Rebel Tartan Project: Cross-Cultural and Socio-Political Narratives in Fashion Education

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ABSTRACT

Established in 2015, the Rebel Tartan Project (RTP) provides an innovative model for cross-institutional collaboration in global fashion education. This study assesses the outcomes of 'Co-Lab,' an RTP offshoot launched in 2021 that brought together students from Nottingham Trent University, Donghua University, Pearl Academy, Bunka Fashion College, and Bunka Gakuen University to explore climate change and its impacts through a design lens. Co-Lab integrates theory with hands-on innovation through virtual workshops, industry partnerships, and online collaborations, facilitated by the Collaborative Online International Learning (COIL) method. Focused on complex, interconnected challenges in sustainable fashion, students engage in holistic, innovative problem-solving. For example, they explore the intersection of textile waste, supply chain ethics, and circular economy principles. The project fosters significant expertise development, equipping students with technical, creative, and cross-cultural communication skills essential for navigating the globalized fashion industry. Faculty expertise from participating institutions enhances the learning experience, enabling students to develop solutions to complex, interdisciplinary challenges. RTP/Co-Lab also offers career development opportunities through exposure to industry professionals and the showcasing of student work on platforms like Arts Thread and the RTP website. However, the project faces challenges, including language barriers, virtual collaboration difficulties, and balancing academic and extracurricular commitments. Looking ahead, RTP's expansion offers opportunities for deeper industry integration, incorporating traditional craftsmanship alongside emerging technologies such as augmented reality. This evolution, coupled with further integration into academic curricula, may enhance RTP's impact, shaping the future of sustainable fashion education and empowering students to address the industry's most pressing issues.

Keywords: rebel tartan project, climate change impacts, collaborative online, international learning, cross-institutional collaboration, sustainable fashion education.

INTRODUCTION

Ethically grounded pedagogies in fashion education are vital for shaping the industry's future and fostering systemic change. Research highlights that technology and material innovations alone are insufficient for sustainable development; alternative design methodologies must also be integrated into curricula (Williams, 2019; Brown et al., 2019). This emphasizes the role of educators in cultivating critical thinking about design practices. Established in 2015, the Rebel Tartan Project (hereinafter referred to as 'RTP') empowers students to address pressing social, economic, and environmental challenges by drawing inspiration from a curated collection of tartans symbolizing global social movements.

This paper highlights Co-Lab, an RTP offshoot launched in 2021 focused on climate change impacts. Spearheaded by Nottingham Trent University (UK) in partnership with Bunka Fashion College (Japan), Bunka Gakuen University (Japan), Pearl Academy (India), and Donghua University (China), Co-Lab fosters cross-cultural partnerships and broadens students' perspectives on sustainable design strategies through interdisciplinary learning. This paper examines how the RTP pedagogy was adapted for Co-Lab to foster cross-cultural collaboration and sustainable design practices, highlighting the key challenges, results, and their implications. More than 300 students, supported by 12 tutors across the partner institutions, have actively participated in the Co-Lab project.

LITERATURE REVIEW

Fashion education plays a critical role in preparing future professionals to address systemic challenges within the industry, such as the lack of traceability in material inputs and the broader environmental and social consequences of production practices. As fashion becomes increasingly globalized, the need for students to be equipped with the skills to navigate and solve these issues has never been more urgent. Fashion education must evolve to empower students to understand these challenges and stay ahead of them by anticipating new problems and offering alternatives (Gwilt, 2020; Fletcher, 2014). One key aspect is ensuring students understand the importance of traceability in material sourcing, a critical step toward improving transparency, reducing waste, and promoting ethical production practices (Muthu, 2019).

Simultaneously, the increasing interconnectedness of global markets demands that fashion professionals work seamlessly across cultural boundaries. In an industry where issues such as labour rights, environmental degradation, and sustainable design are inherently transnational, developing cross-cultural competencies is essential. The literature stresses the value of intercultural exchange and collaborative learning in fostering these skills (Armstrong & LeHew, 2020; Routarinne & Lindström, 2018).

Through initiatives like Collaborative Online International Learning (COIL), fashion students gain exposure to diverse perspectives and approaches, expanding their understanding of sustainability in ways that transcend local contexts and challenge ethnocentric viewpoints (Helm & Guth, 2016). As climate change and other global challenges do not respect national or cultural boundaries, the ability to collaborate effectively with peers from different countries is critical for future designers.

