion design, urging designers to contemplate the lifecycle of their products. The documentary "The True Cost" (2015) delves into the social and environmental impacts of fashion, shedding light on the actual price of production. The content highlights the substantial impacts of fast fashion, such as the degradation of the environment and the exploitation of labor in developing nations.

The concept of "circular fashion" was introduced by Anna Brismar, the founder of the Swedish consulting firm Green Strategy. Circular fashion aims to promote the proper use, distribution, and return of fashion goods to the biosphere. Green Strategy and Brismar's (2017) concept of "circular fashion" highlight the significance of adopting a comprehensive perspective on sustainability, encompassing all stages of garment production and disposal.

Ultimately, the idea of sustainability in fashion is constantly evolving, fueled by a mix of ethical values, technological progress, and an increasing recognition of environmental and social concerns. Through the integration of circular and empathetic fashion, along with the utilization of digital technologies and innovative business models, the fashion industry has the potential to significantly diminish its environmental impact and foster a more sustainable future.

The rationale of the study

The urgent need to address the environmental and social impacts of conventional fashion practices motivates the study. This research endeavors to provide a comprehensive understanding of sustainable fashion and its integration into academia through meticulous analysis and empirical insights. The objective is to foster systemic transformations in education and industry. This approach aims to foster a shift in perspective toward adopting more sustainable consumption and production practices, aligning with global sustainability goals, and promoting a more equitable fashion industry.

Sustainable fashion and textiles have significant relations with academia, industry, and society. By carefully analyzing a range of scholarly perspectives and industry practices, it becomes imperative to clearly define educational strategies that foster more responsible consumption and production aspects in fashion and textile practices, thereby advancing the SDGs. Today's students, who will become tomorrow's young professionals, play a crucial role in the industry to promote and achieve the SDGs by 2030. The research results offer valuable insights for educators, policymakers, and industry stakeholders to enhance sustainability initiatives in the fashion sector, resulting in lasting environmental and social advantages.

Objectives of the Study

The inclusion of sustainability principles in the fashion and textile design curricula of Indian universities demonstrates notable progress as well as barriers. The study aims to assess the integration of sustainability in the fashion and textile design curricula of Indian universities; explore teaching methods employed by educators to teach sustainability in fashion education effectively; and evaluate students' understanding and implementation of sustainable principles in fashion and textile design projects from educators' perspectives. The research also endeavors to conduct a thorough investigation into the prevailing industry practices and perceptions surrounding the implementation of sustainable practices among young professionals in the Indian fashion and textile sector.

Research Methodology

To fulfill the objectives of the research, a mixed-methods approach was followed. Figure 1 illustrates the research framework that guided the study. The review of literature revealed the concept of sustainability and its evolution in the field of fashion and textiles. This involved studying the work of different researchers who have contributed to the understanding and definition of sustainability in this context. The review incorporated influential works like "Cradle to Cradle" by Braungart and McDonough (2008), who introduced the concept of sustainable design. "Sustainable Fashion and Textiles: Design Journeys" by Fletcher (2013) delves into practical applications of sustainability in fashion. In addition, the analysis involved examining the definitions and frameworks presented in industry reports and scholarly articles (Ellen MacArthur Foundation, 2017).
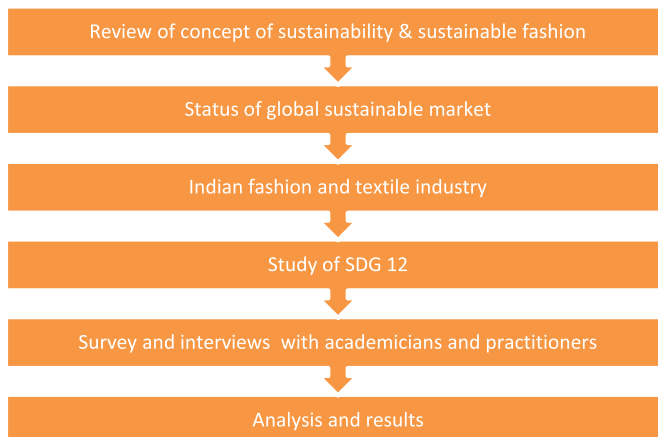

Figure 1: Research framework followed for the study

Primary data collection involved gathering relevant information to attain the research objectives. The process of data collection requires careful planning and execution to ensure accurate and reliable results. Two important stakeholders identified for the study were academicians and industry practitioners. A purposive sampling technique was employed to select a group of educators and professionals from prominent fashion and textile design institutions and the industry, respectively. The selection criteria included professors and lecturers who are actively engaged in developing curricula and teaching courses related to fashion and textile design education and industry practitioners comprising designers, production managers, and merchandisers from fashion brands with more than 5 years of industry experience.

Interviews and surveys were conducted with comparable questions to fashion and textile academicians and industry practitioners to understand the current situation in India. The key research questions explored through the survey and interviews were:

- How are sustainability concepts incorporated into undergraduate fashion and textile design curricula in Indian universities?

- Which teaching methodologies are most effective in imparting sustainability concepts in fashion education?

- How well do students understand and effectively implement sustainable production and consumption principles in their projects?

- What are the methods used by industry practitioners in India to implement sustainability practices, and how do they view the preparedness of young designers in this field?

- What are the challenges and opportunities that educators and industry practitioners in India face when it comes to integrating sustainable practices into fashion and textile education and industry?

The questions were modified to make them suitable for academicians and industry members. The survey instrument was carefully crafted using established frameworks and insights from prior research. The survey included a combination of quantitative and qualitative questions to provide a well-rounded understanding of sustainability in fashion and textile design education, the implementation of sustainable practices in the industry, and the challenges and opportunities in its adoption. The quantitative section of the questionnaire was planned with a 5-point and 10-point Likert scale to understand the opinions of the participants more conclusively, while the qualitative section incorporated open-ended questions to delve into the experiences and opinions of respondents.

The survey for educators involved 45 participants from various institutions in Delhi/ NCR, mainly Pearl Academy, NIFT, Amity University, FDDI, Sharda University, Institute of Home Economics, and IICD, Jaipur. The respondents who are currently full-time or part-time involved in teaching fashion and textile design, undergraduate and postgraduate courses, were selected. The survey of industry practitioners involved 72 participants, representing retail houses, online retail chains, export houses, manufacturing units, and NGOs within the fashion and textile industries across India. Table 1 summarizes the details of the survey, including sample frame and size.

Table 1: Survey with academicians and industry practitioners

S.No.	Survey Question Domains	Respondent Group	Institution/Organization Type	Number of Respondents
1	Integration of sustainability principles in curricula	Academicians	Pearl Academy, NIFT, Amity, FDDI, Sharda University, Institute of Home Economics (Delhi/NCR); IICD (Jaipur)	45
2	Effective teaching methods for sustainability	Academicians	Pearl Academy, NIFT, Amity, FDDI, Sharda University, Institute of Home Economics (Delhi/NCR); IICD (Jaipur)	45
3	Students' understanding of sustainable practices	Academicians	Pearl Academy, NIFT, Amity, FDDI, Sharda University, Institute of Home Economics (Delhi/NCR); IICD (Jaipur)	45
4	Implementation of sustainable practices in industry	Industry Practitioners	Retail houses, online retail chains, export houses, manufacturing units, NGOs	72
5	Industry challenges and opportunities	Industry Practitioners	Retail houses, online retail chains, export houses, manufacturing units, NGOs	72

To strengthen the survey findings, follow-up interviews were conducted with educators and industry professionals, whose responses were analyzed using a structured coding scheme. This approach allowed for a systematic interpretation of themes emerging from the interviews. For the personal interview, 15 participants were engaged, including 10 educators and 5 industry practitioners. All participants had more than 10 years of experience and closely worked with young designers with less than 5 years of work experience.

The survey was analyzed, and the collected data yielded valuable insights. The analysis of the responses provided a comprehensive understanding of the trends and recurring themes. Statistical analysis was employed to determine noteworthy variations and relationships among different groups. The qualitative data from interviews were analyzed by using thematic analysis to uncover recurring patterns and gain valuable insights (Wagner, et al., 2018). The interviews were analyzed by organizing qualitative data through coding. Data coding is done by data summarizing and data synthesizing. The five-step data analysis process was followed by cleaning data, data immersion, data chunking, and clustering to interpret and present the findings and results.

The findings contribute to the ongoing discussion on sustainable fashion and textile design education and provide practical recommendations for improving sustainability education and practices. Due to the paucity of the timeline, the scope of this research is limited to a brief study and an initial inquiry with academicians and industry practitioners about India's position in implementing sustainability. This will assist in establishing a clear perspective and validating the identified gaps and recommendations.

Results

A separate questionnaire was designed specifically for educators and industry practitioners. Questions were adapted to suit educators and industry practitioners, and similar questions were asked to cross-check and compare education and its outcomes in the industry. Educators were asked about the inclusion of sustainability in curricula, teaching methods, and students' awareness levels for sustainable production and consumption methods, keeping SDG 12 in mind. Similarly, industry practitioners were asked about awareness levels and effective methods for exposing young professionals to sustainable solutions.

Participants' responses on the Likert scale were analyzed by comparing positive and negative responses. In a 5-point Likert scale, responses were combined and compared; positive responses (strongly agree + agree) versus negative responses (disagree + strongly disagree) were compared to understand overall sentiment polarity. The 10-point Likert scale was analyzed for combined responses; scales 1, 2, 3, and 4 points were considered negative responses, 5 and 6 as neutral, and 7, 8, 9, and 10 as positive.

When asked about the inclusion of sustainability concepts in the curriculum (Figure 2), 63 percent of educators responded positively, 17 percent were neutral, and only 20 percent responded negatively. This confirms that, to some extent, sustainability concepts have been incorporated into the curriculum of undergraduate design

programs. To verify the outcome, a similar question was asked of industry practitioners about the awareness level of these concepts in young professionals. Figure 3 denotes 71 percent positive responses from practitioners, 18 percent were neutral, and only 11 percent gave a negative response.
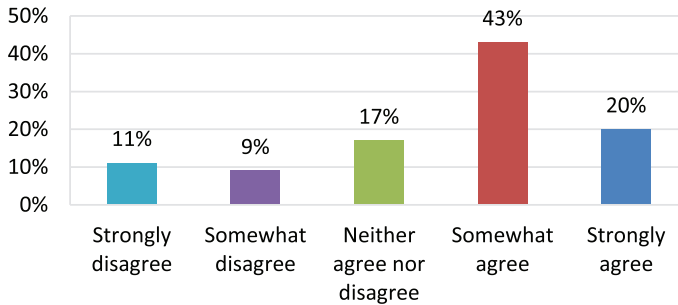

Figure 2: Academicians' response to inclusion of sustainability concepts in undergraduate fashion and textile design programs
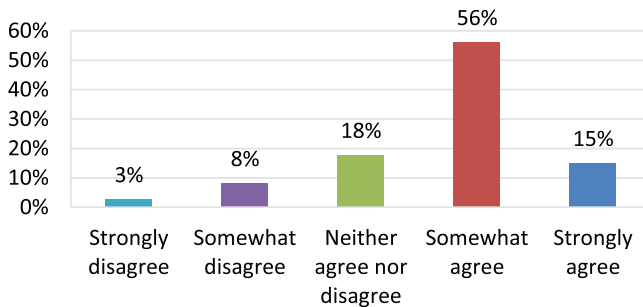

Figure 3: Industry's response to awareness level of sustainability concepts in young professionals

Figure 4 shows that, with a 95 percent positive response, fashion and textile design educators unanimously agree that teaching and learning methods can effectively implement sustainability concepts. This confirms the educators' belief and clarity regarding sustainable education and its implementation.
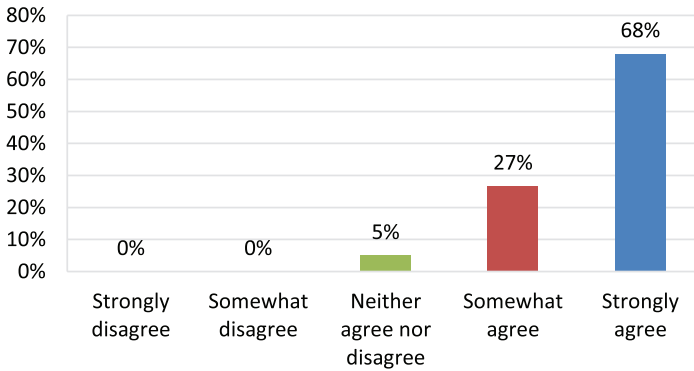
Figure 4: Academicians' response to teaching sustainability concepts to design students

To effectively impart knowledge about sustainability, it is essential to identify effective teaching methods. This question allowed for multiple answers. The most successful methods identified by educators for teaching sustainability are "group projects on global sustainable practices" and "upcycling, recycling, and deconstruction methods," with 73 percent of the respondents opting for the same (Figure 5). Research assignments, case studies, and zero waste pattern cutting were other preferred teaching methods identified for sustainability. The industry practitioners' response confirmed that "group projects on global sustainable practices" and "upcycling, recycling, and deconstruction methods" are the best ways to expose young professionals to sustainability concepts (Figure 6). Industry practitioners also gave more weight to research, co-designing, and field visits.
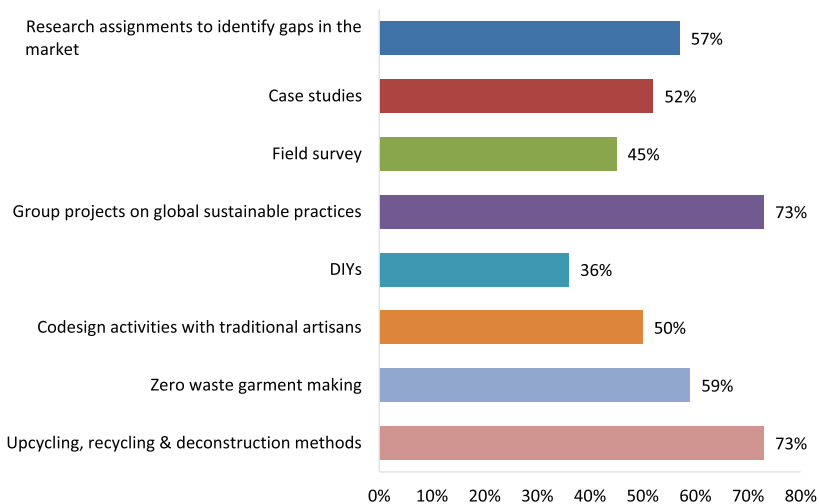

