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Users' Experience in Social Media–Supported Sustainable Fashion Practicum at Universities

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Abstract

The growing integration of social media into practice-based learning raises questions about how effectively different platforms support sustainability competencies in fashion education. However, empirical evidence on their distinct roles in ideation, procedural learning, and sustainability competencies remains limited. This study examines students' experiences with Pinterest and YouTube in a sustainable fashion practicum. Using descriptive and case study methods, data were collected from 143 undergraduate fashion students across four universities through the User Experience Questionnaire, practicum observations, and semi-structured interviews with 12 participants. Quantitative data were analysed using descriptive statistics, while qualitative data were examined using an interactive analysis model. The findings showed excellent attractiveness, pragmatic quality ranging from bad to above average, low dependability, and hedonic quality ranging from above average to excellent, indicating inconsistencies in instructional reliability. Pinterest primarily supported ideation and conceptual exploration, whereas YouTube facilitated procedural learning and technical execution. Incomplete instructional content created gaps between conceptual ideas and practical implementation. Visual exploration, practical application, and critical evaluation of digital resources contributed to sustainability competencies. Effective implementation requires structured instructional scaffolding, curated content, and activities that strengthen critical digital literacy.

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INTRODUCTION

Higher education has undergone significant transformation in its teaching and learning processes through flexible, technology-enabled, student-centered learning environments, including in fashion practice-based disciplines (Abusamra et al., 2025; Bond et al., 2020; Carvalho et al., 2021; Crompton & Burke, 2018; Selwyn, 2021; Sheth & Sharma, 2026; Widarti et al., 2024). The increasing convergence of digital and social media platforms is part of a wider movement towards technology-

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empowered pedagogies characterized by student-centeredness, in which students construct knowledge through engagement with digital materials (Bond et al., 2020; Gao, 2025; Selwyn, 2021; Zeng et al., 2024). In current fashion practices, learning appears to depend on the simultaneous integration of elaborations in conceptual ideas with their execution, requiring digital platforms such as Pinterest and YouTube for support in both design development during the preliminary design phase and technical production (Greeves & Oz, 2024; López-Carril et al., 2026; Scolere, 2023) in the sustainable fashion practicum course. The purpose is to address textile waste, overproduction, and unsustainable consumption trends in society (Gazzola et al., 2024; Mukendi et al., 2020; Niinimäki et al., 2020). This fashion practicum course provides an important pedagogical space for developing students' sustainability competencies through experiential and project-based learning (PBL) approaches (Biberhofer & Rammel, 2017; Farrow et al., 2024; Hakim et al., 2024; Lozano et al., 2019; Muhamad et al., 2021). These competencies include creative thinking, problem-solving, and using sustainability as a real-world production framework (Brundiers et al., 2021; Castaño et al., 2025; O'toole et al., 2025; Wiek et al., 2011).

Although social media use for educational purposes is widespread, it still takes time to reflect critically on how these practices function as pedagogical tools rather than merely sources of inspiration or information. Practice generally assumes that access to digital content automatically improves learning outcomes Despite the positive effects of tech in education, empirical evidence from the fields of learning sciences and educational psychology indicates that technology is not an end in itself, rather, the degree to which technology enhances or diminishes learner engagement during task execution depends on how learners experience, interpret and respond with context while engaging with technology (Bond et al., 2020; Chang & Aberash, 2026; Choi et al., 2025; Lacka et al., 2021; Muflihah et al., 2025; Qureshi et al., 2021). This issue becomes even more complicated in practice-based learning environments, such as a sustainable fashion practicum, where students must integrate cognitive knowledge, creative ideation, and technical skills within realistic production constraints.

Recent studies have examined the impact of social media in higher education, especially its potential to promote student engagement, creativity, and collaborative learning (Galindo-Domínguez et al., 2025; Manca, 2020; Perez et al., 2023). YouTube is useful in relatively procedural and tutorial-based learning contexts, where embedded YouTube videos can supplement structured instructional design that encourages guided practice and feedback (Greeves & Oz, 2024; Noetel et al., 2021; Olivares-De la Fuente et al., 2025). Meanwhile, Pinterest has been shown to facilitate visual ideation, content curation, and design exploration in some creative disciplines where visual thinking is central (Bo Julaia et al., 2026; Lapolla, 2014; López-Carril et al., 2026; Scolere, 2023). Moreover, empirical literature in sustainability education research suggests that experiential and PBL are ideal practices for promoting contextualised learning environments needed to advance the competencies required for sustainability transitions (Biberhofer & Rammel, 2017; Brundiers et al., 2021; Castaño et al., 2025; Lozano et al., 2019).