Sustainability challenges are often referred to as "wicked problems," marked by their complexity, interdependencies, and the absence of straightforward solutions or universally applicable approaches. These challenges are deeply rooted in sociocultural contexts and often overlap with other issues, necessitating systemic changes and innovative strategies for effective resolution (Eden & Wagstaff, 2021).

Lehtonen et al. (2019) underscore the importance of transitioning from linear problem-solving methods to systemic thinking that considers broader contexts and prioritizes long-term impacts. They advocate for collaborative learning and collective action as essential components for addressing these challenges. The challenge lies in finding ways to move beyond narrowly focused efficiency-driven frameworks prevalent in fashion, toward more inclusive and sustainable practices.

The importance of new pedagogies is reflected in the growing body of work on interdisciplinary and experiential learning in fashion education. Semiotic theory has been particularly valuable in highlighting how fashion functions as a system of signs and symbols, linking materiality with meaning in ways that can support activism and social change (Barthes, 1983; Barnard, 2020). Fashion's role as a tool for communication, particularly in the context of identity and political movements, is crucial for developing students' ability to think critically about the cultural dimensions of design. For example, tartan’s use as a symbol of resistance and identity offers a rich context for discussing broader political issues such as nationalism, social justice, and environmental sustainability (Trevor-Roper, 1984). These symbolic dimensions are central to the Rebel Tartan Project, where the design and use of tartan in student work actively engage with socio-political themes.

Advancements in digital technology have played an increasingly important role in reshaping fashion education, particularly in fostering cross-cultural collaboration. Digital platforms facilitate real-time communication and co-creation, enabling students to work together across time zones and cultural contexts (Ashby & McCann, 2021). These technologies are essential for overcoming logistical barriers to collaboration and supporting a global approach to sustainable design education. However, as Gwilt (2020) argues, digital tools must be paired with pedagogical frameworks that emphasize ethics, sustainability, and cultural awareness.

Knowledge gaps

While the literature strongly advocates for the integration of sustainability, cross-cultural collaboration, and interdisciplinary learning in fashion education, significant knowledge gaps remain. There is limited research on how specific cross-cultural pedagogical frameworks, like COIL, can be systematically implemented to foster meaningful and long-lasting collaborations between students from diverse cultural and academic backgrounds.

Additionally, while traceability and transparency are acknowledged as crucial for sustainability in fashion, there is a lack of in-depth studies on how these concepts can be practically taught and integrated into design curricula. Addressing these gaps is essential for developing pedagogies that not only respond to current issues but also prepare students to navigate and mitigate future challenges in a rapidly changing world.

METHODOLOGY

This study employed a qualitative research methodology to document and analyze the collaborative processes, outcomes, and student experiences within the Co-Lab project. A mixed-methods approach, integrating ethnographic research, focus group discussions, and post-project surveys, was used to capture the multifaceted nature of cross-cultural collaboration in sustainable fashion education.

Co-Lab engaged undergraduate and graduate students in exploring the current and future impacts of climate change, drawing on the Keeling Tartan as inspiration (Figure 1). Its adoption by the World Wildlife Fund at COP26 underscores its resonance as a symbol of sustainability and transformation. Additional conceptual foundations were drawn from a wide range of sources, including the United Nations Sustainable Development Goals (SDGs). While the adoption of the unifying theme, climate change, provided a shared conceptual framework for Co-Lab, each participating institution operationalized the theme differently to reflect its curricular priorities and student needs. This balance between coherence and adaptability ensured that the project remained relevant to diverse academic contexts while fostering a collective educational experience.

Fig 1 Keeling Tartan - Green Version (Liberation Kilt Company)

"The Keeling tartan symbolises a wholesale shift in the energy basis of civilisation, from fossil fuels (grey and black track) to 100 per cent clean energy (green and yellow track). It is named in honour of the late Charles David Keeling of the Scripps Institution of Oceanography, whose measurements from 1958 onwards supplied the first concrete evidence of rapidly increasing carbon dioxide levels in the atmosphere, commonly known as the 'Keeling Curve'. Today, ninety-seven percent of actively publishing climate scientists agree that man-made climate change is for real. Permission to adopt the Keeling name was graciously granted by his son, Ralph Keeling, director of the Scripps CO2 Program that continues the vital measurement series to this day." Source: Scottish Register of Tartans.