Figure 5: Academicians' response to most successful method of teaching sustainability to students
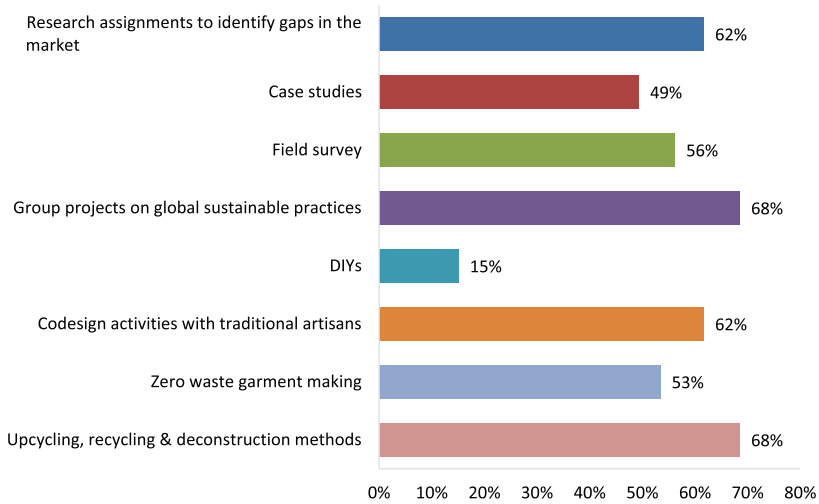
Figure 6: Industry's response to most successful method of exposing sustainability to young designers

Both educators and industry practitioners were asked about the "parameters of sustainability." Figures 7 and 8 denote that "environment" is considered the most significant aspect of sustainability. Educators rank "economy" as the least important factor, while they assign nearly equal importance to social, cultural, and aesthetic factors. Practitioners affirm that the environment is the most crucial parameter, yet, in contrast to educators, they prioritize the economy over social and cultural aspects. Practitioners gave the least weight to aesthetics when considering fashion and textiles for sustainability.
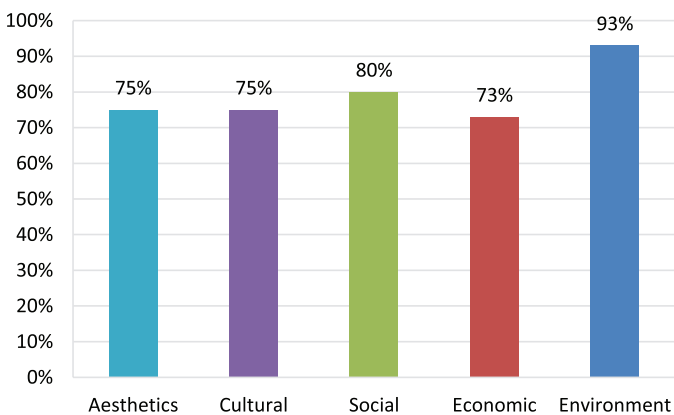

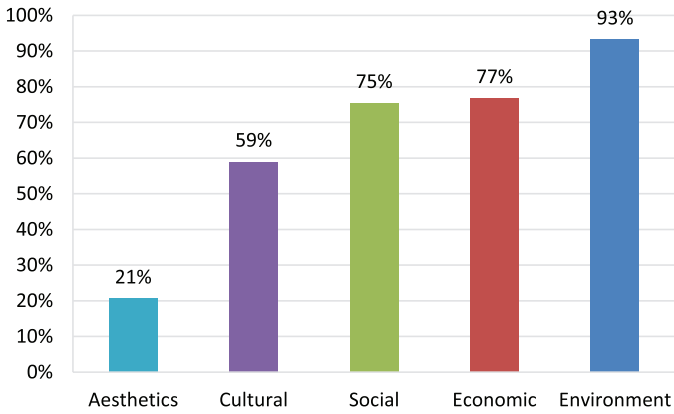**Figure 7:** Academicians' response to sustainability parameters

Figure 8: Industry's response to sustainability parameters

When asked about the awareness level of sustainable production and consumption concerns among undergraduate students, 57 percent of educators gave a positive response (Figure 9). However, 25 percent were neutral, and 17 percent felt there was a lack of awareness. It confirms some level of awareness, as more than half of the educators responded positively. This is encouraging news for SDG 12, as the journey has begun, but we still need to increase the level of awareness. Industry professionals differ from educators regarding the awareness of sustainable production and consumption concerns among young fashion and textile design professionals. As shown in Figure 10, only 27 percent gave a positive response. Considering the recent inclusion of sustainability in the educational curriculum, a positive response is anticipated when current students transition into the industry. To achieve SDG 12, the industry needs to work more and instill better awareness.
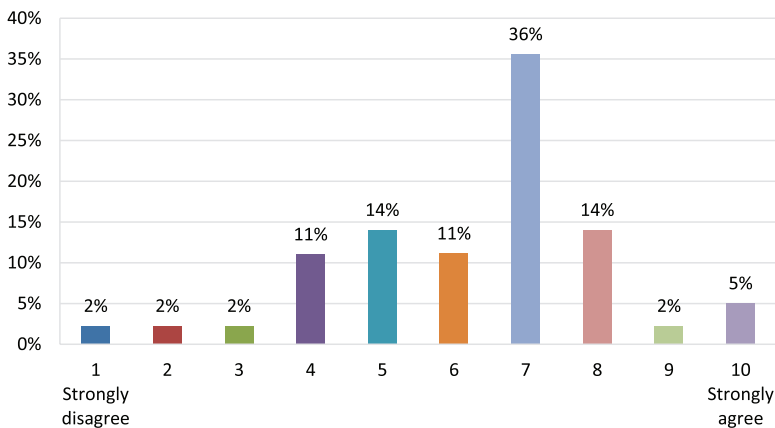

Figure 9: Academicians' response to awareness of sustainable production and consumption issues among undergraduate students
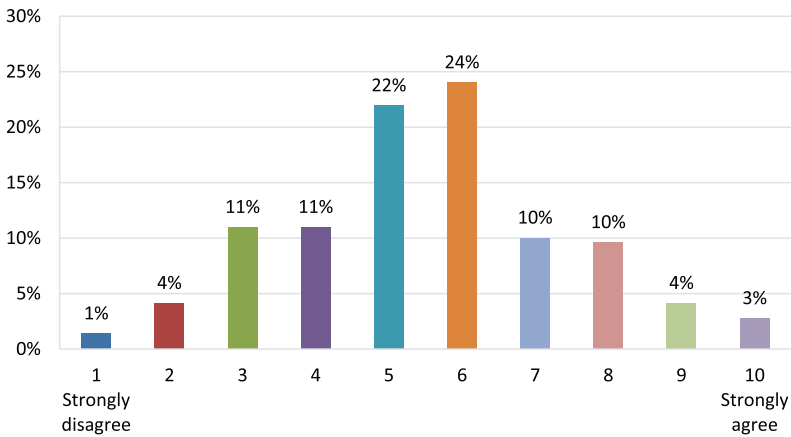
Figure 10: Industry's response to awareness of sustainable production and consumption concerns among young professionals

The educators were asked about the students' ability to apply the concepts of sustainable production and consumption methods in their final projects. Educators gave a neutral to positive response at 36 percent and 43 percent, respectively (Figure 11). Conversely, industry professionals attributed higher percentages to negative (43 percent) and neutral (33 percent) responses to a similar question (Figure 12). This confirms the incapacity of contemporary young designers to implement sustainable production and consumption methods. Industry practitioners believe that young designers lack sufficient training to tackle the challenges. The findings suggest that students need to gain a deeper understanding of sustainable production and consumption concepts.
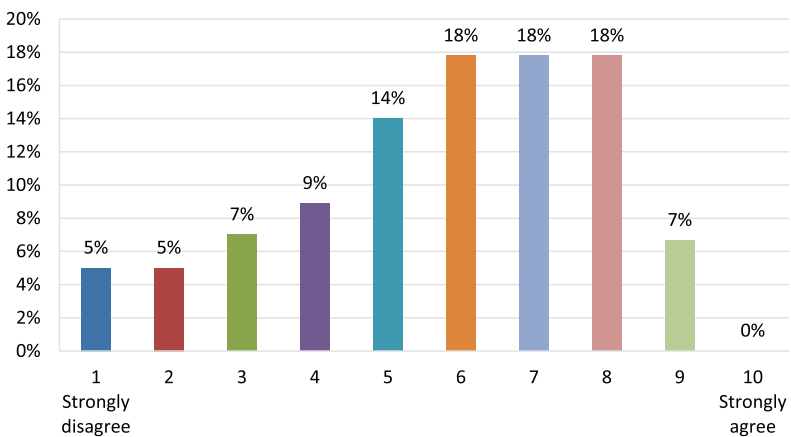

Figure 11: Academicians' response to students' ability to apply sustainable production and consumption concepts in their final design projects
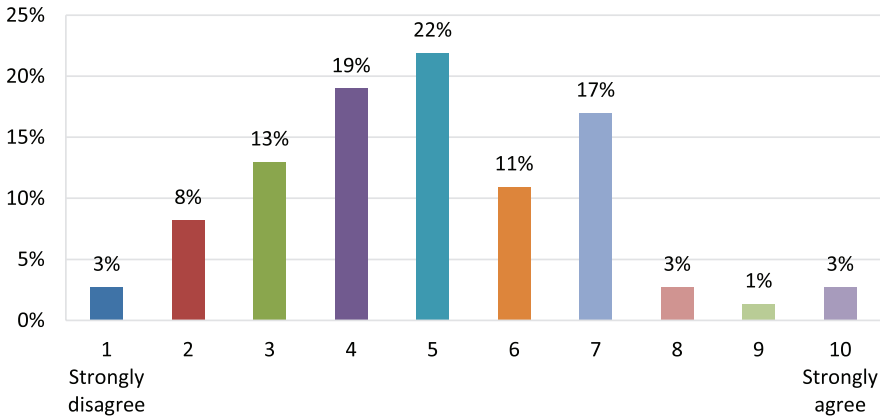
Figure 12: Industry's response to young professionals' ability to apply sustainable production and consumption concepts at their workplace

The educators seemed more optimistic about the industry's support for implementing sustainability concepts. Figure 13 denotes a 48 percent positive response. Therefore, educators are looking forward to a favorable situation in the industry. People in the industry are divided on the industry's sustainability efforts. Industry practitioners are facing real situations in the industry and understand the challenges. Figure 14 depicts a 36 percent negative response versus a 39 percent positive response, confirming that the industry is not ready yet to support sustainability, and more work and awareness are required regarding the implementation of sustainability to attain the SDGs.
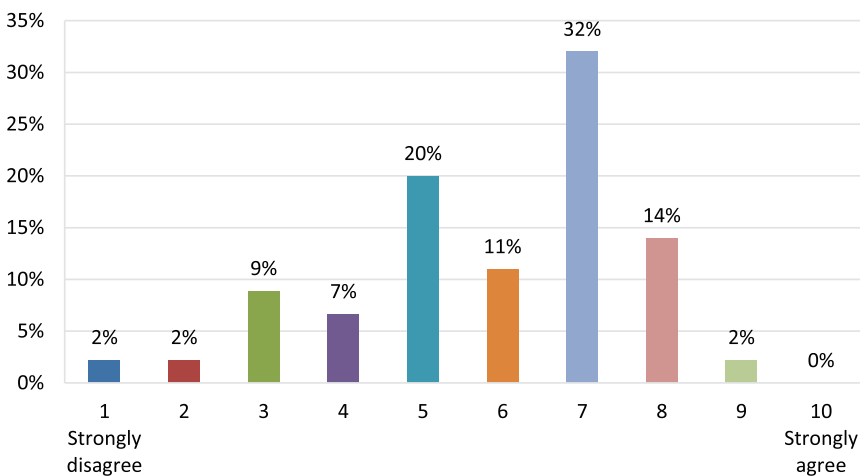

Figure 13: Academicians' response to fashion and textile industry's support to implement sustainable design
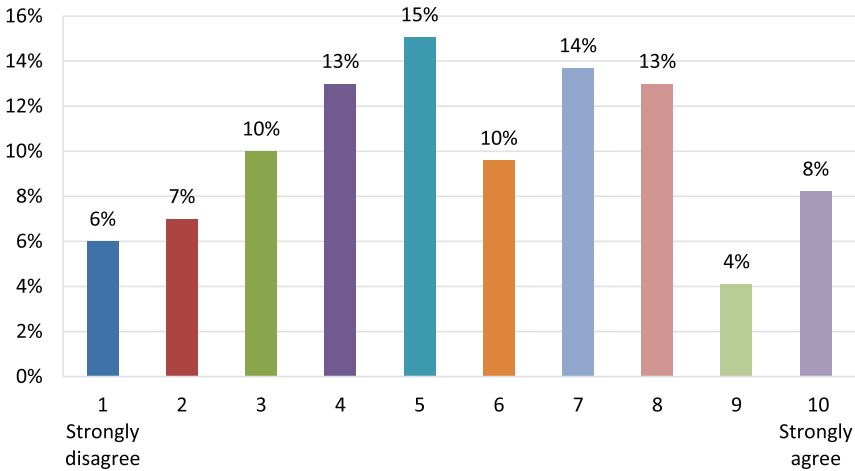
Figure 14: Industry's response to fashion and textile industry's support to implement sustainable design

When asked if India's craft-based fashion and textiles are considered sustainable, 60 percent of educators gave positive responses, 23 percent were neutral, and only 17 percent gave negative responses (Figure 15). It confirms that educators are overall positive about craft practices and consider it a sustainable option. Industry practitioners also viewed craft methods as more sustainable, with 63 percent responding positively (Figure 16). This is quite promising for the Indian fashion and textile scenario, as both industry and educators commend our craft practitioners and affirm that they are employing more sustainable methods of production.