However, the current literature also shows several key limitations. Most of the studies mainly look at technology-related factors, such as adoption, use, and general learning outcomes, rather than applying user experience (UX) as a mediating psychological mechanism to understand how inputs from digital platforms facilitate the learning process (Kollmorgen et al., 2024; Santoso et al., 2022; Schrepp et al., 2017). The User Experience Questionnaire (UEQ) defines user experience, covering pragmatic quality (efficiency, perspicuity, and dependability) and hedonic quality (stimulation, novelty, and attractiveness). Second, previous research considered partial platforms and rarely compared their unique affordances in a unified learning context, especially within practice-based environments (Moraiti et al., 2025; Noetel et al., 2021; Scolere, 2023). Third, empirical studies on integrating social media platforms for sustainable fashion practices are rare in the context of digital readiness and infrastructure for pedagogical practices (Lacka et al., 2021; Qureshi et al., 2021; Wang et al., 2025).

Meanwhile, a gap remains between social media use and the needs of practice-based learning in higher education. Social media supports engagement, communication, collaboration, and access to learning resources, but the specific affordances of Pinterest and YouTube in an integrated learning context have not been widely tested (Suci et al., 2022). Pinterest excels in visual discovery, idea curation, and design inspiration (Irwandani & Juariah, 2016; Mulhayatiah et al., 2019; Zahro et al.,

2025), while YouTube supports procedural demonstrations and observational learning (Oktaviani, 2023). However, these affordance differences have not been widely compared in sustainable fashion learning. Furthermore, user experience is generally used to assess platform quality, but has not been positioned as a psychological mechanism that explains the learning process through pragmatic and hedonic qualities. Empirical evidence on how such experience contributes to cultivating sustainability competencies, such as systems thinking, responsible decision-making, and sustainable practice, is also limited. This gap highlights the need for an integrative model that connects platforms, user experience, and sustainability competencies.

Based on the description above, research that comparatively analyzes specific user experiences on each platform and applies them to support sustainability-oriented practicum learning remains limited. This study analyzes students' experiences using social media platforms (Pinterest and YouTube). It identifies how they use them to support ideas, procedural learning, and the cultivation of sustainability competencies in fashion practicums. The novelty of this research lies in the comparative analysis of students' experiences in utilizing Pinterest and YouTube specifically as sources of ideas, procedural learning, and cultivation of sustainability competencies in fashion practicum learning, as well as connecting the characteristics of user experiences on both platforms with sustainability-oriented learning practices that can support the formation of sustainability competencies in the context of fashion education.

METHOD

Research Design

This study used a combination of descriptive and case study approaches with quantitative and qualitative methods. Quantitative and qualitative data were collected over a similar period, analyzed separately, and then integrated when interpreting the results. Quantitative data were used to identify patterns, relationships, or levels of achievement of the variables studied. Meanwhile, qualitative data provided a deeper understanding of the context, experiences, and reasons underlying the quantitative findings. The integration process used triangulation techniques and side-by-side comparisons. The study compared quantitative and qualitative findings to identify convergence, divergence, and complementarity. The integration results were used to interpret the phenomenon. Overall, qualitative data explained and enriched the quantitative findings, while quantitative data provided an overview that supported the validity of the qualitative findings.

Research Context and Participants

The research took place at three Indonesian public universities and one private university, all of which provide undergraduate programs in fashion design with a mandatory sustainable fashion practicum. The course uses a PBL model that requires students to design and fabricate fashion products from second-use or waste materials. The study population consisted of 706 students, with 207 in the sample and 143 completing the survey. The sampling technique ensured that all respondents had direct and relevant experience with sustainable fashion practices supported by social media platforms (Pinterest and YouTube). All participants were fashion students from Universitas Surabaya, Universitas Negeri Malang, Universitas Negeri Yogyakarta, and Universitas Pendidikan Ganesha, aged 20-22 years old, who had completed the sustainable fashion coursework, had developed sustainable fashion products as part of their institutional practicum requirements, and had been enrolled in the fashion program for three academic years at the time of data collection. In this study, gender was not a criterion because male students in fashion programs are less than 5%. Specific criteria included enrollment in the sixth semester, successful completion of the sustainable fashion practicum course, and active use of Pinterest and YouTube as learning resources during the design and development of sustainable fashion products in the fashion practical course.