Creative briefs tailored to each institution's focus—such as Knitwear Design at Donghua University, Textiles and Product Design at Nottingham Trent University, or Fashion at Pearl Academy—allowed students to explore specific facets of climate change through their chosen disciplinary lenses. Student teams began by selecting a specific area of focus within the broader theme of climate change. Using a wide repertoire of design and research skills, they were encouraged to propose innovative solutions and create design outcomes that addressed both environmental and societal challenges. The Co-Lab framework incorporated a structured series of interdisciplinary workshops designed to encourage collaboration and creativity across institutions (Table 1).

Table 1. Co-Lab Workshop Structure

Workshop Phase	**Activities**
Initial Workshop	Group discussions, investigative research, mind-mapping activities to define project focus, articulated in a collective statement.
Development Workshop	Creation of sketchbook pages and cohesive colour palettes, emphasising cross-cultural and interdisciplinary inputs.
Collaborative Solutions	Teams work together to design creative solutions, integrating research insights and peer feedback.
Final Presentation	Students present group projects, showcasing research findings, design development processes, combined swatches, and proposed solutions. Testimonials and reflective statements often accompany the presentations, highlighting students' learning journeys.

Between workshops, students engaged in ongoing collaboration using cloud-based tools such as Teams, Miro, Zoom, and Padlet (Figure 2), as well as attending online tutorials. The use of these virtual platforms facilitated cross-cultural interaction and allowed for sustained dialogue despite differences in time zones. Students' projects were displayed on the Rebel Tartan Project website (*rebeltartanproject.org*), and exceptional works highlighted on platforms like Arts Thread, expanding the visibility of their achievements. The iterative nature of these workshops, combined with the flexibility of the Co-Lab framework, enabled students to navigate the complexities of sustainability in design while fostering an appreciation for cultural diversity and interdisciplinary collaboration.

Fig 2 Online collaboration at Donghua University, China

Research meetings and collaborative reflection

Regular research meetings were held between groups of tutors involved in the Co-Lab project across the participating institutions. These meetings, which took place quarterly, provided a platform for reflecting on the project's progress, discussing pedagogical challenges, and exchanging insights on cultural differences in student responses and teaching strategies. These meetings also provided valuable insight into the effectiveness of the collaborative online learning model (COIL) and its impact on both faculty and students.

Ethnographic research and participant observation

Ethnographic methods were employed to observe student interactions during the project, both in virtual and in-person contexts. Participant observation occurred during the collaborative workshops, design critiques, and presentations held by students across the institutions. Researchers collected field notes and made observational recordings of group dynamics, communication strategies, and the integration of sustainable design practices. This ethnographic approach helped capture the subtle nuances of cultural influence on students' learning processes. It also provided insights into how students navigated cross-cultural collaboration in a virtual learning environment.

Post-project student interviews and surveys

Following the conclusion of each Co-Lab project, in-depth interviews and surveys were

conducted with a representative sample of 30 students across participating institutions. These interviews aimed to gather students' perspectives on the effectiveness of the cross-cultural collaboration, their personal learning experiences, and their views on how the project influenced their understanding of sustainability in fashion design. Semi-structured interviews allowed for open-ended responses, enabling students to reflect on their experiences, the challenges they faced, and the skills they developed.

Data analysis

Data from research meetings, ethnographic observations, and post-project interviews and surveys were analysed using thematic analysis. This method facilitated the identification of recurring themes and patterns related to cross-cultural collaboration, sustainable design pedagogy, and the integration of ethical practices in fashion education. Triangulation across these diverse data sources ensured a robust and comprehensive understanding of the project's impact. The following section outlines the specific methodologies employed by each participating institution, as well as the challenges encountered, and the results achieved.

RESULTS AND DISCUSSIONS

Nottingham Trent University (NTU) Methodology

Co-Lab began as a university-wide initiative at NTU. A detailed timetable was prepared, ensuring a structured workflow. Student groups were intentionally formed to include diverse abilities, courses, and institutions, fostering inclusivity and cross-cultural collaboration. An online Learning Room was established to centralize project resources, including the brief, assessment criteria, journal templates, talks, films, and weekly updates. NTU administration facilitated digital classroom organization, and lectures, guest speakers, handouts, and workshop materials were prepared in advance to ensure seamless delivery.

Sessions adhered to a structured schedule. Each began with student registration, followed by welcoming global partners and introducing the day's speaker. Students then engaged in group discussions, theme planning, and practical workshops, with guidance and feedback provided by staff. Homework and preparatory tasks for subsequent sessions were clearly outlined, encouraging ongoing communication with global partners outside workshop hours. Sessions concluded with a reflective wrap-up and a prompt for students to document their insights in journals. Individual tutorials offered tailored support when needed.