Figure 15: Academicians' response to Indian textile crafts as a sustainable practice
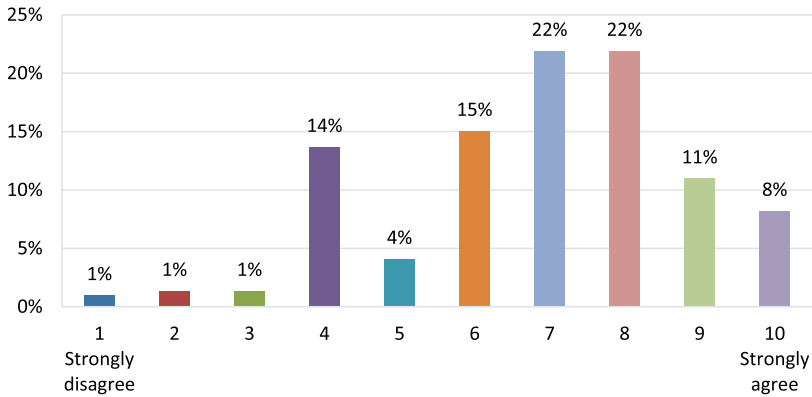
Figure 16: Industry's response to Indian textile crafts as a sustainable practice

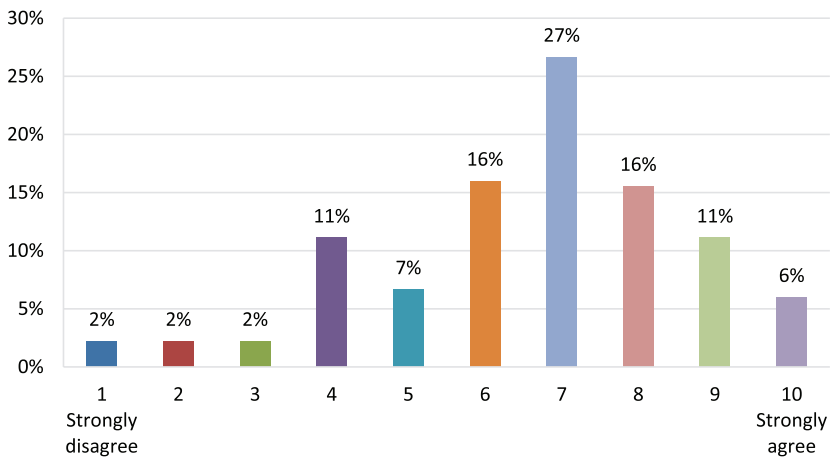Industry practitioners were also asked about the industry's readiness to accept the challenges of sustainable practices. The response was divided, with 31 percent negative responses versus 46 percent positive responses, confirming that the industry is beginning to support sustainability, but more work and awareness are required for its implementation (Figure 17).
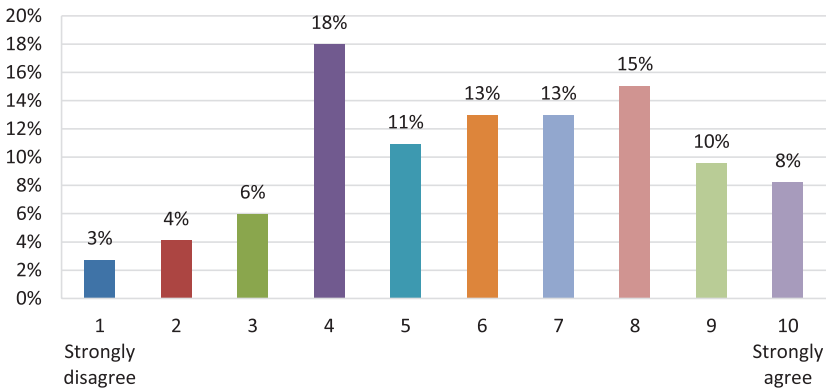
Figure 17: Industry's response to the readiness of the fashion and textile industry to integrate sustainable practices

The educators and industry practitioners were asked if their families are conscious of sustainable consumption of fashion and textile materials. Figure 18 shows that educators indicated a positive response of 50 percent, compared to a negative response of 12 percent and a neutral response of 38 percent, while industry professionals gave a positive response of 62 percent compared to a negative response of 13 percent (Figure 19). The findings indicate the initiation of consumer awareness regarding sustainability, highlighting the need for further efforts to sensitize society.
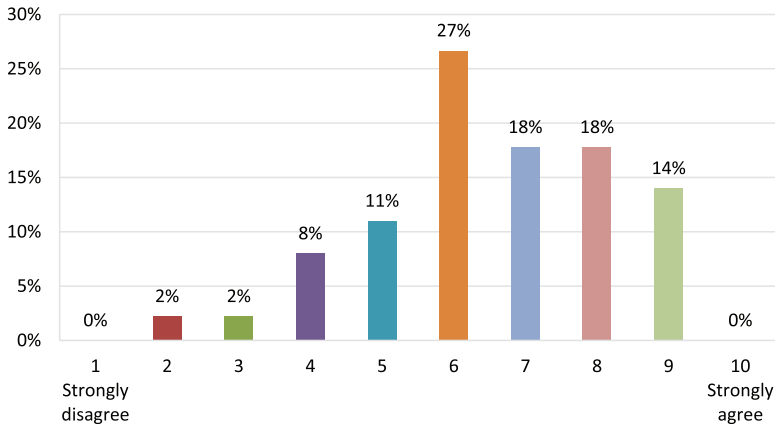
Figure 18: Academicians' response to consciousness about sustainability among family members
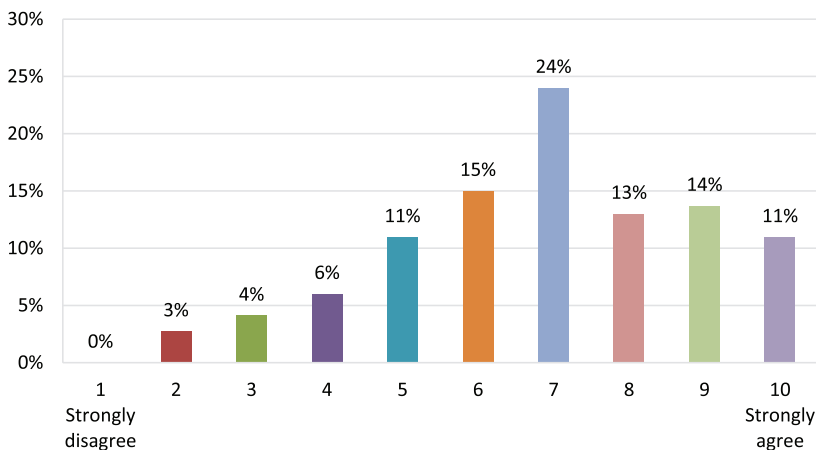
Figure 19: Industry's response to consciousness about sustainability among family members

Lastly, the response from both educators and industry professionals to sustainability being an integral part of all undergraduate fashion and textile education was very positive, with a resounding 'yes.' Figure 20 depicts the word cloud of the responses received for the open-ended question. Many participants hold the belief that experimenting with "integral part" and "specialized course" could lead to improved implementation. Many respondents are also advocating for full-fledged programs on sustainable designs. Some argue that the school curriculum should introduce these concepts at an early age.

Figure 20: Word cloud depicting response regarding integration of sustainability in undergraduate fashion and textile design programs

Qualitative data coding of interview responses

To confirm the survey findings, educators and industry professionals were interviewed, and the responses were analyzed by coding scheme. Through the process of open coding, the data was subjected to a thorough examination, and preliminary codes were assigned (Table 2). The themes identified were Curriculum Design (CD), Teaching Methods (TM), Student Outcomes (SO), Sustainability Practices (SP), and Challenges (CH).

Table 2: Data coding

S.No.	Respondents	Question	Code	Quote
1	Educator 1	Q1	CD	"We have incorporated sustainability into the curriculum by introducing specific courses."
2	Educator 2	Q2	TM	"Case studies are used extensively to teach sustainability."
3	Industry 1	Q4	SP	"Craft practices are more sustainable."
4	Educator 3	Q5	CH	"Finding reliable suppliers for sustainable materials is a big hurdle."
5	Educator 4	Q2	TM	"Workshops and hands-on activities engage students effectively."
6	Industry 2	Q4	SP	"We follow a closed-loop system to minimize waste."
7	Educator 5	Q1	CD	"Sustainability is a key theme across multiple courses."
8	Industry 3	Q5	CH	"Budget constraints limit our ability to source eco-friendly materials."
9	Educator 3	Q3	SO	"Product focus is on using recycled materials."
10	Industry 4	Q3	SP	"I create a zero-waste fashion line."

Table 3 represents axial coding that entailed a mix of inductive and deductive reasoning to establish connections between codes and concepts and rearrange codes into categories and sub-categories. The next step was selective coding (Table 4), which required the careful selection of the core category and its systematic connection to other categories, ensuring the validity of these relationships, and addressing any categories that required additional refinement and development. Selective coding assists in simplifying the data analysis and developing a theoretical framework for data interpretation. Table 5 presents the objective-wise key findings and significant responses from interviews with academicians and industry professionals.

Table 3: Axial data coding

S.No.	Category	Sub-Categories	Codes
1.	Curriculum Design	Course content, modules, master-class, workshop	CD
2.	Teaching Methods	Group projects, field visits, research projects, case studies, co-designing	TM
3.	Student Outcomes	Implementation ability, awareness level, knowledge and skills	SO
4.	Sustainability Practices	Implementation, readiness, solution, craft practices	SP
5.	Challenges	Material availability, trained professionals, cost-effective	CH

Table 4: Selective data coding

S.No.	Core Category	Related Categories	Codes
1	Sustainability Education	Curriculum Design, Teaching Methods	CD, TM
2	Implementation Practices	Student Outcomes, Industry Practices	SO, IP
3	Integration Challenges	Challenges and Opportunities	CH

Table 5: Objective-wise findings and results of interview data

S.No.	Objective	Finding	Evidence
1.	Assessing integration of sustainability in design curriculum	Integration varies across universities.	"Some institutions have dedicated sustainability courses."
2.	Exploring teaching methods	Global case studies are effective	"Research and case studies on sustainability help for better understanding."
		Need for practical exposure, field visit, and co-designing.	"Students benefit from hands-on experiences."

S.No.	Objective	Finding	Evidence
3.	Evaluating student understanding from educators' perspectives	High awareness among students.	"Students show a good understanding of sustainability principles."
		Implementation of sustainable practices in projects.	"Final year projects often reflect sustainable practices."
4.	Investigating industry practices	Mixed perceptions of preparedness.	"Some practitioners feel new graduates are well-prepared, others do not."
		Emphasis on craft-based fashion and textiles.	"Indian handloom and textiles are more sustainable."

Data Analysis

The findings from the survey and interviews with academicians and industry professionals were collated and analyzed. According to educators, many courses now include modules on sustainable materials, ethical production methods, and lifecycle analysis. Educators and practitioners confirm the inclusion of sustainability concepts in the curriculum and awareness among students and young professionals. Integrating sustainability studies varies greatly between universities, as does the level of consistency and breadth of these inclusions. This shows the need for standardized frameworks to make sure that all programs fully cover sustainability principles.

Identifying effective teaching strategies is critical for reinforcing sustainability knowledge. Teachers believe that they can teach sustainability, identifying "group projects on global sustainable practices" and "upcycling, recycling, and deconstruction methods" as the most effective methods. In addition to these research projects, co-designing and field trips are popular strategies for imparting sustainability. These methods promote collaborative learning and offer practical experience in implementing sustainable practices. These approaches collectively support students in comprehending the intricacies of sustainable fashion and foster a mindset of innovation.

According to the survey, educators pointed to the students' ability to apply sustainable production and consumption practices in their projects. However, industry practitioners have given an overall negative response to the application of SDG 12 by young professionals. The findings confirm the need for a robust framework to effectively implement the SDGs. Further, it became evident that the current industry practices are quite diverse in terms of sustainability implementation. Although larger and more established brands and companies are embracing sustainable practices, smaller and

newer enterprises often face challenges due to their limited resources and knowledge. A significant challenge that has been identified is the shortage of sustainable materials and technologies. In addition, the expensive nature of sustainable materials continues to be a major obstacle. To tackle these challenges, policymakers and industry leaders must work together to establish supportive ecosystems.

Society's consciousness for sustainability is improving; numerous opportunities are arising from the growing consumer awareness and demand for sustainable fashion. This shift offers a rare chance for Indian fashion education to lead on a global scale. The goal is to produce graduates with exceptional design skills and a strong commitment to sustainability. By incorporating sustainability into the curriculum and providing real-world experience, students can develop the skills and mindset needed to lead the way in this transformation. Ultimately, the progress of sustainability in Indian fashion and textile education shows promise, but there is a need for more consistent and unified strategies to fully realize its potential. An effective framework for SDGs and collaboration among educational institutions, industry stakeholders, and policymakers are crucial for establishing an environment that fosters sustainable practices. Through careful analysis and strategic action, the Indian fashion and textile sector has the potential to make a substantial impact on global sustainability goals, serving as a model for other industries to emulate.

Discussion

There is a clear understanding among both academics and industry professionals about the negative effects of current fashion and textile practices, as supported by the research. These efforts to mitigate the effects are a positive indication of awareness and action. Many educators have emphasized the successful integration of sustainability principles into design education. Both educators and industry professionals concur that the current curricula contain significant content on sustainability, acknowledging the potential for further enhancements. The consensus suggests a promising path toward integrating sustainability further into fashion and textile education.

India's extensive history in craft-based fashion and textiles offers a distinct chance to advocate for sustainability. Traditional craft textiles are known for their sustainability, as they utilize local materials and techniques that have a minimal environmental impact. Highlighting and advocating for cultural industries can act as a connection between conventional practices and contemporary sustainable fashion. Based on the findings, it is evident that the integration of craft textiles into mainstream fashion has garnered

significant support from the research participants. They believe that this approach can effectively contribute to sustainability efforts and help preserve cultural heritage. This not only promotes the sustenance of crafts and encourages local artisans, but also educates students on the importance of sustainable production methods.

There is a clear disparity in viewpoints between educators and industry practitioners when it comes to the ability of young designers to apply sustainable production and consumption methods to achieve SDG 12. Many educators have a favorable perspective on today's students. On the other hand, industry practitioners have expressed a lower level of confidence in the industry's readiness to embrace these practices. This gap emphasizes the importance of strong framework requirements for achieving SDGs. Academics and industry should maintain constant communication to align industry expectations with the skills of young professionals. Building strong partnerships between academia and industry is essential for fostering collaboration and testing the feasibility of ideas for sustainable production in the industry.

Further investigation is required to establish the optimal approaches for imparting knowledge on sustainability in the fashion and textiles industry. The development of a robust framework for widespread implementation will significantly impact student training. Frameworks should be flexible enough to suit different educational settings and capable of meeting the changing needs of industry. Through the establishment of clear guidelines and best practices, educators can effectively equip students to tackle the complexities of sustainable fashion.

Although consumers are becoming more aware of conscious consumption, there is still a need for greater efforts to educate the public about finding authentic and viable sustainable fashion. Consumers have a significant impact on the demand for sustainable products. Consequently, increasing awareness and offering education on the environmental and social consequences of fashion choices can result in individuals making more informed and responsible consumption decisions. Initiatives such as public awareness campaigns, workshops, and collaborations with influencers can amplify efforts.