Meanwhile, the interview participants for this study were three students who had completed the best projects with unique designs, selected using learning outcome evaluations in practical courses related to sustainable fashion and recommended by two lecturers at each university. This selection was intended to provide in-depth evaluation data on how platform attributes can support sustainability through the actual design and production process.

Instruments and Measures

This research instrument collected data on user interactions and student learning processes related to sustainable fashion during the practice period. Researchers used the User Experience Questionnaire (UEQ) (Laugwitz et al., 2008) as a quantitative instrument to assess students' user experience of the social media platforms used in the sustainable fashion practicum. The UEQ consists of 26 items designed to assess users' overall experience of an interactive product across six scales: Attractiveness, Perspicuity, Efficiency, Dependability, Stimulation, and Novelty. The UEQ comprises six scales: Attractiveness, Perspicuity, Efficiency, Dependability, Stimulation, and Novelty. Perspicuity, Efficiency, and Dependability represent pragmatic aspects of user experience, whereas Stimulation and Novelty represent hedonic aspects. Attractiveness represents the product's overall evaluative impression. Responses were assessed on a 7-point semantic differential scale. The UEQ was selected because it provides a standardized measure of user experience in interactive systems and captures users' perceptions of the pragmatic and hedonic qualities of the platforms. Confirmatory Factor Analysis (CFA) results were used to assess the instrument's psychometric properties. The results show that all factor loadings exceed 0.60, indicating satisfactory convergent validity. Composite Reliability (CR) values above 0.70 indicate adequate internal consistency across constructs. Average Variance Extracted (AVE) values are greater than 0.50, indicating that the indicators represent their constructs well.

In addition to using quantitative data, researchers also designed a structured observation protocol. This aimed to analyze how user experience emerges in real situations during the learning process. The protocol identified five core areas: (1) usage patterns of platforms (Pinterest and YouTube), (2) ideation, including concept development and visual referencing,(3) procedural execution, namely application of techniques in tutorials, (4) decision-making on sustainability of materials used to waste reuse, and (5) The observation protocol was developed based on the PBL theory and sustainability competency frameworks to maintain consistency between the instruments used in this study and the conceptual focus of this study. Combining UEQ data and observational evidence enables a two-faceted investigation of user-perceived experience and learning-in-practice while using technology across several practicum contexts.

Data Collection

These data captured students' perceived user experience and actual learning practices in the sustainable fashion practicum. Participating students completed an online survey at the end of the practicum (enough time had passed for them to have experienced both platforms). Participation in the survey, which was anonymous and open for two weeks, was voluntary.

Data were collected over 6 to 12 weeks through non-participant observation during 12 practicum sessions at each institution. Each session lasted approximately 2 hours, totaling 96 hours of observation time. We observed 80 students, with a relatively balanced distribution of about 20 students from each institution. The same observation protocol was applied across all locations to ensure consistent, comparable data. The protocol covered aspects of practicum activities, student interactions with learning media, use of digital resources, assignment completion strategies, and behaviors related to sustainability competencies. Observations used an observation checklist and field notes with predetermined indicators.

In addition, structured interviews were conducted with three students from each university who achieved the highest grades in the sustainable fashion practicum course. The interviews lasted approximately 60 minutes in a quiet room on campus. Researchers audio-recorded and transcribed the interviews.

Data Analysis

Researchers used an integrated quantitative and qualitative data analysis to identify a framework through which user experience frames learning processes in the context of the sustainable fashion practicum. Quantitative data were analyzed using the UEQ Data Analysis Tool (Version 12 of January 2021). The analysis generated mean scores for the six UEQ scales: Attractiveness, Perspicuity, Efficiency, Dependability, Stimulation, and Novelty. To interpret how students rated the relative quality of their experiences, these scores were mapped to the standardized UEQ benchmark categories of excellent, good, above average, and below average. This

approach revealed a coherent, systematic pattern of practices with high overall attractiveness and positive hedonic qualities, particularly stimulation and lower perceived dependability, indicating weaker perceptions of predictability and control as an explanatory frame for variation in learning processes.