Challenges

Several challenges emerged during the project. The increasing number of students (from 30 in 2021 to 56 in 2024, with approximately 50 international participants) strained resources, with only two or three NTU staff facilitating. Large group sizes (up to 15 students per group) created noisy and crowded environments, while unfamiliarity

between staff and students impacted punctuality and engagement. These factors highlighted the need for smaller, more manageable group sizes, leading to plans to reduce group sizes to 10 for 2025, with additional time allocated for individual tutorials.

Student disorganization, such as forgetting to bring necessary materials, created additional demands on staff, who were then required to supply these resources. Communication with international partners posed challenges, particularly in translation. For 2025, workshops have been redesigned to emphasize continuous group development and improve connection between students and global partners.

Results

Despite the challenges, the Co-Lab project achieved significant outcomes. Students produced innovative design ideas and collaborative projects, often building meaningful international connections and friendships. Many students displayed increased confidence, with some compensating for peers' lower engagement. Improved group dynamics resulted from skill-based group formation, ensuring compatibility and balance, and additional support was provided for students in need.

Workshops evolved to feature interactive, application-focused masterclasses, enhancing continuity of learning. Peer reviews encouraged students to re-evaluate their work and engage in open dialogue, strengthening collaboration. The project facilitated a valuable knowledge exchange between teachers and students, fostering a shared learning environment. The merging of cultural identities and ideas was a celebrated aspect of the workshops, helping students build on shared values and aspirations while preparing them for future challenges in the global fashion industry.

In 2023, NTU hosted an RTP exhibition showcasing students' work (Figure 3) and a Global Symposium on Sustainable Design Practice. These events served as vibrant platforms for creativity and dialogue, attracting international speakers who have since joined the initiative, further strengthening the RTP community and fostering collaboration.

Donghua University (DHU) Methodology

During Co-Lab, DHU students formed groups of 5–7 members, collaborating with peers from Nottingham Trent University (NTU) through Teams channels. These groups exchanged ideas and perspectives early in the process, establishing a foundation for cross-cultural interaction. Sessions took place in DHU's knitting lab, equipped with a large projector and sound system to facilitate Teams meetings for real-time lectures and group discussions.

Each session began with a pre-class warm-up, led by DHU faculty, to introduce upcoming topics and review progress on prior assignments. After each session, faculty summarized key points, monitored group progress, and addressed any communication challenges. Between online sessions, DHU instructors provided supplementary

guidance on design processes, technology demonstrations, and 2D/3D development. Regular swatch reviews, thematic discussions, and technical tutorials further supported students' progress.

To deepen learning, DHU introduced additional modules that complemented Co-Lab and enhanced students' sustainable design capabilities:

- RTP Module: Focused on cultivating a sustainable design mindset.
- Research Module: Explored sustainable practices in China's knitwear industry, including environmentally friendly yarns, digital design, and industrial applications.
- Practical Module: Guided students in yarn selection, fabric development, and garment construction, emphasizing hands-on skills and innovative craftsmanship.

These interconnected modules provided a holistic approach, enabling students to bridge advanced theoretical concepts with practical applications.

Challenges

Language barriers were a primary challenge. DHU addressed this through strategies such as real-time subtitle translations, pre-session briefings in Chinese, and the use of translation apps. Faculty also played an active role in facilitating group communication to overcome these limitations.

Visualized approaches, including clear demonstrations, guidance documents, and hands-on workshops, enhanced comprehension and engagement. Close communication within teams fostered collaboration skills, promoting creativity and mutual learning across cultural boundaries.

Results

Participation in Co-Lab yielded significant benefits for DHU students, including exposure to sustainable fashion concepts, diverse perspectives, and intercultural collaboration. Key learning outcomes include an enhanced understanding of global sustainability challenges, development of design skills using advanced tools like Style3D, and improved communication and presentation abilities. One student reflected:

> "*The collaboration project course with NTU has been very rewarding. I gained insights into sustainable fashion and had the opportunity to explore new methods and perspectives. The experience was enriching and unforgettable.*"

Over three years, approximately 75 DHU students have benefited from the project, gaining global perspectives and practical skills. DHU's active participation and the integration of comprehensive teaching modules have successfully enriched students' academic and professional development. Looking ahead, DHU remains committed to

strengthening this partnership to achieve even more impactful and inspiring outcomes.