All the respondents agree that incorporating sustainability into undergraduate fashion education is crucial. It became clear that offering specialized courses focused on sustainability, in addition to integrating it into the core curriculum, would improve outcomes. Educational institutions should consistently evaluate and enhance their curricula by incorporating a broader range of sustainability topics. This involves incorporating practical projects, global research assignments, and co-designing with

artisans and industry professionals. By adopting this approach, students can develop a comprehensive grasp of sustainable practices.

Conclusion

The findings highlight the inclusion of sustainability in fashion education and underscore the need for continued collaboration between educators and industry professionals. The research underscores the encouraging movement toward incorporating sustainability into fashion and textile education. Overall awareness about sustainability among students, young professionals, and society is encouraging, especially in terms of aligning educational outcomes with industry readiness. Despite the challenges, a standardized framework is essential to enable students and young professionals to implement and practice sustainable production and consumption (SDG 12) in the fashion and textile industries. By implementing an educational framework, keeping traditional crafts as an important theme, and providing hands-on experiences with sustainable projects, substantial progress can be made toward sustainability and achieving the SDG by 2030. With a blend of traditional wisdom and effective education for future generations, India can lead the way in the worldwide sustainable fashion movement.

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Nandini Lal is a part-time doctoral scholar and full-time Associate Professor at Pearl Academy, New Delhi, with a diverse 21 years of experience in industry and teaching. She ardently believes design has transformative potential and is a universal problem-solving tool. Her early stints at Arvind Mills, Shivalik Printing Limited, and ILFS Cluster Development Initiative endowed her with deep insights into the fashion, textile, and craft sectors. Driven by an unwavering desire for knowledge and personal development, Nandini transitioned from the corporate world to the academic realm at Pearl Academy. Throughout her tenure, she has nurtured a profound passion for sustainable fashion, recognizing the urgent need for sustainability in the industry. She firmly believes that infusing sustainability into fashion education will groom a new breed of professionals primed to address diverse challenges. Nandini envisions an educational landscape that molds future change leaders, making sustainable practices intrinsic to the fashion realm.

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Influence of Academic Inputs on Perceived Sustainability and Brand Equity

Deepak Joshi

Abstract

In recent times, sustainability has gained momentum as a pressing topic for academia and the corporate world, where plenty of research has been covered on consumer consciousness, corporate social responsibility, and green marketing perspectives. Every day, with a redefined focus, leading organizations across the globe are defining new sustainable goals for themselves, like the United Nations adopting Millennium Development Goals and Sustainable Development Goals. Furthermore, the concept of sustainability has gained widespread acceptance in both corporate and academic circles. Researchers have carried out extensive research on the relationship between sustainability, pre- and post-consumer waste, branding, and marketing as the global public begins to understand the complexities of unsustainable practices. There is also research available on the impact of academic inputs on students' abilities; however, there is a dearth of study in the Indian context on the impact of academic inputs on perceived sustainability and brand equity. The present study takes into account the indicated research gap, focusing on exploring the impact of academic inputs on a sustainable brand's perceived sustainability and brand equity.

This research is based on the cross-sectional study of students in postgraduate courses who are getting specific academic inputs on sustainability and another set of students in postgraduate courses who are not getting specific inputs on sustainability. This research embarks on an empirical journey, to examine how these two groups perceive sustainability and the brand equity of a sustainable brand. This study also examines the impact of perceived sustainability on brand equity in the given context.

Statistical analysis conducted using T-tests reveals that academic inputs on sustainability do impact the perception of sustainability and brand equity. Since the students are also future managers and consumers, this research provides valuable insights for both corporate and academic settings, concluding that academic inputs on sustainability enhance consumers' and future professionals' understanding of sustainability and sustainable brands.

Keywords: Academic inputs, sustainability, perceived sustainability, consumer, brand equity

Introduction

The United Nations Brundtland Commission first introduced sustainability as a concept of sustainable development in 1987, defining it as "meeting the needs of the present without compromising the ability of future generations to meet their own needs." Since the Brundtland Commission introduced the concept, sustainability has undergone significant evolution, particularly in the corporate sector. Until recently, Elkington (1997) popularized the "Triple Bottom Line" as the intersection of a company's environmental, social, and economic objectives.

It is well understood that concepts discovered by humans start making sense only when they start understanding the concepts and their impact on their lives. Therefore, it is necessary to acquire and disseminate knowledge about these concepts to raise awareness about potential vulnerabilities or specific issues that could threaten humanity's survival. Cognition plays a critical role in comprehending and devising solutions for these problems. As described by Onan (as cited in Özçakmak, et al., 2021), cognition may be referred to as the process of receiving information about the surrounding environment and using this information to understand the world and problems and further bring solutions to the problems. It is well acknowledged that there is no better alternative than providing academic input to make the general public aware of issues affecting mankind. Sustainability has been a lesser explored area in academics, as the major focus lies on its impact on corporate performance.

The United Nations adopted the Millennium Development Goals (MDGs) in 2000, which became a buzzword in academia, and later conceived the Sustainable Development Goals (SDGs) in 2015 to secure the rights and well-being of everyone on a healthy and green planet. Over the recent years, sustainability has been on the list of highly cited and discussed concepts for everyone and has become one of the extensively referred topics in management journals, websites, and corporate documents. The public's growing perception and consciousness towards the environment has led many academic institutions worldwide to incorporate sustainability into their course curriculum. Meanwhile, in the corporate world, companies are adopting sustainability as a new approach to business.

Many studies confirm that a company's sustainability initiatives create value, ultimately impacting its brand equity in the consumer's mind. Winit, Kantabutra and Kantabutra

(2023) confirm that brand scholars have increasingly associated brands with sustainability since late 2018, when words such as corporate social responsibility and green marketing started to appear frequently. Most recently, since mid-2020, brand equity has gained prominence, possibly due to the widespread perception in the sustainability literature that brands serve as a proxy for corporate sustainability.

Academic inputs shape students' perceptions, and several studies have already demonstrated their impact on students' achievements (Uyeri, 2017). As mentioned earlier, there has been limited exploration of the impact of academic inputs on sustainability in shaping the perception of sustainability, which underscores the relevance of researching this topic.

Furthermore, there is a wealth of academic work and research available that measures the influence of brand image, brand attitude, and other factors on brand equity, as well as the impact of sustainability initiatives on this equity. Ample research is also available on perceived sustainability and its impact on consumer engagement and trust; for example, Khan and Fatma (2023) indicate that customers may develop trust towards the brand by engaging with the perceived sustainability; similarly, a study is also available on academics and sustainability; for example, Žalėnienė and Pereira (2021) did research on students' perceptions of the SDGs and concluded that institutes of higher education are key agents for the education of the future leaders who shall be the change agents in the successful implementation of the SDGs. There is also research available that focus on graduate students' perception and knowledge of the SDGs (Aleixo, Leal, and Azeiteiro, 2021; Ho et al., 2022; Zhou, Abedin, and Sheela, 2022); however, the impact of academic inputs on perceived sustainability and brand equity of a sustainable brand in an Indian context remains less explored. The academic input in this context refers to faculty members formally teaching or delivering sustainability as a concept and its impact on business, environment, and society to students through lectures, discussions, instructions, audio-visual and live demonstrations, and collaborative research.

The current research fills the gap, considering perceived sustainability and consumer-based brand equity to be two distinct variables under study. It also attempts to find the impact of perceived sustainability on brand equity in the given context. While measuring perceived sustainability, the study takes into consideration all three dimensions of sustainability, namely economic, environmental, and social. Keller (1993) examines consumer-based brand equity, which evaluates a brand's value based on customers' perceptions of it. Since our perceptions, understandings, and social context shape our attitudes, it is known that viewpoints result from "socially constructed realities" as

perceived by the individual (Salancik and Pfeffer, 1978). Perception of sustainability is going to impact the attitude towards sustainable and unsustainable brands as well.

As already indicated regarding the recent inclusion of sustainability in the curriculum of students, the importance of academic inputs in impacting the ability of students, and the fact that students are future consumers and future managers, a study undertaking the understanding of perceived sustainability and brand equity of the students who are getting academic inputs on sustainability vis-à-vis who are not getting specific inputs is not only an interesting plot to see the impact of academic inputs on sustainability but is also an important aspect to study the impact on raising awareness, improving perception towards sustainability and the sustainable brand which is going to ultimately impact the choice made by students as a consumer and manager in a positive manner. Further, sustainability is related to morals; thus, its understanding, perception, and practice require moral reasoning as well. Some studies, although not conducted in an Indian context, have presented varying perspectives on related aspects. For instance, Doyle and O'Flaherty (2013) suggest that undergraduate-level education enhances moral reasoning, while postgraduate education appears to have little further impact. Conversely, Venezia et al. (2011) conclude that age, formal education, and "ethics" education have no significant impact on ethics and morality. Thus, it would be intriguing to see how postgraduate inputs in India affect this concept.

Objectives

The study aims to explore the influence of providing academic inputs on sustainability, specifically on perceived sustainability. The study also examines how providing academic inputs on sustainability impacts sustainable brand equity. Furthermore, it investigates the influence of perceived sustainability on the brand equity of a sustainable brand.

Review of Literature

Perceived sustainability

Existing studies refer to perceived sustainability as social, economic, and environmental sustainability. Kumar, Park, and Kim (as cited in Khan and Fatma, 2023) confirm that perceived sustainability is a vital concept in differentiating brands, and its examination from consumers' perspectives assists in developing sustainable practices in strategic brand management. Hanss and Böhm (2012) examine the concept of general sustainability and how consumers' understanding of sustainability impacts their consumption decisions. According to them, the social, environmental, and developmental dimensions of

sustainability are the core elements of people's understanding of sustainability, while the economic and temporal dimensions are at the periphery and relatively unconnected.

Brand equity

Renowned Brand Expert Professor Aaker (1991) has defined brand equity in his book Managing Brand Equity as a set of assets or liabilities in the form of brand visibility, brand associations, and customer loyalty that add or subtract from the value of a current or potential product or service driven by the brand. In simplest terms, brand equity represents the value of a brand, and many branding experts also opine it to be the perceived value of a brand in the consumer's mind, which is also popularly referred to as consumer-based brand equity.

Brand equity is the commercial value, which is derived from the consumer's perception of the brand name of a particular product or service rather than from the product or service itself. Heartland, n.d., also refers to it as the "social value" associated with a well-known brand name. According to Hsu (2012), brand equity is defined as the overall value added to a core product or the additional utility generated by its brand name. Sustainability practices can develop and maintain brand equity (ibid.).

Keller (1993) defines brand equity as the marketing effects uniquely attributable to the brand, which means when the marketing of a product or service generates certain outcomes because of its brand name that would not occur if the same product or service did not have that name. Consumer-based brand equity is defined as the differential effect of brand knowledge on consumer response to the marketing of the brand from a consumer's perspective (ibid.). Kapferer (2012) asserts that one of the approaches to evaluating brand equity is customer-based, which focuses exclusively on the relationship customers have with the brand.

Brand equity of a sustainable brand

Hartmann and Ibanez (2006) define "sustainable brand" as a brand that offers products or services manufactured using recycled or biodegradable ingredients, opposes animal testing, supports charitable donations, and guarantees fair trade conditions. Ha (2021) suggests that attitudes toward green products with environmental concerns impact consumers' associations with green brands, which influences green brand equity further. Zein, Consolacion-Segura and Huertas-Garcia (2019) identify a positive

relationship between environmental and social governance scores and brand equity value. According to Lash and Wellington (2007), consumers consider a company's environmental record when making purchasing decisions, and demand for eco-friendly sustainable products and services is increasing from the consumer's end. However, Willersdorf and Mitchell (2020) argue that consumers' mixed signals on sustainability pose tough but surmountable obstacles for fashion brands. Hence, assessing how students who are consumers as well as future managers perceive sustainable brands in terms of sustainability and brand equity becomes an interesting ground to explore.

Hypotheses

The researcher formulated the following hypotheses to achieve the objectives:

Hypothesis 1 (H1): There is a significant difference between the levels of perceived sustainability as grasped by the postgraduate students getting academic inputs on sustainability and those who do not get specific inputs.

It is hypothesized that students who receive academic inputs on sustainability will perceive the sustainability of an organization with more clarity.

Hypothesis 2 (H2): There is a significant difference between the perception of consumer-based brand equity by the postgraduate students receiving academic inputs on sustainability and those who do not receive specific inputs.

It is hypothesized that students receiving academic inputs on sustainability will have an enhanced understanding of the brand equity of a sustainable brand.

Hypothesis 3 (H3): There is a significant influence of perceived sustainability on brand equity.

Research Methodology

A cross-sectional study was conducted to compare postgraduate students who receive specific academic inputs on sustainability within their curriculum with postgraduate students who do not receive such inputs. A structured questionnaire was administered to assess the perceived sustainability and brand equity of a selected sustainability brand. Students belonging to the age group of 20 to 25 years were considered by slightly adapting the age group indicated for higher education by the Indian Government report titled 'Educational Statistics at a Glance' (Department of School Education & Literacy, 2018).

Selection of sustainable brand for the study

The expert opinion of four professionals, belonging to middle-level management from Indian fashion brands, was taken to select a sustainable fashion brand for study. Due to ethical considerations, the names of the experts and the brand are not being disclosed in the research.

Sample frame and size

The researcher employed the purposive sampling method. The study considered two distinct groups: postgraduate students from NIFT Delhi who had received inputs on sustainability during their course, and other postgraduates residing and studying in Delhi NCR who had not received any academic inputs on sustainability. A total of 103 responses were collected; however, finally, a total of 69 responses, which were complete in all aspects, were filtered out for final analysis. Only students who had the opportunity to purchase and use the sustainable brand considered for the point of reference within the past year were considered in the final analysis.

Instrument

A questionnaire was distributed to the sample considered for the study to measure the perceived sustainability and gauge the respondent's perception of the brand equity of a sustainable brand. A 5-point Likert scale with responses ranging from strongly disagree to strongly agree was employed, and a summative score of all items was finally considered for the analysis.

Scales for measurement

For measuring the perception towards sustainability, the "Measures of Perceived Sustainability" scale (MPS) given by Kim, et al. (2015) was adapted. The scale consists of ten items spread across three dimensions, namely environment, social, and economic (Table 1). Since the scale covers all the dimensions of sustainability, it encapsulates a comprehensive view of perception.

For gauging the consumer-based brand equity, the consumer-based brand equity scale (MBE), which is multidimensional and given by Yoo and Donthu (2001) was adapted. The scale covers eleven items spread across four dimensions (Table 2).

The summative scores for both variables were calculated based on the scores assigned by the two groups of respondents. The final scores were further analyzed using a t-test to understand the difference in the two variables under study within the two groups.