The study analyzed perceptions of the research experience thematically from observational and interview data. The analysis also used a combination of deductive coding, influenced by the conceptual framework (e.g., user experience, platform affordances, stages in students' project-based learning experiences, and sustainability competencies), and inductive coding, where patterns emerged from how students behaved and shared their stories. The coding process emphasized comparative analysis between platform use and learning outcomes. To maintain traceability across participants and institutions, we organized data using systematic identifiers (e.g., FS_1_UNV_1). The investigation yielded four main themes. First, user experience differentiation, with very high engagement but low instructional reliability. Second, platform affordances function as ideation tools, and YouTube supports procedural/tool-engineering learning. Third, the ideation-execution gap, where concepts are designed but not technically implemented. Finally, sustainability competencies are demonstrated through conceptual ideas that support self-reflection. These themes included using Pinterest as a resource for students to generate new ideas. Meanwhile, YouTube provides procedural support, and students need to consult more than one source.

Peer debriefing was conducted with course lecturers or laboratory assistants to validate the relationship between data analytics interpretation and sustainable fashion practices, thereby increasing the credibility and trustworthiness of the findings. Combining quantitative UEQ results with qualitative data findings provides a holistic explanation of how user experience dimensions and platform capabilities jointly support idea generation, idea execution, and sustainability competency development in a practicum setting.

RESULTS AND DISCUSSION

Results

The research results are divided into two sections, namely (1) student user experiences of social media (Pinterest and YouTube) and (2) their role in supporting the learning process. The explanations are as follows.

Social Media User Experience by Students

To answer this first research question, the study explored students' user experience of social media (Pinterest and YouTube) using the UEQ. The questionnaire measured the quality of students' experiences toward the overall appeal of the social media platforms (Pinterest and YouTube). This only describes the general nature of social media platforms but does not provide a specific analysis of Pinterest and YouTube. The results showed that students' overall impression and affective evaluation of the social media platforms fell within the excellent category (see Table 1).

Table 1. Interpretation of Fashion Students' Experience Quality in the Use of Social Media

Indicators	Mean (M)	Standard Deviation (SD)	Comparison to Benchmark
Attractiveness	1.85	1.01	Excellent
Perspicuity	1.69	1.06	Above Average
Efficiency	1.64	1.03	Good
Dependability	0.74	0.58	Bad
Stimulation	1.73	1.09	Excellent
Novelty	1.05	1.09	Above Average

In Table 1, attractiveness (M = 1.85; SD = 1.01) and stimulation (M = 1.73; SD = 1.09) had the highest scores, both rated excellent according to UEQ benchmark criteria [39]. These findings suggest that students considered both platforms as highly engaging, enjoyable, and motivating during the practicum process. Participants accepted and reiterated this perception throughout their accounts below, each pridefully noting that the visual and entertaining aspects supported the task and inspired

creativity. When asked about how they used social media to inspire creativity for design, user 1 stated, "Once I go on Pinterest, immediately many designs come up on Pinterest. The imagery is quite intriguing; it brings out the urge to try out fresh designs (FS_1_UNV_1). Likewise, another described that: "YouTube is pleasurable as well because you can follow the videos and it does not feel so stressful to learn" (FS_2_UNV_2), while others observed that: "both platforms are more fun than just textbooks" (FS_3_UNV_3).

In terms of quality in practice, perspicuity (M = 1.69; SD = 1.06) and efficiency (M = 1.64; SD = 1.03) were classified as above average and good, respectively. The results indicate that students overall believed both platforms were accessible and helpful for completing the tasks. Respondents indicated that the platforms provided quick access to pertinent material and were unmatched in visually demonstrating procedures. For instance, one of the students stated that "I can easily find what I need on Pinterest without wasting too much time searching" (FS_2_UNV_1), and another mentioned that "YouTube makes me save time because I can see directly how a technique is done instead of expecting it to happen" (FS_4_UNV_2). Another important aspect that emerged from the data was visual representation, as FS_1_UNV_4 says, "I find it easier to understand if I can see the process rather than reading instructions".

However, dependability received the lowest rating (M = 0.74; SD = 0.58), which is below average. This caused students to experience some limitations related to the reliability, consistency, and completeness of the learning content. In addition, students also often commented on the lack of procedural explanations in tutorial-based learning. One student commented that "sometimes the YouTube videos miss important parts, so I don't know exactly how to do it" (FS_3_UNV_2). Another student noted that "it looks good on the YouTube video, but when I do it, the steps are missing" (FS_2_UNV_3). In contrast, others emphasized the importance of looking at multiple sources, such as one student's statement that "I often need to look for different videos because one video is not enough" (FS_4_UNV_1).