Pearl Academy Methodology

At Pearl Academy, RTP is an elective module undertaken by third-year undergraduate students from Fashion Design and Textile Design. Since its inception in 2021, 25 students annually have participated in the project. Initially conducted online due to the pandemic, involving all five campuses, it shifted to a hybrid format in 2023 and 2024, limited to the Delhi campus. The project spans 14 to 16 weeks and integrates conceptual learning with practical applications. Key phases include:

- Prerequisite Phase (Weeks 1–2): Introduction to the history of tartan and its cultural significance, and sustainability principles in fashion.
- Sprint Week (Week 3, prior to the start of Co-Lab): An intensive collaboration with Nottingham Trent University (NTU) students, focused on brainstorming and
- conceptual design development.
- Collaborative Learning Phase (Weeks 4–9): Online discussions via Microsoft Teams allow students to share progress, exchange ideas, and receive feedback from mentors and peers.
- Surface and Silhouette Development Phase (Weeks 10–16): Students create textiles using low-impact materials and processes, emphasizing repurposing and upcycling waste.

RTP employs a hybrid learning model, blending face-to-face sessions with online collaboration, offering flexibility while maintaining a hands-on approach. The module emphasizes techniques such as surface exploration and zero-waste pattern cutting to minimize environmental impact.

The project fosters a profound understanding of sustainability as a global issue, as exemplified by Figure 4, which underscores the severe pollution challenges shared by rivers in the UK, India, and China. A central goal of the Co-Lab was to encourage students to critically examine fashion's role in addressing climate change and to adopt ethical design principles. Global collaboration with NTU students enhances participants' cross-cultural teamwork skills, preparing them for the international fashion industry.

Challenges

While students thoroughly enjoy collaborating with their international peers, there is scope to improve by increasing the frequency of collaborative sessions. Establishing stronger rapport among students could foster richer exchanges of ideas beyond classroom hours.

Students have suggested incorporating additional independent learning hours and more frequent interactions to deepen engagement. Expanding international exchange opportunities, such as in-person collaborations or field trips to traditional craft clusters, could provide further insights into sustainable practices. Moreover, optimizing session

durations and adding interactive elements could help sustain focus and participation.

Results

RTP has significantly enhanced students' technical skills in textile manipulation and garment construction while fostering a comprehensive understanding of sustainable design practices. The project nurtures creativity, encouraging experimentation with avant-garde fashion concepts, resulting in boundary-pushing designs.

Collaboration with NTU students offers valuable global exposure, aligning with Pearl Academy’s mission to prepare students for the international fashion industry. The project's success has been amplified through features in prestigious publications like *MOB Journal* and *Hunter Magazine*, showcasing students’ work to a broader audience.