Table 1: Items of measurement of perceived sustainability

Factor	Items
Environment	I take the brand to be sustainable if its products are made of organic and recycled materials.
	It is a sustainable brand if it utilizes green technology that helps in efficiently utilizing natural resources and energy.
	It is a sustainable brand if it achieves environmental innovativeness, i.e., is consistently working towards curbing the use of polluting chemicals in the production of goods.
	A brand qualifies to be called sustainable if it sponsors pro-environmental programmes.
Social	I perceive a brand as sustainable if it respects human rights of workers.
	I believe a brand is sustainable if it encourages freedom of expression, diversity and equal opportunities.
	A brand involved in social causes like women empowerment, sponsoring educational programmes, etc. qualifies to be a sustainable brand.
Economic	A brand is sustainable if it is transparent about managing its business.
	If corporate governance is appropriate, it is a sustainable brand.
	Corporate accountability is necessary for a brand to be called sustainable.

Table 2: Items of measurement for consumer-based brand equity

Factor	Items
Brand Awareness	I can recognize XYZ among other competing brands.
	I can quickly recall the logo of XYZ.
	When I think of handcrafted Indian merchandise, XYZ is one of the brands that comes to my mind.
Brand Association	Some product attributes of the XYZ brand come to my mind quickly.
	I believe the XYZ products are worth the money.
	I find XYZ as a more inclusive, craft oriented, Indian ethnic brand than the others.
Brand Loyalty	I consider myself to be loyal to XYZ.
	Even if another brand has the same features as XYZ, I would prefer to buy from XYZ.
	XYZ is usually my first choice while purchasing handcrafted fashion merchandise.
Perceived Quality	I believe that the offerings of XYZ are of excellent quality.
	The likelihood that XYZ products would be functional is very high.

Data analysis

The data was collected from both groups of students, and a t-test was used to estimate whether there was a significant difference in the perceived sustainability of the different groups of students. Similarly, a t-test was employed to explore any significant differences in consumers' perceptions of the sustainable brand they are familiar with and have been using. The t-test is the most widely used statistical test to compare the means of two groups, thus making it relevant for understanding the differences in this study.

Results

Initially, the scale's reliability was confirmed by using Cronbach's alpha, which is indicated in Table 3. The results confirm that the Cronbach's alpha values of both scales were above 0.8, which confirms the aptness of the scale to measure the concept.

Table 3: Cronbach's alpha values

Construct	Cronbach's Alpha	No. of Items
Measurement of Perceived Sustainability	0.824	10
Measurement of Consumer-based Brand Equity	0.889	11

Analysis of influence of academic inputs (sustainability) on perceived sustainability

The Q-Q plot analysis revealed a normal distribution of perceived sustainability across both student groups. Levene's test further pointed towards homogeneity of variance, leading to consideration of an independent t-test run on the data at a 95 percent confidence interval for the mean difference.

The t-test statistics in Table 4 and group statistics indicate a significant difference in perceived sustainability between students who receive academic inputs (36.649 ± 3.5995) and those who do not receive any sustainability inputs (32.156 ± 5.036) (t(67)=4.304, p<.001) with a mean difference of 4.5 (95 percent CI, 2.4–6.57).

Hence, in the absence of enough evidence to accept the null hypothesis, the alternate hypothesis was accepted. This confirmed that the students who receive academic inputs in the domain of sustainability exhibit higher levels of perceived sustainability as compared to the group of students who do not receive such specific inputs on sustainability.

Table 4: T-test results for perceived sustainability

	Levene's test for equality of variances		T-test for equality of means							
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference		
								Lower	Upper
Equal variances assumed	3.784	.056	4.304	67	.000	4.4924	1.0438	2.4089	6.5759
Equal variances not assumed			4.202	55.171	.000	4.4924	1.0690	2.3502	6.6345

Analysis of influence of academic inputs (sustainability) on perceived brand equity

The Q-Q plot analysis displayed a normal distribution of perceived brand equity for a sustainable brand across both student groups. Further, Levene's test revealed homogeneity of variance, necessitating an independent t-test run on the data at a 95 percent confidence interval for the mean difference.

The t-test statistics in Table 5 and group statistics infer that the perceived brand equity of a sustainable brand among students who receive academic inputs (35.676 ± 5.68) was significantly higher among students who do not get any sustainability inputs (30.938 ± 6.92) (t(67)=3.121, p=.003) with a mean difference of 4.7 (95 percent CI, 1.7 – 7.76).

Due to a lack of evidence to support the null hypothesis, the alternate hypothesis was accepted, confirming that the students who receive academic inputs exhibit higher levels of brand equity for a sustainable brand as compared to the group of students who do not receive such specific inputs on sustainability.

Analysis of influence of perceived sustainability on brand equity

A simple regression test was conducted to measure if perceived sustainability significantly influences brand equity. It was inferred that the conducted regression was statistically significant, with p<.05, and perceived sustainability significantly influencing brand equity, $F(1,67) = 7.922$, p =.006, $R2$ =.10. Thus, the alternate hypothesis was accepted.

Table 5: T-Test results for brand equity

| | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | | |
| | F | Sig. | t | df | Sig. (2-tailed) | Mean Difference | Std. Error Difference | 95% Confidence Interval of the Difference | |
								Lower	Upper
Equal variances assumed	2.592	.112	3.121	67	.003	4.7382	1.5182	1.7078	7.7685
Equal variances not assumed			3.077	60.108	.003	4.7382	1.5401	1.6577	7.8187

Discussion and Conclusion

Academic inputs have been known to augment cognition, even in later life (ANI, 2023). Systematically imparting academic inputs not only raises awareness, but also sensitizes people to specific issues of concern. The same is applicable to the concern of sustainability. The current research endeavors to add to the existing research by demonstrating that academic inputs on sustainability have a positive impact on both the perceived sustainability and brand equity of a sustainable brand. Since students are consumers themselves, the inclusion of sustainability in the course curriculum in the Indian context will positively influence the perceived sustainability of sustainable brands, thus pushing the growth of sustainable brands in the future.

Integrating the essence highlighted by researchers such as Gupta (2015), who recommends that sustainability initiatives can enhance brand value for consumers and ultimately drive brand equity, is a key focus. Building on previous research by Chen, et al. (2020), which suggests that perceived sustainability positively influences customer engagement, this current research aims to investigate the impact of perceived sustainability on brand equity. Although the indicated results might not seem profound, as other relevant factors may impact brand equity, the significant positive influence based on the same highlights one of the managerial implications of the current research. This implies that students, who are also consumers, on receiving sustainability inputs, can perceive the various components of a sustainable brand more clearly than the ones who have not been given educational inputs on sustainability. This fact, vis-à-vis the study's findings that perceived sustainability significantly influences brand

equity, reflects that it is also imperative for a sustainable brand to educate consumers on sustainability. This, in turn, will lead to a higher perceived level of sustainability, ultimately positively influencing the brand equity. In simple terms, the research findings convey that the success of a brand in sustainability initiatives is determined by the customer's perception of its sustainability features. It is also considered that perception shapes the formation of attitudes, and a positive attitude may result in actual buying behavior. This makes the study valuable from a managerial point of view.

According to Keller (1993), brand knowledge serves as a crucial antecedent of consumer-based brand equity, conceptualized as a brand node in memory, to which a variety of associations are linked. Brand knowledge is decomposed into two distinct constructs, brand awareness and brand image (associations). The brand awareness created and associated with sustainability is going to impact the brand knowledge in a positive sense. This aligns with the study's findings, which suggest that an informed and educated individual well-versed in sustainability is more likely to develop a higher perception of sustainability, also known as perceived sustainability, and increase brand equity. Therefore, it would be beneficial for corporates to engage directly with academic institutions in order to impart general knowledge about sustainability and the sustainable practices of their brand, particularly in their marketing efforts and CSR (Corporate Social Responsibility) initiatives, which are now mandatory in India for certain companies. In addition, brands should communicate these aspects to consumers through different marketing channels, or they may like to keep an eye on academic inputs to improve their communication and products accordingly.

This research conducted in an academic context signifies the importance of academic inputs in creating awareness and facilitating conscious choices for sustainable brands or products, thus bringing about a positive outcome in society. Since no brand or business, no matter how 'unclean', such as coal, steel, or chemicals, can afford to ignore sustainability today (Khalap, 2022), a more aware general public will be able to make conscious and better choices of sustainable products and brands, ultimately impacting the overall sustainability of Mother Earth. Therefore, educators should collaborate with sustainable organizations or brands to conceive classroom projects and interact frequently, as the social context in which the individual is placed shapes his perceptions of the situation and hence his attitudes (Salancik and Pfeffer, 1978).

Since the current research focuses on postgraduate students, it is imperative to evaluate the impact of elementary, primary, or secondary education on a concept that shapes individuals' choices as consumers and impacts the future of mankind. This can further

guide the decision to impart such inputs at a stage that has the maximum impact. Further research on attitude-gap behavior theory could be carried out in the Indian context to gauge how understanding and a positive attitude influence the consumer's purchasing behavior toward sustainable brands.

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Impact of Integrating Professional Practice in Textile Design Curriculum

Ruby Kashyap Sood and Anu Sharma

Abstract

Fashion education in the 21ˢᵗ century faces many challenges, considering the rapid transformation of the industry. Educators need to constantly restructure their curriculum, pedagogy, and mode of assessment of students' learning to ensure adaptation to the needs of the industry and thus employability of their graduates. The academic community needs to address key domains, including technological innovation, globalization, the digital revolution, sustainability, ethical practices, changing consumer mindsets, and a new cohort of students.

To align the learning outcomes with the evolving needs, enhancing industry engagement in student learning will be the way forward to gain real-time experience, leading to relevant knowledge and skill attainment. In this context, a new subject, 'Professional Project', was introduced in the textile design curriculum to the final-year students. The subject aims to expose students to emerging industry trends and encourage them to undertake professional projects of their choice, thereby expressing classroom learning in a realistic environment and enhancing their professional skills and capabilities.

To study the impact of this new subject on students' learning, a structured questionnaire was distributed to three batches of textile design students who graduated in 2021, 2022, and 2023. The findings demonstrate the significance of the subject in developing students' professional capabilities. In addition to gaining knowledge, the different professional projects helped build up students' soft skills like time management, team building, communication, adaptability, problem-solving, decision-making, and analytical skills, which are essential for fast-tracking career growth and achieving success in the industry. The uniqueness of the subject highlighted by students was the opportunity to select their own short-term projects based on their self-interests and individual strengths to accomplish specific tasks.

The findings of the study bring to light the relevance of real-time practical learning in fashion education, which helps impart industry-oriented knowledge and skills and

provides diverse opportunities to enhance the future prospects of students. In order to enhance student learning and experience, academia should explore unconventional approaches to collaborate with the industry.

Keywords: Practical experience, real-time projects, industry engagement, problem solving, soft skills, professional development, career prospects

Introduction

In today's time, fashion institutes are facing a challenging time amidst the rapidly changing landscape of the industry, technological advancements such as 3D printing, augmented reality, and artificial intelligence, focus on sustainability and ethical practices, and global economic shifts. It is pertinent for fashion schools to rethink programs, curricula, and pedagogies to respond to the evolving needs of the industry. The curriculum should aim to inculcate relevant skills and capabilities in students belonging to a new generation in an endeavor to prepare dynamic professionals to handle the challenges of the fashion business.

In a fast-changing world with emerging technologies, education has to adapt to the evolving needs of the learner, enhancing their capabilities to be a better fit in the industry. According to ASSOCHAM's report 'Navigating the Shift to Education 5.0: Enhancing Higher Education in India' (2024), the education sector has transformed over a time, from education 1.0 to now transitioning to education 5.0, representing a 'paradigm shift' in pedagogy to enable enhanced learning experience. Education 5.0 stresses the well-rounded development of students, personalized learning, and industry-ready professionals. The report describes the adoption of Education 5.0, which includes planning relevant curriculum, integrating essential 21st century skills; innovative teaching through project-based, inquiry-based, experiential learning; human-centric learning by creating customized pathways; collaboration and networking with stakeholders; and accessibility and equal opportunities for all learners. Vimal and Alexander (2023) state that Education 5.0 aims to develop future-ready graduates with 21st century skill sets, including problem solving, critical thinking, creativity, and collaboration that are necessary for the workforce. In order to stay relevant and develop competent professionals, fashion schools need to restructure their curriculum, pedagogy, and learning outcomes in alignment with Education 5.0.

Employability is the key to the success of a professional program. The knowledge and skills in line with the industry's requirements increase the employment opportunities of graduates. According to Peacock and McNeil (2014), the industry expects graduates to

have relevant technical and subject competency but also be equipped with a range of skills and attributes such as problem-solving, communication, planning and organizing, teamwork, and interpersonal skills. In the era of Industry 4.0, the designer's role is more of a strategist and thinker. With mechanization on the rise, practical and technical skills are not so crucial, and therefore learning should be based on problem driven design outcomes to foster strategic thinking, allowing future designers to adapt to any complex situations (Potgieter and Lavelle, 2021).

Integrating theory with practice in fashion education

Across the world, fashion institutes have incorporated typical activities like an industry internship or a final industry-linked graduation project in their curriculum to provide real-time exposure to the students. Kohli (2019) states that an industry internship enables students to gain experiential learning, empowering them with knowledge, skills, and attitudes to work effectively in the industry. Based on students' reflections post-internship, Kozar and Connell (2014) record that internships enabled students to identify their strengths and professional goals, which helped boost confidence in them. An internship is an important activity to combine theoretical understanding with practical application, thus serving as a bridge to strengthen students' know-how about fashion markets, consumers, business, and actual production (Ma, 2017). Practical teaching in fashion education, which includes classroom instruction, extracurricular activities, internships, graduation projects, and social practice, integrates theory and practice, knowledge, and capability to foster an innovative spirit and ability in students (ibid.).

Project-based learning is a type of pedagogical approach that is rooted in student-centric learning and based on the premise of 'learning by doing'. Wenyuan, Beibei and Gan (2020) adopt "Real Problems and Real Practices" project-based learning that integrates real-time projects into teaching. The design brief is based on real users and specific requirements to achieve practical solutions. Incorporating realistic projects into the fashion design course motivated students to enhance their practical ability, design thinking, and problem-solving capabilities and augmented their communication and teamwork skills (ibid.). In another study, integrating an 'authentic learning strategy' in an undergraduate apparel and merchandising curriculum improved professionalism, enhanced research abilities, and reinforced learning through real-time experience (Ma and Lee, 2012). Jones, et al. (2020) explore the positive learning outcomes for students in fashion and retail through 'experience-based learning', thus bridging the gap between the classroom and the real world. Work-based learning has a positive

impact on the students' learning in comparison to the traditional pedagogical approach (Bryant, Akinleye and Durrant, 2013; Appiah, 2023). Ma (2022) explains the importance of 'challenge-based learning' through a case study. The findings demonstrate that challenge-based learning incorporated in sustainable design education enhanced the problem-solving skills of the learners by following a step-by-step design thinking process in comparison to the conventional mode of learning, where every step of the design process is not critical.