In summary, these findings indicate that while engagement and content accessibility on social media platforms (Pinterest and YouTube) are relatively good, instructional consistency is lacking. This suggests that while both social media platforms support the more exploratory aspects of fashion practicum learning, students' accurate and comprehensive procedural knowledge remains limited.

How Pinterest and YouTube Aid Learning

To answer the second research objective, qualitative findings were evaluated to explore how Pinterest and YouTube could support ideation, procedural learning, and sustainability competency within the sustainable fashion practicum. Findings indicate that platforms served different but complementary roles in the learning process.

Supporting Ideation and Concept Development (Pinterest)

Overall, findings indicate that Pinterest was mainly used in the ideation stage to support concepts through visual exploration. They turned to the platform when they needed design ideas, thematic discovery, and visual reference organization in structured representations like mood boards. Every participant identified Pinterest as the platform they go to early in the design thinking process. For example, a student said, "I almost always go to Pinterest to search. It helps me determine my design's concept and style" (FS_1_UNV_2). One other participant stated, "Pinterest helps me to combine multiple ideas into one design because I compare so many references at the same time" (FS_3_UNV_1), but others pointed out that it was used for organizing ideas: "I use Pinterest as a mood board before creating my project" (FS_2_UNV_4).In addition to supporting the design ideas students generated during the practicum, Pinterest also helped equip students with sustainability concepts related to material reuse and eco-friendly fashion design practices. Pinterest's diverse visual content helped students expand their awareness of sustainable practices in executing their fashion design ideas. Students stated that "Pinterest provides many examples of what can be done with leftover fabric and creates new things" (FS_4_UNV_2) and "it provides examples of sustainable fashion that I hadn't previously known about" (FS_1_UNV_3). These results show that Pinterest serves as a visual ideation tool that supports student exploration and concept development in the early phase of the practicum.

Supporting Procedural Learning and Technical Execution (YouTube)

Students primarily use YouTube to translate design ideas into products. Students learn procedures and develop technical skills. Students watch tutorial-based video content for instruction on garment construction methods, production processes, and finishing. YouTube's visual, sequential format helps students translate design concepts into practical work. One student stated, "After designing it, I asked YouTube for help in executing my idea".

Students also self-reported repeated viewings to grasp an understanding, a sign of self-regulated learning. An example is: "So I have the video again and again until each step has been digested" (FS_3_UNV _4). Furthermore, students frequently compared different sources for techniques. One student stated, "I usually watch three or four videos before attempting a technique to make sure I understand it (FS_4_UNV_1)" and "Different videos demonstrate different methods, so I usually choose one that's easy to follow and simple (FS_2_UNV_2)."

However, students also repeatedly identified challenges related to incomplete video sections and inconsistent content. Several students noted that YouTube tutorials often omit key steps, forcing them to deduce missing definitions independently. One student commented that "some YouTube videos are too short and don't explain the details, so I have to guess at some of the steps" (FS_3_UNV_2). Another student stated that "sometimes the tutorials are unclear, especially for beginning fashion students" (FS_1_UNV_4). In conclusion, YouTube content can substantially support procedural learning for fashion students through visual demonstrations. However, its benefits are still limited by variations in content quality and lack of specificity, requiring students to interpret and adapt learning information independently.

Supporting Sustainability Competency Cultivation

The results indicate that social media platforms, both Pinterest and YouTube, provided opportunities to develop sustainability-related competencies for sustainable fashion in different ways. Pinterest helps students gain conceptual awareness and design-oriented thinking for sustainable fashion while exploring sustainable solutions and new material alternatives. These findings suggest that visual exposure supports students' reflection on sustainability principles in their designs. One student stated that "many examples of sustainable fashion appear on Pinterest, which makes me think more about sustainability" (FS_2_UNV_1). Another student also commented that "I see various ideas on Pinterest that help me design products from fashion waste effectively" (FS_3_UNV_3).

Contextually, YouTube is the best medium for implementing sustainability practices (e.g., restructuring and recycling techniques through patchwork and fabric manipulation). Video tutorials on YouTube translate sustainability concepts and practices. A student stated, "From YouTube, I can learn techniques such as patchwork and recycling using fabric waste" (FS_4_UNV_2). Another student stated, "YouTube videos helped me understand how to apply sustainable design to real products" (FS_1_UNV_2). This explanation shows that the sustainable fashion practicum learning, supported by Pinterest and YouTube, shaped the context and mindset for executing the production process.