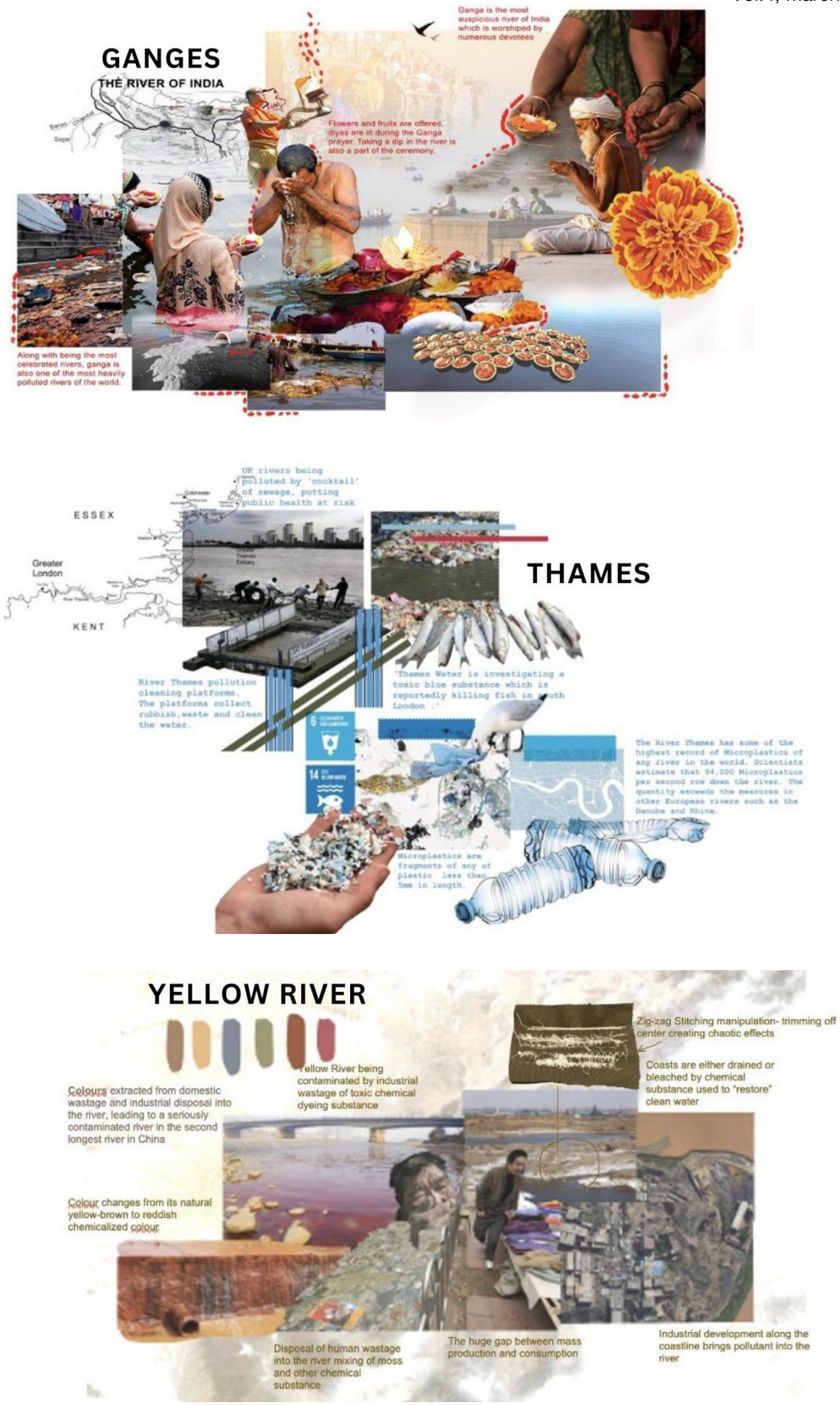

Fig 4. Water Pollution in the Ganges and Yellow rivers (Pearl Academy, 2024)

Bunka Fashion College (BFC) and Bunka Gakuen University (BGU) Methodology Between 2021 and 2023, Bunka Fashion College's (BFC) Knitwear Design course in the Fashion Technology Department collaborated with Rebel Tartan Project's Co-Lab initiative. Initially, two students worked individually, but by 2022 and 2023, six students participated each year, working in groups. In 2024, Bunka Gakuen University (BGU) joined the initiative through its Global Fashion Concentration postgraduate program, an English- based course that took over participation from this point forward.

RTP was offered as an optional project alongside students' regular coursework, consisting of five to six pre-recorded lectures in English, followed by discussions and individual progress presentations. This structure enabled peer feedback and interaction, with lectures emphasizing sustainable design practices and encouraging students to reflect on global challenges and relate them to personal and cultural experiences.

Sessions were designed to facilitate interaction between NTU's graduate Knitwear Design and BFC/BGU students, enhancing the learning experience through peer-to-peer exchanges on the Teams platform. A cross-institutional, supportive learning environment was created within the Co-Lab context to ensure active student engagement, which was integral for GFC students. Language barriers for BFC students and time zone differences between Japan and the UK were challenges, but the introduction of real-time subtitles on Teams (in 2023) improved comprehension despite some accuracy issues. Students engaged in research on climate change or other social issues, developed 2D and 3D designs, and documented and reported their design process through progress presentations. Faculty provided additional guidance on design and technical processes outside workshop hours, which was essential for student development, progress, and motivation.

Challenges

While the pedagogical strategies effectively exposed students to sustainability concepts and global collaboration within the Co-Lab framework, the length and number of workshops limited the depth of discussion. Language proficiency and integration challenges between participants sometimes hindered online interactions. Real-time subtitles and language assistance were introduced to improve comprehension of the English-based content for BFC students. However, discussion of lecture content remained limited, with each group alternating in presenting progress, making concerted efforts to communicate in English during these exchanges.

Motivation challenges were also identified, as the project was not part of the formal curriculum, lacked grade-based evaluation, and faced scheduling conflicts with academic commitments. Integrating the project into the formal curriculum with grade-based evaluation could enhance student motivation and engagement.