Lam, et al. (2020) highlight the importance of participatory action research (PAR) in vocational education by way of knowledge co-creation between students, teachers, and industry members. The study stresses the drawbacks of the Bauhaus tradition of a top-down approach, creating graduates ready to work in junior positions. On the other hand, PAR enhances students' creativity, making them more competent to handle bigger challenges in the industry. According to Ma (2017), employment-driven, competence-based, and practice-led innovative practical teaching is an effective pedagogy that enhances the quality of teaching in the domain of costume and fashion design specialization in higher education institutes. The practice-based approach supports students to strengthen networking with the industry and leads to competitive design professionals to address the needs of the community and commerce.

Transformative learning is a learning theory that is specifically suitable for young adult education. It is a process of insightful, constructive, and meaningful learning as it assists learners to reflect deeply through conscious learning experiences, resulting in a fundamental change (Simsek, 2012). Sala (2016) shares an example of a transformative method of teaching through a case study of the Nike Sustainable Materials Project, a collaborative project to engage fashion design students in real-time industry practice. The design project was in partnership with London College of Fashion (LCF), the Centre for Sustainable Fashion, a research center at LCF, and Nike. The collaborative nature of the project integrated the experiences of various participants, including students, faculty guides, researchers, and industry professionals, creating an ideal environment that challenged students' minds and fostered "change-oriented" thinking to deliver innovative ideas and solutions.

Industry-linked classroom projects are beneficial for students, faculty members, and the industry, as academia-industry partnerships guide innovative problem-solving and novel solutions. Heffernan (2016) states that research projects with the industry provide an opportunity for students to find innovative solutions; the company gains from new research and findings, and academicians enhance their own academic

research by procuring funds for graduate students. The larger objective is to gain real-time experience, significantly contribute to the industry, and, in the process, achieve the learning outcomes and meet the academic requirements.

A new pedagogical approach

The review of literature indicates that fashion institutes across the globe have integrated industry exposure into their curriculum through industry internships, company-sponsored graduation projects, industry expert lectures, and collaborative projects. In 2018, the National Institute of Fashion Technology undertook a major curriculum restructuring exercise. The major goals of the curriculum rethinking entailed multi-disciplinary learning, a flexible learning model leading to personalized pathways for students, and enhanced industry connection. The primary focus revolved around empowering students with real-time industry exposure to supplement their classroom learning through a practical approach.

The Textile Design program proposed a revised curriculum model based on feedback from senior industry members who have hired Textile Design graduates over the years, alumni in higher positions, current students, and faculty. The feedback from the industry pointed toward strengthening the problem-solving skills of design students and developing awareness of critical, emerging areas such as environmental concerns and ethical practices. The industry leaders also stressed inculcating soft skills like presentation and communication, time management, adaptability, flexibility, and persistence. Drawing from the industry's response, a new subject, 'Professional Project', was included in the final year as part of an endeavor to augment the industry interface in the curriculum. The subject includes two components: a series of lectures by industry experts to delve into the latest industry trends and practices in the domain of fashion and textiles, and secondly, a professional project to adapt to real-time situations through practical assignments.

Methodology

The 'Professional Project' subject is offered to Textile Design students as a major in Semester VII, which is the beginning of the fourth year in the Bachelor of Design program. The goal of the subject is to engage students with the industry so they can gain real-time experience throughout the semester. The subject provides a unique opportunity for students to express classroom learning in a professional environment. As part of the subject, students are given options to engage in professional assignments related to the design field and as per their interests. The multiple options offered to students include freelance projects with the industry, participation and assistance in industry events like fashion weeks and exhibitions, participation in design competitions, paper

presentations at conferences, faculty assistance in consultancy projects, as well as self-learning through suitable online courses.

The assessment of the subject is based on two assignments, including a research-based essay and a professional project undertaken by the student. The first assignment focuses on thorough research on a specific topic, followed by a submission of an essay ranging from 1200 to 1500 words. The selection of the topic is based on the students' interest in relation to the emerging industry practices, drawn from the sessions conducted by the faculty and subject experts. As part of the second assignment, each student is required to undertake one or more professional projects, which should entail a minimum combined workload of forty-eight hours. The evaluation is carried out on the basis of the learning diary, detailed documentation of each of the projects, and the task-based learning outcomes achieved by the student.

The main objective of the study was to assess the impact of the new subject, "Professional Project," on students' learning and professional growth. It was pertinent to determine if the envisaged professional skills like project management, leadership, team building, self-discipline, self-motivation, and time management were inculcated in students towards the end of the course.

To assess the students' learning and experience in the professional project, a structured questionnaire comprising open-ended and close-ended questions was designed. The questionnaire link on Google Forms was shared with the Textile Design alumni of NIFT, New Delhi, from the batches of 2017-21, 2018-22, and 2019-23, a total of 109 graduates who had undertaken the subject 'Professional Project' in Semester VII. The close-ended questions were measured using a 5-point Likert-type scale ranging from strongly disagree (1) to strongly agree (5). The open-ended questions were designed to examine the application of students' learning in their professional careers and the relevance of the subject from the perspective of alumni. The study exercised a mixed-methods approach, integrating quantitative and qualitative data analysis. The close-ended responses were evaluated using descriptive statistics, and the open-ended responses were analyzed using content analysis. Both quantitative and qualitative data were interpreted to draw the findings of the study.

Results

"Professional Project" is a new subject that was introduced to the final-year textile design students. It is a new pedagogical approach to enhance students' professional capabilities and provide a real-time learning experience. The findings of the study are based on the responses obtained from the questionnaire. A total of 48 Textile Design alumni responded to the questionnaire: 14 from the 2017-21 batch, 16 from the 2018-

22 batch, and 18 from the 2019-23 batch (Figure 1). The data from the questionnaire was assessed to map the key learning outcomes achieved through the subject.
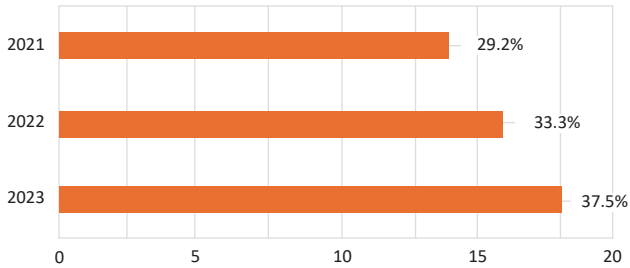

Figure 1: Participants from different graduating batch (2021, 2022 and 2023)

Nature of professional projects

The respondents were asked to mention the nature of professional projects undertaken by them in the subject. According to Figure 2, 64.6 percent of respondents engaged in freelance design projects with the industry to gain more practical experience. Another 29.2 percent of graduates opted to assist faculty in consultancy projects. Furthermore, respondents participated in a wide range of professional projects. A considerable 27.1 percent were part of research projects with either industry or faculty. Additionally, another 27.1 percent expressed their preference for enrolling in short-term, self-paced online courses to enhance their knowledge and skills. Participation in design competitions to showcase their talent was noticeable among 22.9 percent of the alumni. In addition to these prevalent trends, some of the respondents contributed to exhibition design and event management activities.
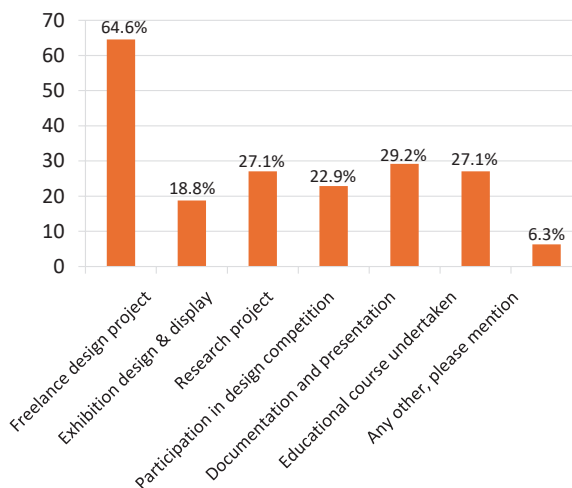

Figure 2: Different professional projects undertaken by the participants

Learning outcomes

To assess the learning outcomes, it was important to gauge if the subject contributed to the development of professional attributes in students in order to prepare them for their careers. A substantial 64.6 percent of the respondents were of the view that the subject helped in acquiring knowledge, skills, and professional capabilities (Figure 3). The findings further indicated that 12.5 percent of the alumni pointed to enhancements in their skills, while 10.4 percent conveyed improvements in their professional capabilities. A smaller percentage, 8.3 percent, credited an increase in the knowledge domain to the subject. The results indicate the multi-dimensional impact of the subject, attributed to the diverse professional projects undertaken by the students.
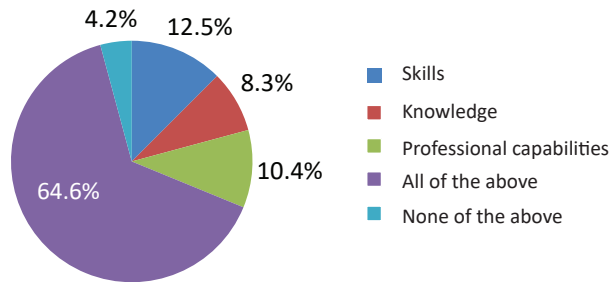

Figure 3: Development in student's learning through professional project

In response to the query of whether the subject assisted in comprehending industry trends and practices, 75 percent of the respondents were in agreement with the statement, whereas 20.8 percent remained neutral (Figure 4). The results reveal that the majority of students gained valuable insights into the working of the industry.
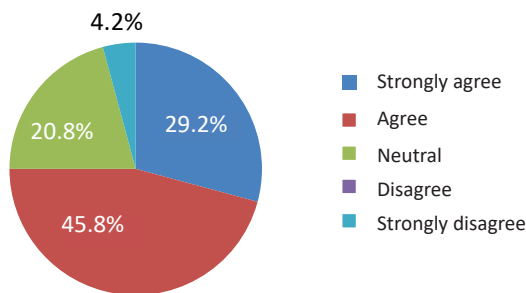

Figure 4: Participants' response to 'The subject helped me understand industry trends and practices.'

Professional development

The approach to the subject was planned to motivate students to undertake real-time projects in contrast to regular class assignments. A majority of 87.5 percent of the graduates agreed with this assertion, drawing attention to the uniqueness of the curriculum transaction as a means to inspire students to engage in more realistic learning (Figure 5). A notable 85.5 percent of the respondents also brought to light that the projects undertaken by them added value to their resumes by highlighting the variety of professional assignments conducted during their course of study (Figure 6). The finding points to meaningful learning in a professional environment, which enhances career prospects. 87.5 percent of the graduates further corroborate this by emphasizing the importance of the projects undertaken in enhancing their professional growth and development (Figure 7). On the contrary, it was observed that a minuscule 4.2 percent of the respondents displayed their disagreement with the benefits of the projects, perhaps due to differences in outcomes envisaged and achieved based on individual perceptions or experiences.
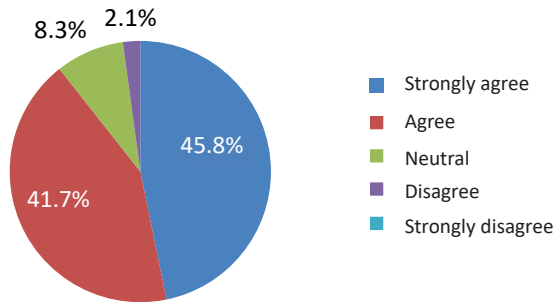

Figure 5: Participants' response to 'I was motivated to undertake real time projects/assignments, beyond the regular class assignments.'
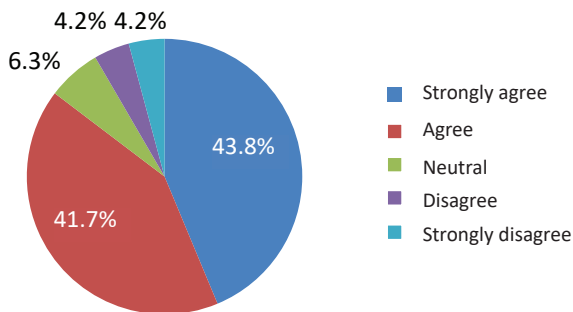

Figure 6: Participants' response to 'The professional project/s undertaken added value to my resume.'
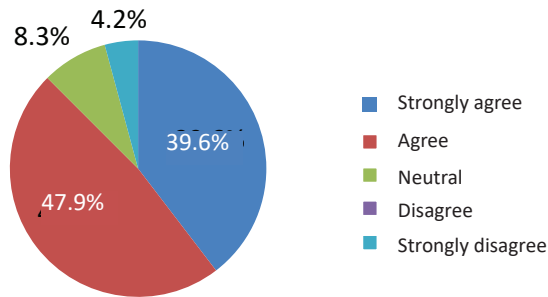
Figure 7: Participants' response to 'The professional project/s undertaken helped in my professional development.'

Development of soft skills

The primary goal of the subject was to instill soft skills, specifically time management. A majority of the respondents, 83.3 percent, agreed that the projects undertaken helped them to adhere to the project timelines successfully, thus indicating the usefulness of the subject to enhance the time management skills of future professionals (Figure 8). Furthermore, 12.5 percent of the respondents expressed a neutral perspective on the statement, while a mere 4.2 percent of alumni expressed disagreement with the improvement in time management skills following project completion. This may be attributed to various reasons like the nature of projects, student experiences and perceptions, project management, and other external factors.
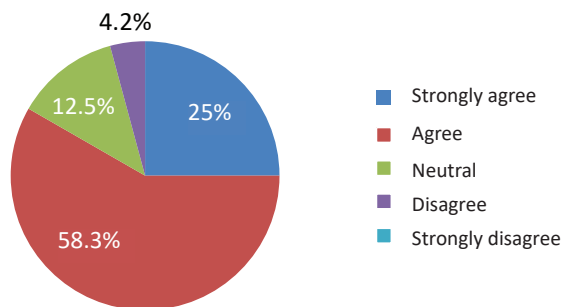

Figure 8: Participants' response to 'The professional project/s helped me realize the importance of adhering to timelines.'