On the other hand, students need to emphasize the importance of checking everything they access, regardless of the platform. Even when focusing on a single process, students said they consulted multiple tutorials to ensure the steps were correct and clear. This is reflected in student statements such as, "I don't just follow one source for ideas." Another student also mentioned, "cross-checking sources on social media platforms to ensure that the technique will work as I expected" (FS_3_UNV_1) and "because not every piece of content on social media or the internet is true, we need to be selective in our decisions" (FS_2_UNV_4). In summary, competencies cultivated for fashion students in the sustainable fashion practicum within the sustainable fashion project are conceptual exploration, practical engagement, and critical review.

Discussion

Learning Mechanisms of User Experience and Platform Affordances in the Practicum Context

It suggests that user experience and platform affordances combine to support student engagement with, sense-making about, and enactment of learning in a social media-supported, sustainable fashion practicum (Aswita et al., 2024). The observed pattern of relatively high hedonic quality and lower perceived dependability suggests an asymmetry between students' positive

affective experiences and their perceptions of predictability and control when using the platforms. Several previous studies found that social media platforms, such as YouTube, are positively associated with measures of students' engagement, motivation, and participation, especially in creative or practice-based disciplines (Perez et al., 2023; Noetel et al., 2021). A study reinforces the finding that Pinterest and YouTube were viewed as engaging, enjoyable, and motivational learning tools. The explanation stated that visually appealing digital platforms encourage creative exploration and collaborative learning, particularly in design-focused curricula (Galindo-Domínguez et al., 2025).

However, this research points to a constraint: students struggle to rely on incomplete and unreliable instructional materials, resulting in low dependability scores. This problem is similar to several previous studies that explained that high levels of engagement do not necessarily translate into the best learning outcomes. In those contexts, digital platforms are effective only when balanced by prescriptive instructional design and well-structured content systems according to students' characteristics (Greeves & Oz, 2024; Olivares-De la Fuente et al., 2025). Moreover, self-determination theory supports intrinsic motivation and, therefore, the long-term engagement driven by high hedonic quality. Still, without a stable instructional structure, engagement cannot translate into effective skill acquisition (Ryan & Deci, 2020). In Chinese contexts, Wu (2024) stated that leveraging digital learning environments in educational engagement required robust pedagogical scaffolding to achieve procedural mastery. An Australian study also showed that the effectiveness of digital learning is significantly influenced by structured instructional design, content interactivity, and pedagogical support, not solely by student engagement (Jacob & Centofanti, 2024). Therefore, digital platforms need systematic content structure, instructional scaffolding, and learning guidance to ensure student engagement translates into optimal learning outcomes.

The results further reveal a distinct functional separation between Pinterest and YouTube, corroborating other global research on platform affordances. Scolere (2023) stated that Pinterest has been widely used to support and research visual ideation in creative disciplines such as design thinking or concept curation. In contrast, YouTube is more useful for procedural learning and skill demonstration, particularly when students watch repeatedly at their own pace (Bo Julaia et al., 2026; Noetel et al., 2021; Shoufan & Mohamed, 2022).

Several studies have built on these findings by showing the complementary role of these social media platforms within a PBL learning structure rather than as alternative functions. This kind of integration throughout the learning process is entirely supported by findings from education systems that align digital tools with targeted phases. An important contribution of this study is that it highlights a persistent ideation–execution gap, which also represents an international challenge in practice-based education. Studies show that students often demonstrate strong conceptual understanding but are hindered by fragmented or decontextualized digital resources, which limits technical execution. Likewise, procedural learning shows that students need some form of guided practice through scaffolding rather than simple exposure to websites. In this study, students filled instructional gaps by rewatching steps, contrasting different presentations, and improvising absent steps. This aligns with global research on self-regulated learning, but it also increases cognitive load and adds random oscillation to performance. Thus, in line with international evidence, the findings indicate that platform affordances alone are not enough, as their potential can be realized when embedded within coherent and personalized pedagogic systems.

Ultimately, this study concludes that ease of access and engagement with Pinterest and YouTube do not determine the success of social media in the context of sustainable fashion learning in higher education. The findings suggest that UX and affordances function as interconnected mechanisms. This needs to be pedagogically orchestrated within a practice-based learning environment to effectively facilitate the shift from ideation to execution.