Results

BFC and BGU students reported significant benefits from their participation in RTP, including exposure to global perspectives and sustainable design practices. In 2021, a participant created the "Hand in Hand Tartan," inspired by clean energy themes (Figure 5). This innovative work contributed to their securing a design position in the knitwear department at ISSEY MIYAKE. In 2022, another student group partnered with UKNITI, a company founded by a Bunka alumnus, to design pieces using recycled yarn. This collaboration aligned closely with sustainability objectives, demonstrating the value of industry partnerships in reinforcing sustainable design principles.

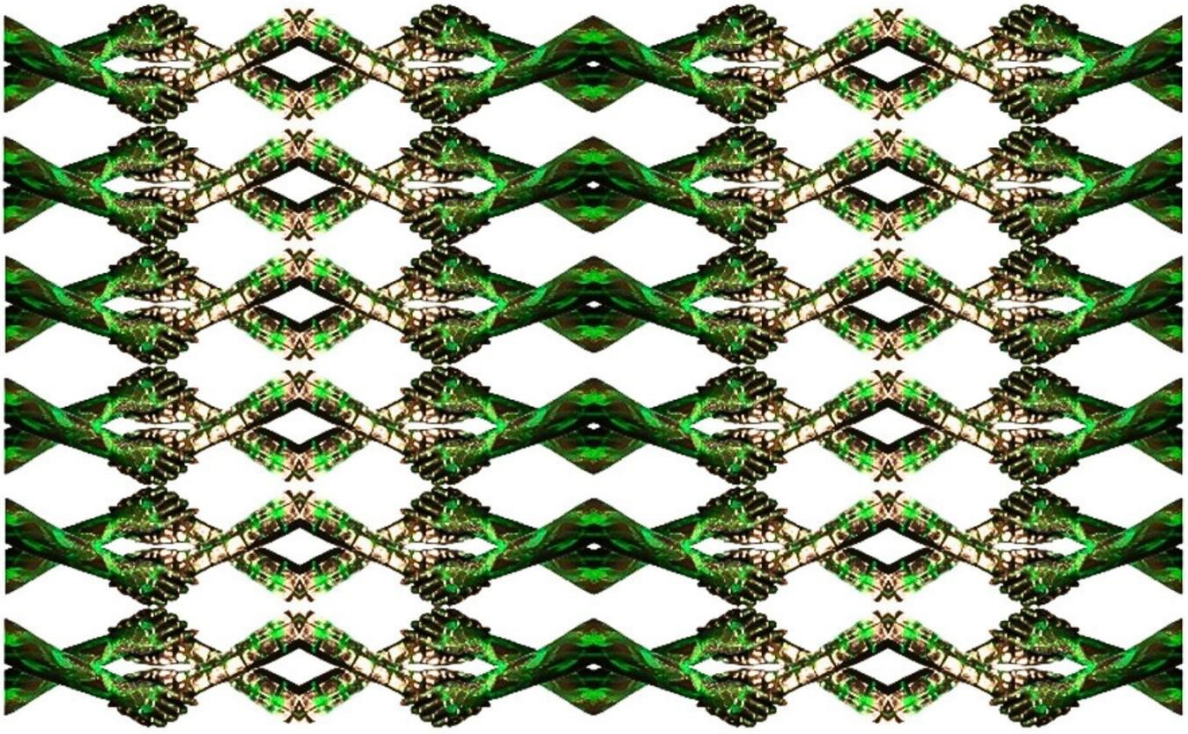

Fig. 5 BFC student work “Hand in Hand Tartan”, Tokyo (2021)

Some BGU students extended their RTP projects into their final collections, integrating them into their coursework. However, while RTP served as inspiration for ongoing projects, it did not evolve into a dedicated sustainability-focused initiative, limiting the project’s measurable impact on enhancing students’ ability to address sustainability in design.

In 2024, Bunka Gakuen hosted the RTP exhibition, providing a dynamic platform to highlight the project’s social cause and foster a stronger sense of community and collaboration. Showcasing student works in a shared physical space acted as a catalyst for motivating students towards more meaningful engagement, even when

the project was offered as an extracurricular activity (Figure 6).

Fig. 6 RTP Exhibition (Bunka Gakuen University, 2024)

DISCUSSION

Project impact

Through Co-Lab, RTP has evolved into a transformative platform for cross-institutional collaboration in global fashion education, fostering a multidisciplinary environment that promotes sustainable design practices and critical thinking in the fashion industry. Through virtual collaborations, online workshops, and industry partnerships, RTP has successfully merged theory with hands-on innovation.