In response to the question regarding the impact of projects on students' perceptions of the importance of team building, different viewpoints came to light. More than half of the respondents (54.1 percent) accepted that the projects gave an insight into the

relevance of team building and collaboration to achieve the desired deliverables (Figure 9). However, 37.5 percent of the alumni took a neutral stance on the development of team building, and another 8.4 percent of the respondents were in complete disagreement with the statement. The varying viewpoints may have resulted from the students undertaking a wide variety of projects, not all of which required teamwork.
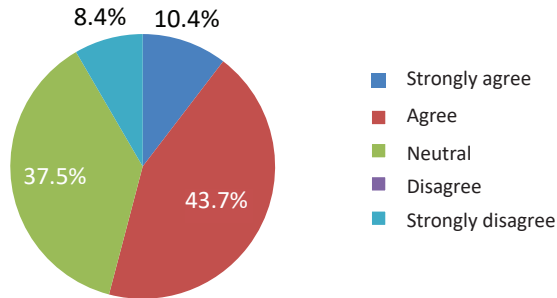

Figure 9: Participants' response to 'The professional project/s helped me understand the importance of team building.'

The results indicate a wide range of perspectives regarding the positive impact of the projects in building contacts and networking with the industry. More than half of the respondents (60.4 percent) acknowledged the contribution of the projects to connecting with the industry, followed by 25 percent who remained neutral, and a smaller number, 14.4 percent, disagreed with the statement (Figure 10). The variation in responses may be due to the nature of projects undertaken, which were not directly affiliated with the industry.
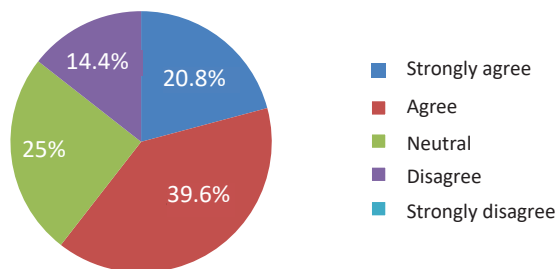

Figure 10: Participants' response to 'The professional project/s I undertook helped me build contacts with the industry.'

A majority of the respondents, 85.4 percent, affirmed that the projects assisted in improving their documentation and presentation skills (Figure 11). It may be inferred that the projects provided a platform for students to imbibe pertinent professional skills like report writing, developing visual presentations, and effective communication in a real-time environment.
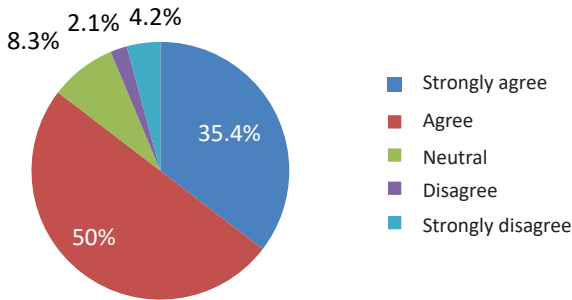
Figure 11: Participants' response to 'The subject helped me improve my documentation and presentation skills.'

Self awareness

The 'Professional Project' subject encouraged students to select projects of their choice. A noteworthy result of the survey was that a majority of the respondents, 77.1 percent, expressed the importance of the projects in identifying their strengths and weaknesses (Figure 12). The projects allowed students to self-introspect for further growth and professional development. A notable 18.8 percent remained neutral, and another 4.2 percent disagreed with the statement, indicating mixed student perceptions and interpretations about specific projects.
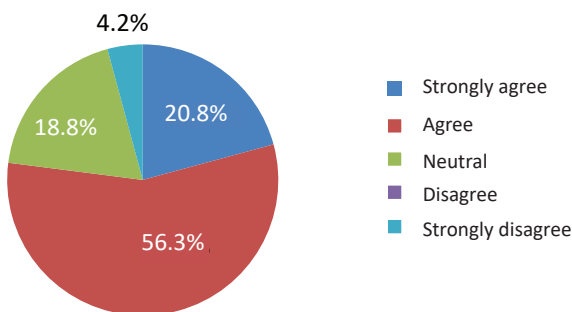
Figure 12: Participants' response to 'The professional project/s helped me identify my strengths and weaknesses.'

The respondents were asked if the projects undertaken in the subject assisted in defining their career pathway. A significant 60.5 percent of the alumni asserted the positive impact of the projects in guiding them in selecting their professional endeavors (Figure 13). It was observed that 29.2 percent of the respondents neither agreed nor disagreed with the statement, and another 10.5 percent expressed their disagreement with the impact of the projects on their career choices. The diverse responses may be based on personal experiences and the project outcomes.
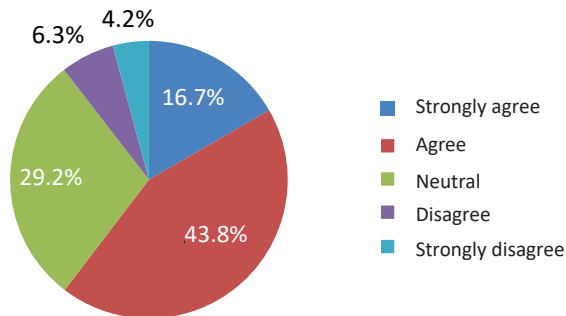

Figure 13: Participants' response to 'The professional project/s helped me define my career pathway.'

Learning experience and student reflections

It was critical to assess the application of the subject's learning by alumni in their professional careers. The majority of the respondents were of the view that the subject provided valuable insights on realistic industry projects. The practical learning fostered their professional skills, such as presentation, documentation and communication skills, time management, and team building. These were the key takeaways from the subject that they successfully integrated into their current professional roles. "I feel the subject enables you to work as a professional and develop several soft skills that are essential to thrive in the industry," mentions a respondent. Another respondent adds, "Real-time projects offer more insights on the industry and market trends, which has helped me understand the requirements of the business." Some of the respondents indicated that the development of other relevant attributes, such as in-depth research, detailed design processes, and improvements in digital rendering skills, has significantly enhanced their performance at work. "I did my professional project with a print design studio, which helped me update my skills in digital rendering in Procreate that are really useful in the industry as well," comments an alumni, which further corroborates learning relevant industry skills through real-time projects.

For one of the respondents who had undertaken an online course as a professional project, the subject assisted in defining her career pathway. She remarks, "I had taken a UI/UX online course as my professional project, and it proved to be an eye opener for me and paved my career. From textile to UX, it made me realize I deeply enjoyed it and would like to pursue it further in my career, and here I am writing this as a UX designer." Another alumnus opines, "The subject allowed us to select projects beyond our forte to make us more versatile. It is now easier for me to handle different tasks at my workplace like product styling, digital product rendering, and space design." This further highlights the relevance of the subject to developing multi-faceted professionals for the industry.

Lastly, the respondents were asked to share their views regarding the continuation of the subject in the Textile Design curriculum. The feedback was overwhelmingly positive, with 98 percent of the respondents advocating for the inclusion of the 'Professional Project' subject in the curriculum. The majority of the alumni stated that the projects undertaken as part of the subject added value to their resume and portfolio and connected them to pragmatic assignments, thereby applying their classroom learning. The diverse projects gave an opportunity to students to develop additional skills of their choice beyond their major studies. Some of the alumni's comments expressed below are indicators of the positive outcomes of the subject.

- "The professional projects added immense value and made me stand out among other job aspirants. My company HR was very appreciative of the wide range of projects undertaken by me during my study."

- "Yes, the subject should be included in the Textile Design curriculum as it pushes us to learn more, way beyond our comfort zone."

- "These projects gave me extra credits while applying for my post-graduation studies in international universities."

- "Yes, I think it's an important subject and allows students to explore different areas of interest, not necessarily related to their major, thus providing flexibility and independence, which serves as a perfect precursor to the graduation project."

Challenges and suggestions

Alongside the overwhelmingly positive response, there were a few suggestions proposed by the respondents to enhance the overall structure and assessment of the subject. One of the respondents felt that it is sometimes challenging to secure industry

projects, given the preference of most companies for physical presence. Due to shorter timelines prescribed by the industry, the time allocated to work on the project is less, as the subject is planned during the semester. The suggestion was to run the subject in a modular format over a few weeks, rather than scheduling it across the semester. Another alumnus stressed the need for implementing a more explicit assessment process, engaging both academia and industry in the project evaluation. Another suggestion was to use social media to reach out to the industry and find suitable freelance projects. The valuable insights and recommendations from the survey will further help streamline the implementation of the subject in the future.

Conclusion

NIFT was set up in 1986 to train students and prepare professionals for the fashion industry. Over the years, the institute has evolved itself, restructuring its curriculum, teaching and learning methods, and assessments to cater to the changing requirements of the industry. From the traditional classroom instruction approach to more interactive learning and building in a more real-time experience for the students, the institute has been making conscious efforts to align with emerging trends, integrate technological advancements, and enhance the learning experience of today's learners.

The introduction of the 'Professional Project' subject in the textile design curriculum aims to transition from a conventional classroom setup with one-way communication to more realistic learning by integrating a project-based and experience-based learning approach. This is in alignment with 'Education 5.0', which aims to build a future that encourages dynamic and continuous learning, flexible learning pathways, and integration of industry-based learning for real-time exposure (ASSOCHAM, 2024). The teaching methods for the 'Professional Project' involved expert lectures to familiarize students with emerging industry trends and students' engagement in multidisciplinary collaborative projects to build on their learning from previous semesters and application in the real world. To obtain projects, the industry was approached, and other opportunities like volunteering for events, exhibitions, and fashion weeks and participating in design competitions were also shared with the students. The projects were selected by students according to their personal interests, keeping in mind their strengths and envisaged learning outcomes. The students were instructed to do detailed documentation of each project. Periodic assessments were conducted to review the progress of the projects and provide constructive feedback to the students to enhance their work further.

The intention of the subject 'Professional Project' was to strengthen students' professional capabilities, enhance their understanding of industry trends and practices, and inculcate requisite soft skills to prepare them to handle the challenges of the industry. Conventionally, industry internships and graduation projects are the two significant activities ingrained in the curriculum that provide industry exposure to the students. The subject was a step further to enrich students' real-time experience and an opportunity to apply their classroom learning in a professional environment. Unlike a regular internship that is conducted with a textile/fashion company, 'Professional Project' provided an opportunity to students to engage with multi-skilled projects beyond the textile industry for a versatile learning experience.

One of the main objectives of 'Professional Project' was to align academic inputs with the industry's demands. This was achieved through expert lectures on emerging industry trends and topical domain areas like sustainability, textile conservation, the application of artificial intelligence in the fashion industry, entrepreneurship, augmented reality, virtual reality, and wearable technology. The introduction of up-and-coming fields that are not a part of their major studies generated interest among students, providing a platform to learn and imbibe new knowledge.

A major component of the subject involved engagement in different professional projects. The subject was planned to be multi-disciplinary in nature, allowing students to select projects of their choice based on their strengths and capabilities. The participants affirmed that the projects provided a unique experience, offering a more flexible learning approach, distinct from traditional classroom learning. The opportunity to experience different project types highlighted individual strengths and weaknesses, aiding in self-assessment regarding future opportunities and scope for improvement to enhance professional development.

The diversity in projects encouraged students to assimilate and strengthen their skill sets, thus assisting them to make informed decisions regarding their future career prospects and professional growth. Furthermore, the addition of industry-linked projects and other professional assignments in the student's resume and portfolio unfolded more avenues and increased their chances of securing better placements. The interaction with the industry during the course through lectures and projects led to networking, forging connections, and exposure to various sectors, thereby widening the student's horizons in terms of knowledge and experiences.

The findings of the survey administered to alumni who undertook the subject indicated an all-rounded development of the students, especially reinforcing soft skills like time management, discipline, team building, presentation, and communication skills. The

time-bound projects with clear-cut deliverables provided students with exposure to the professional work environment and equipped them with the requisite skills to adapt to the industry's requirements. The detailed step-by-step process documentation for each of the projects ensured the originality of the work, stressing the importance of professional ethics and integrity.

The 'Professional Project' subject provides a unique opportunity for students to integrate theory with practice and earn credits by participating in professional tasks of their choice, thereby offering a more flexible learning model. The subject aligns with the Education 5.0 framework, as mentioned in the ASSOCHAM 2024 report. The prospect of engaging in real-time projects within the curriculum framework is a successful pedagogical approach that accomplishes the learning outcome of enriching professional development, augmenting soft skills, and preparing graduates to perform and adapt to the industry needs and challenges. The versatile nature of the subject facilitates self-reflection to assist students in selecting suitable career pathways.

The fast-paced, evolving fashion industry and the growing uncertainties point toward a dynamic and flexible fashion and textiles curriculum. The academia needs to delve deeper to brainstorm and ideate more novel ways of enhancing industry connections and building professional capabilities within the realm of the course.

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Anu Sharma is Associate Professor in the Textile Design department and has more than 19 years of teaching experience as an academician at NIFT Delhi. She did her doctoral research on double cloth using camel hair, titled 'The Double Cloth from Napasar, Rajasthan: An Intervention Study.' Anu is a postgraduate in textile design from NIFT Delhi, specializing in home fashion textiles. Her areas of specialization are home products, design fundamentals, weave design, portfolio design, sustainable design, and new product development. She has several publications and presentations in the area of weave design, trends in the handloom sector, textile fabrics, and product innovation in national and international journals and conferences, with two articles published in Scopus-indexed journals.

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Profiles of the Members of the Editorial Board

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Ruby Kashyap Sood is Professor in the Textile Design department at NIFT, New Delhi, and Head of the Publication Unit. She is on the Board of Directors at Apparel Made-up, Home Furnishing Sector Skill Council. Ruby has more than two decades of teaching experience. Her areas of specialization include surface design, craft studies, and textile art. With a Master's in Textiles and Clothing from Delhi University, she has done extensive research on traditional Indian textiles and costumes. Ruby has co-authored books titled 'Celebrating Dreams: Weddings in India,' 'Traditional Indian Textiles,' and 'Anant: Sustainability and Circularity in Indian Handlooms.' Her doctoral thesis is an extensive body of work on the Indian blouse. She has presented research papers at prestigious conferences and published several articles in reputed journals and periodicals. She is also a member of the Advisory Board of The Journal of Dress History, UK.