Implications for the Cultivation of Students' Sustainability Competencies

This study cultivated students' sustainability competencies in higher education through a sequential process of knowledge acquisition, conceptual exploration, practical implementation, and critical evaluation. This pattern aligns with international sustainability education research, which describes competency development as an integrated experience of cognitive, affective, and behavioral dimensions, pointing to the general need for authentic learning environments in higher education (Andriana et al., 2025; Biberhofer & Rammel, 2017; Chou et al., 2026; Farrow et al., 2024;

Lozano et al., 2019; Mustapha et al., 2018; Wang et al., 2025). Pinterest supported conceptual awareness by exposing students to eco-design (design ideas, material substitutes, and reuse). In contrast, YouTube supported enactment information through examples such as upcycling, patchwork, and fabric manipulation techniques. We conclude that while digital platforms can powerfully facilitate sustainability learning, they can only provide partial support if learners must synthesize fragmented content.

In comparison, studies from European higher education contexts show that sustainability competencies strengthen when embedded in integrated curricula that include interdisciplinary collaboration or experiential learning through pedagogical structures (Biberhofer & Rammel, 2017; Farrow et al., 2024; Lozano et al., 2019). In parallel, granular research in design- and innovation-oriented learning environments has underscored the value of sustainability learning with authentically connected production tasks, reflective evaluation, and collaborative problem solving (Casciani et al., 2022; Gazzola et al., 2024; Wang et al., 2025). These results partially confirm these studies, as students were able to conceptualize sustainability-related concepts and practice them all together. However, unlike some clearer models reported internationally, the process in this study was less structured and relied much more on students' ability to cross-reference multiple online sources.

These findings align with studies on learning augmented by digital and social media in higher education. International reviews have demonstrated that social media and digital platforms can improve engagement, creativity, and knowledge. Still, their educational value depends on how technologies are integrated into the teaching process, the quality of content provided to learners, and learner regulation in both teacher-centered (Noetel et al., 2021; Olivares-De la Fuente et al., 2025) and student-centered learning environments (Perez et al., 2023; Qureshi et al., 2023). This is especially meaningful in the current study, where students found Pinterest and YouTube highly motivating and easily accessible, yet were still hampered by limitations (i.e., procedural reliability and consistency). The results thus echo a broader argument in the digital learning literature: engagement is pedagogically meaningful only when coupled with instructional scaffolding and a well-defined alignment between apps or games and desired learning outcomes.

Results also echo research on visual and video-based learning in creative and technical areas. Research on Pinterest and related visual platforms has shown strong effects on ideation, visual comparison, concept development, and connected design learning (Bo Julaia et al., 2026; Lapolla, 2014; Scolere, 2023). In contrast, YouTube and other video-based resources relate more closely to procedural learning, self-paced repetition, skill practice, and skill observation (Greeves & Oz, 2024; Noetel et al., 2021; Olivares-De la Fuente et al., 2025). This study contributes to this body of work by showing how these affordances function sequentially in the practicum process, with Pinterest mostly facilitating ideation and YouTube facilitating execution. However, the study also demonstrates that this complementarity does not guarantee accurate implementation, since students encountered an ideation–execution gap when tutorial content was either incomplete or inconsistent.

The findings of this study make a conceptual contribution by identifying the idea-execution gap as an important mechanism in cultivating sustainability competencies in sustainable fashion practicum. This gap shows that students' access to sustainable design ideas supported by digital learning resources does not automatically translate into the ability to implement these ideas in practice. Students can understand the principles of circularity, sustainable materials, and upcycling conceptually, but still struggle to translate them into material selection, technical procedures, design decision-making, problem-solving, and adaptation to real material conditions. Thus, this study expands understanding of sustainability learning by showing that cultivating sustainable competency involves a transformation process from conceptual inspiration to procedural competence. In this study, guided discovery serves as a pedagogical mechanism that bridges these gaps through material exploration, hands-on practice, feedback, and procedural support that allow students to test, revise, and implement sustainability ideas in authentic situations. This contribution confirms that the effectiveness of sustainable fashion learning is not only judged by students' ability to generate sustainability-oriented design ideas, but also by their ability to convert those ideas into competent, adaptive, and accountable design and production actions in a sustainable manner.