One of the project's notable achievements is its social impact. Students have not only deepened their engagement with sustainability but also benefited from valuable connections with industry professionals, advancing their career prospects. Student works have been showcased at exhibitions and featured on platforms like Arts Thread and the RTP website, amplifying their reach. This exposure helps students build valuable professional networks, connecting them with RTP alumni, mentors, and other members of the global fashion community, enhancing their future career prospects.

RTP also serves as a vital opportunity for expertise development. The project provides

exposure to a wide array of sustainable design practices, textile innovations, and collaborative experiences. Through mentorship from industry professionals and experts from diverse academic backgrounds, students gain not only technical proficiency but also an understanding of creative problem-solving, enabling them to navigate complex issues in sustainable fashion. The cross-cultural learning embedded in RTP, with contributions from faculty across the consortium, equips students with the tools to approach challenges from multiple perspectives, fostering a mindset that blends both technical skills and creative exploration.

Another key strength is RTP's capacity to equip students with the tools to address "wicked problems"—the complex, interconnected challenges central to sustainable practices in the fashion industry. Co-Lab fosters collaborative learning in a dynamic environment that encourages students to understand the interconnectedness of these problems and think systemically. By providing access to diverse perspectives and ways of knowing, RTP contributes to the broader global movement toward systemic change in sustainability.

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By collaborating across cultures and disciplines, students are encouraged to see sustainability as an interconnected challenge, rather than an isolated concern. The project's global nature ensures that students approach problems with diverse perspectives, experimenting with new approaches that break free from regional or traditional constraints.

Additionally, industry engagement through RTP allows students to confront real-world problems, crafting design solutions that are not only aesthetically and functionally innovative but also address systemic challenges within the fashion sector. This emphasis on real-world applications fosters a mindset that considers long-term systemic change in sustainable design, ensuring that the students' work has both immediate relevance and enduring impact.

Challenges and solutions

Despite its successes, RTP has faced its fair share of challenges. Language barriers have sometimes hindered effective participation. Additionally, time zone differences and varying schedules across institutions have posed challenges for synchronous collaboration. Similarly, the balance between academic commitments and extracurricular involvement in RTP has affected student engagement, especially where the project is not fully integrated into the formal curriculum.

The shift between virtual and in-person learning has also created hurdles. Students have faced challenges in maintaining momentum and engagement in virtual settings, while in-person learning has raised logistical issues, affecting the fluidity of the collaborative process. Furthermore, differences in academic foci between institutions have at times led to friction in group dynamics.

Future potentials

Looking ahead, several opportunities exist to expand the reach and impact of RTP. Increased student participation across all campuses at Pearl Academy could foster deeper cross-campus collaboration, enhancing the global diversity of ideas and experiences. This expansion would offer students a richer, more varied perspective

on sustainable fashion, further strengthening the project's interdisciplinary approach.

Increased industry engagement is also a promising direction for RTP. Expanding partnerships with industry professionals and companies could provide students with more opportunities for internships, live projects, and mentorships, giving them direct pathways to the fashion industry. This deeper connection to industry professionals would not only bolster career prospects and help integrate traditional craftsmanship with emerging technologies, such as augmented reality for virtual prototyping, ensuring that RTP stays at the cutting edge of innovation.

RTP also has the potential to benefit from field trips to regions with rich textile traditions, allowing students to explore the intersection of heritage and innovation. These experiences would deepen their understanding of sustainable materials and encourage the integration of sustainable practices with traditional methods, thus reinforcing the importance of cultural preservation.

CONCLUSION

While RTP has made significant strides in promoting cross-institutional collaboration and sustainable design practices, there remain several gaps to address in global fashion education. The need for structured, long-term engagement is one such gap. While virtual tools have facilitated cross-border communication, more extended, real-time interaction would enhance the depth of collaboration and create stronger mentoring opportunities. Additionally, further integration of sustainability into formal curricula—such as embedding RTP into core coursework with clear assessments—would increase student engagement and motivation.

In terms of sustainability, RTP's work could be expanded by introducing more traditional craft techniques, alongside cutting-edge technologies. Exploring methods like traditional Indian weaving or Japanese dyeing techniques, integrated with tools such as augmented reality, would deepen students' understanding of sustainable design, promoting a holistic approach that marries heritage with innovation.

Ultimately, the RTP/Co-Lab framework represents a powerful model of interdisciplinary, cross-cultural collaboration in fashion education. As the project continues to evolve and expand, it holds immense potential to shape the future of sustainable fashion, offering students the skills, knowledge, and networks to tackle persistent issues in the fashion industry and contribute to systemic change.

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