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Deepak Joshi, Associate Editor

Deepak Joshi has a PhD in management and is UGC NET-Management qualified. He has an FDP from IIM and a Master of Fashion Management degree from NIFT. He has over 15 years of experience in corporate and academic settings. He previously served as senior retail faculty at the FDDI, Ministry of Commerce and Industry, Government of India. His other significant stints include serving Future Group in various roles, such as brand relationship manager, assistant mall manager, and store manager. Currently, he is Assistant Professor in the Fashion Management Studies department at NIFT Delhi, the Unit Incharge of the Publication Unit, and also holds the additional responsibility of Joint Director at the NIFT Delhi Campus.

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Sudha Dhingra, Advisor

Sudha Dhingra is Professor and Dean at the National Institute of Fashion Technology, New Delhi. She has been teaching for the past three decades at NIFT. Her core competence lies in studying crafts and Indian and world textiles. She has co-authored the books for Fashion Studies on 'Understanding Textiles' and 'Traditional Indian Textiles' for CBSE, classes XI and XII, and 'Anant: Sustainability and Circularity in Indian Handlooms' for DC (Handlooms). She has also co-edited the book 'Textile Crafts of India,' covering the handloom traditions of the North-Eastern Indian States. Sudha is also the Director of the Center of Excellence for Khadi, a project sponsored by the Ministry of MSME to support KVIC. NIFT established the center to support Khadi Institutions

in designing, producing, and marketing high-quality, unique Khadi products for both Indian and global markets.

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Amanda Briggs-Goode is Professor and Head of the Department for Fashion, Textiles, and Knitwear Design at Nottingham Trent University (NTU). She has published widely on archives and lace heritage and curated the highly successful season of events, Lace: Here: Now, which later became a published book. In 2018, she curated an exhibition, Lace Unarchived, and in 2020, she co-edited Crafting Anatomies: Archives, Dialogues, and Fabrications with Bloomsbury Publishers. Amanda is currently working on an AHRC Research Council Network+ project, Back to Baselines, and is a co-investigator on circular fashion and textile skills.

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Pammi Sinha, Member

Having trained as a fashion designer, Pammi Sinha's PhD examined the links between the fashion design process and the market. Currently Professor of Fashion Management at University of Leeds, UK, her research interests span fashion design and business processes, waste management, and sustainable practices in the fashion and textile industries within the developed and developing economies. Pammi's research is multidisciplinary, international, and collaborative. She produces qualitative and classic research outputs, such as reports and papers, which generate income from funders such as the Arts and Humanities Research Council, the Tanzania Gatsby Trust, and the Department for Environment, Food, and Rural Affairs (UK Government). She is currently a co-investigator for the Colour4CRAFTS project, funded for three years by the European Union Horizon: HORIZON-CL2-2022-HERITAGE-01-04 (Grant ID: 101094809). She is also a Chartered Fellow of The Textile Institute, Treasurer for the TI Council, and Chair of the Sustainability SIG.

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Subhalakshmi Gooptu, Member

Subhalakshmi Gooptu is Assistant Professor of world literature in the English and Communication Studies department at the Fashion Institute of Technology in New York City. She was awarded her PhD from the University of Massachusetts, Amherst, in 2022, and her research focused on representations and history of South Asian women's labor. Her areas of specialization include postcolonial history, literature, and visual culture, and she also teaches courses on Asian diasporic studies, graphic novels, and public writing. She received her BA from St. Stephen's College and her MA from Jadavpur University.

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Archana Gandhi, Member

Archana Gandhi is Professor at NIFT and has a PhD from the Faculty of Management Studies at Delhi University. She has been with NIFT, Department of Fashion Technology, Delhi, since 1999, after working with Triburg for six years. Her areas of teaching, research, training, and consulting have been apparel merchandising, quality management, product development, and sustainability. She has been involved in mapping key performance indicators for merchandisers and also training merchandisers for various apparel organizations. She was a guest faculty member at Colorado State University, USA, in 2009. Apart from publishing numerous research papers in international journals, she has authored a book on apparel merchandising and contributed to chapters in the books, 'Dimensional Corporate Governance—An Inclusive Approach,' published by Springer Publication, and 'Fashion Interfaces: Proposals for Sustainability,' by Universidade de São Paulo. Archana has also been regularly reviewing research articles and papers for leading international journals.

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Binaya Bhusan Jena, Member

Binaya Bhusan Jena is Professor and the Chairperson of the Department of Fashion Management Studies at NIFT. With more than 22 years of experience in academia, industry, and the development sector, he has made immense contributions in the areas of research, education, and training. He holds a Master's degree in Economics from Ravenshaw University, an MBA in Marketing from Pondicherry University, and an MPhil and PhD from Jawaharlal Nehru University. His areas of research interest revolve around sustainable fashion, Indian traditional knowledge, and the handloom and handicraft sector. He has guided many research projects and supervised many PhD scholars at NIFT. Binaya has represented NIFT as a board member in various policy-making bodies of the government and industry, including the Chairperson of the Textile Association of India, Odisha Unit; Board Member of the SERIFED, Govt. of Odisha; Member of the Working Committee on Sustainable Textiles Policy; and Member of the Consultative Committee of the Geographical Indications Registry.

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Binwant Kaur, Member

Binwant Kaur is Professor and Chairperson of the Department of Fashion Technology. Her passion for sustainable fashion led her to pursue a PhD in the field of comfort properties of handloom union fabrics, with a focus on selecting the best alternatives through optimization techniques. Throughout her 28-year academic journey at NIFT, she has made significant contributions to the application of information technology tools in the fashion industry. As a visiting scholar for one year at the Graduate School, Fashion Institute of Technology, USA, in 2014, she conducted her research in the area of 3D printing in fashion and the impact of RFID technology in the apparel supply chain. Binwant has authored several research papers and received invitations to deliver

expert lectures at fashion colleges like Buffalo State University, LIM College, and Hunter College in New York, USA. In addition to her academic responsibilities, she has held administrative positions, such as Director, NIFT, Kolkata, and other head office positions.

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Kislaya Choudhary, Member

Kislaya Choudhary is Professor and presently Chairperson of the Department of Textile Design at NIFT. She has a PhD in design and specializes in textile design processes. Her areas of exploration are conventional and digitally printed textiles, computer-aided design, interdisciplinary design research, contemporary craft practices, visual research, and design influence. She has published in the areas of emerging design processes, practices, trends in digital printing, and design education in national and international journals. She has co-authored a book on 'Elements of Textile Design,' published by the CBSE Board. Kislaya has initiated design exhibits to communicate ideas across multiple design disciplines. She has consistently worked with the Indian textile industry for social empowerment through design intervention and skill development. She aspires to reinstate, moderate, and innovate creative practices to endorse meaningful change.

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Martin Jeyasingh Mathews, Member

Martin Jeyasingh Mathews is Professor and Chairperson with the Department of Fashion Communication at NIFT. He is an enthusiastic and optimistic educator with his creativity and innovation. An MPhil and MCA, he has earned his PhD in Information Technology and Fashion from Bharath Institute of Higher Education and Research, Chennai. He is also a doctoral committee member at the Bharath Institute of Higher Education and Research, Chennai, and a NIFT-listed Ph.D. supervisor. He was an external examiner for a PhD at AMET University, Chennai. Martin has been a part of NIFT since 2003. He has a diverse background, having held various positions such as Course Coordinator and Unit Incharge at NIFT. He has undergone international training in graphic design and integrated media skills at SCAD, Hong Kong. His research papers on fashion forecasting and data mining associated with apparel sector issues have been published in peer-reviewed journals.

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P. Mohanraj, Member

P. Mohanraj is Professor and Chairperson of the Department of Knitwear Design at NIFT. He has a PhD in Fashion Apparel Retail and specializes in fashion knitwear, merchandising, and retail. He has three decades of experience in industry, administration, academics, research, and consultancy. He is also a Chartered Textile Engineer (India). Additionally, he has held various positions such as Course Coordinator of Knitwear Design and Textile Design, Regional Industry Coordinator,

International Linkages Coordinator, and Project Incharge. He has successfully conceived and undertaken several design projects at NIFT Chennai. He has created and launched continuing education and short-term programs at NIFT Chennai. Mohanraj specializes in computerized flat and circular knitting, fashion marketing and merchandising, and retail. He has several publications in national and international journals. He underwent a short-term training program in Japan and visited fairs and exhibitions in London, Germany, and Singapore.

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Preetha Hussain, Member

Preetha Hussain holds the position of Professor of Design at NIFT, New Delhi. Her areas of teaching and research encompass fashion, body and adornment, design thinking, design strategy, experimental design and spaces, lifestyle trends and forecasts, transdisciplinary aspects of cultural studies, design education, as well as curriculum development and teaching for undergraduate and postgraduate programs. She has been invited as a faculty researcher for a specialized program for Master's in Strategic Design (DIMI) at Politecnico di Milano, Italy. Preetha believes that transdisciplinary learning is crucial and integrates her interest in socio-cultural perspectives with the fields of fashion and design. She has contributed as a key design expert in the realm of color forecasting for Asian Paints color trends workshops, and she has presented papers on varied platforms. She has also been invited by DC (Handicrafts) as a jury member for the empanelment of designers and handicraft awards. As the Chairperson of the Foundation program, she has engaged in curriculum and pedagogic development.

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Rashmi Gulati, Member

Rashmi Gulati is a distinguished academician, researcher, and industry expert with over 26 years of experience in teaching, research, and professional practice. She is currently Chairperson of the Department of Design Space, leading the Master of Design program at NIFT. She holds a PhD in Management, and her doctoral research culminated in the development of a comprehensive sustainable model framework for the arts and crafts sector in Mumbai. Her areas of expertise include craft studies and sustainability, design research, design thinking, and creative thinking, along with proficiency in digital graphics, personal branding, self and society, and professional ethics. Rashmi has made significant contributions to NIFT over nearly three decades, successfully managing diverse leadership roles. She has a strong track record of fostering industry connections, spearheading live-classroom initiatives, and bridging the gap between academia and industry practices. Her research contributions, particularly in the domain of craft studies and sustainability, have been published in esteemed national and international journals.

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Sivasakthi Ekambaram, Member

Sivasakthi Ekambaram is Associate Professor in the Leather Design department at NIFT, New Delhi. He holds a PhD in the area of footwear sizing. With two years of prior industry experience, he is among the senior faculty members at NIFT, having spent 27 years there. In his roles as a faculty member, Chairperson, and Unit Incharge of evaluations at NIFT, Head Office, he has significantly contributed to the overall development of NIFT. His contributions have included interventions in policy development, streamlining and evolving systems for better academic governance at NIFT, drafting chapters for the academic manual, infrastructure development, identifying resource requirements, curriculum review, mentoring, and more. He has also worked in the All India Council for Technical Education (AICTE) in his capacity as Assistant Director for a period of two and a half years.

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Vandita Seth, Member

Vandita Seth is presently the Chairperson of the Fashion Design Department at NIFT. Her journey at NIFT Gandhinagar with the Fashion Design department, since its inception, has been an exceptional phase of 28 years. She has held various posts at NIFT Gandhinagar, like Course Coordinator of Fashion Design, International and Domestic Linkages Coordinator, and Internal Design Consultant for SGSY projects, to name a few. Vandita completed her graduation and master's from the Maharaja Sayajirao University of Baroda in Clothing and Textiles, followed by a PhD from NIFT, New Delhi. She has undertaken a fellowship program at the Fashion Institute of Technology of New York. She has worked on and coordinated various design projects. She has presented research papers and has widely traveled in India and abroad to attend fashion fairs, shows, and lectures. She specializes in the subjects of the history of Indian textiles, Indian craft studies, draped garments, and sustainable products.

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Varsha Gupta, Member

Varsha Gupta is Professor in the Master of Design department at NIFT, New Delhi, and is presently Head of the Research unit. She has almost 30 years of experience in industry and academia. In 2014, she was awarded a doctorate by NIFT for her research titled 'Recycling of Post-Consumer Textile Waste and Developing a Model for Sustainable Development using System Dynamics.' She completed her MSc in Textiles and Clothing at Lady Irwin College, Delhi University, and received training at the Fashion Institute of Technology (FIT), New York. Varsha has been an external expert member on the Programmatic Review Panel at the Limerick School of Art & Design, Limerick Institute of Technology, Ireland. She has presented papers at international conferences in London, Leeds, and Brussels, and a video based on her doctoral work was screened at the PhD festival in Milan, Italy.

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Vasantha Muthian, Member

Vasantha Muthian holds a Bachelor's degree in Interior Design, and a Postgraduate degree in Textiles and Clothing from Madras University and earned her PhD from the Department of Textile Technology at Anna University, Chennai, in 1992. She has 30 years of work experience in teaching and research at reputed institutions. She joined NIFT Chennai in July 2003 and has held various positions at both the campus level and the Head Office, such as Student Development Activity Coordinator, Course Coordinator of Fashion and Textiles, Textile Design and Foundation Program, Unit Incharge Research (HO), Campus Academic Coordinator, and Chairperson of Textile Design (HO). Vasantha has published several research papers in national and international journals and co-authored the CBSE textbook for Fashion Design and Garment Technology. She has presented several trend interpretation seminars to the export home textiles industry, coordinated prestigious handloom projects in Tamil Nadu and Kerala, and conducted diverse skill-upgradation workshops for BPL self-help women groups.

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Vibhavari Kumar, Member

Vibhavari Kumar is a space designer and design educator based in Bengaluru. Her bachelor's degree is in architecture from the National Institute of Technology. Tiruchirappalli. She completed her doctorate on the topic 'Socio-Cultural Impact of the Bengaluru Metro on People and Spaces' at Jain University, Bengaluru. She is currently Professor and Chairperson of the Department of Fashion Interiors at NIFT. She has done extensive studies in geometry, assimilated knowledge from various disciplines, and experimented in design teaching. Vibhavari's research interests include design thinking in an Indian context with respect to spaces. During her PhD, she assisted on an ICSSR project and was involved in writing three chapters for a book. She also served as a core committee member for the conference on 'Contemporary Issues and Trends in Urban Transformation.' She has authored and presented papers in national and international forums, the latest being at TU Delft, Netherlands.

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About the NIFT Journal of Fashion

The NIFT Journal of Fashion (NJF) is an annual research journal with a specific theme of wide-ranging significance reflecting critical thinking on multiple perspectives of fashion in the broader areas of emerging trends and best practices in design, technology, management as well as fashion education. The objectives of this journal are to encourage knowledge sharing through original articles on topics of current and emerging significance with a view to the future of fashion; and to highlight theories, practices and pedagogy of fashion education in the domains of design, technology and management.

NJF that commenced in 2022 is a double-blind peer-reviewed and open-access journal in English language. The journal invites high quality research articles from academicians, scholars and fashion professionals for wider dissemination.

The journal expresses gratitude to the peer reviewers for their efforts to provide insightful remarks and feedback on the research articles.

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