This is relevant to previous studies that showed the potential of digital environments for exploration and knowledge sharing but also identified a lack of support for embodied technical

performance within them (unless supplemented with guidance and validation mechanisms) (Lacka et al., 2021; Macías Urrego et al., 2024; Rahman et al., 2021). In the current study, students addressed this limitation by watching more than one tutorial video and contrasting several techniques, either aligning approaches with what they knew or tweaking the instructions to meet their needs. This echoes the rise of critical digital literacy, considered an important skill in technology-enhanced fashion education (Galindo-Domínguez et al., 2025; Greeves & Oz, 2024; Perez et al., 2023).

Theoretically, this study contributes to the literature in three ways. This supports sustainability competency development as an interactive, practice-embedded process in which the mediating role of digital affordances and learner agency is foregrounded, rather than treated as a direct result of content exposure. Second, it strengthens findings from previous research that treats user experience as a process-level mediator supporting students' ability to handle situated learning-action through digital interaction. Third, it shows that students' conceptual awareness remains structurally fragile when applying these concepts in practice, especially when pedagogical integration is not yet guaranteed through digital resources. Thus, the paper contributes to the current cultivation of students' competencies in PBL alongside technology-supported learning experiences in higher education by integrating user experience and platform affordances (Qureshi et al., 2021; Qureshi et al., 2023; Wu, 2024; Zhang & Ma, 2023).

On a more practical note, comparable international evidence points to three main implications. To implement sustainability learning, first embed it in integrated curricular structures that align digital tools and competency frameworks with authentic project tasks. Second, procedural learning more heavily relies on scaffolding through curated resources, guided demonstrations, and iterative feedback. Third, it explicitly develops students' critical digital literacy through source evaluation, comparative tasks, and reflective critique. In conclusion, this study indicates that whilst Pinterest and YouTube align with an emerging global trend in the use of digital appropriations within higher education settings, they can support sustainability competency development as learning opportunities only through effective pedagogical design that translates platform affordances into transformational learning experiences.

LIMITATIONS

This study has several limitations that should be considered when interpreting the findings. First, the purposive sampling technique was used in only four institutions, thus limiting the representation of the fashion education student population. Second, selecting high-achieving students as informants may have produced a more positive perspective and may not represent the experiences of students with diverse competency levels. Third, the user experience data relies on self-reported data, making it susceptible to perception and response bias. This study also did not use an objective assessment of students' sustainability competencies. Fourth, the cross-sectional design does not allow the study to examine how students' experiences or sustainability-related learning practices develop over time. Fifth, because the study analyzed quantitative responses for Pinterest and YouTube in aggregate, it does not provide platform-specific UEQ scores. Therefore, the study cannot establish direct quantitative comparisons between the two platforms. Future research should use a more diverse and larger sample, a longitudinal design, objective measures of sustainability competencies, and mixed methods to explore the different functions of Pinterest and YouTube in design ideation, production processes, and sustainable fashion products.

CONCLUSION

Pinterest and YouTube support sustainable fashion practicum learning for university students in different but interrelated ways. These platforms are engaging and easy to use, but they lack reliable instructional support. Pinterest inspires students' ideas and conceptual construction, while YouTube helps explain how to translate ideas into work. However, the gap between design ideas and technical implementation occurs when students can generate creative ideas but cannot always translate them into work of the expected technical quality. This finding confirms that access to digital content through Pinterest and YouTube can broaden exposure to ideas and knowledge, but does not automatically improve competency. The conceptual contribution of this research lies in interpreting the idea-implementation gap as an important characteristic of practice-based learning: the process

by which digital knowledge and inspiration are transformed, through guidance, structured exercises, feedback, and reflection, into applied skills. This concept can be applied to the broader PBL context. This implies that educators need to design structured learning environments through content curation, directed instruction, gradual practice, feedback, and reinforcement of critical digital literacy so that digital interactions contribute significantly to competency development.

AUTHOR CONTRIBUTIONS

SZ: Writing original draft, formal analysis, data curation, and conceptualization. TS: Formal analysis and data curation. HM Writing, review & editing. SR: Writing, review & editing. DN: Writing, review & editing. DR: Acquisition of data, analysis, and interpretation of data. HK: Acquisition of data, analysis, and interpretation of data. PAM: Acquisition of data, analysis, and interpretation of data. AAN: Acquisition of data, analysis, and interpretation of data. NC: Acquisition of data and interpretation of data. IARD: Acquisition of data, analysis, and interpretation of data.

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