**Learning About the Use of Blockchain Technology for Sustainable Apparel Sourcing**

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**Introduction and Purpose**. Blockchain technology is increasingly used for building transparent supply chains (Kshetri, 2018; Yadav & Singh, 2020) and supporting sustainability efforts (Garcia-Torres et al., 2019). In the fashion industry, blockchain allows tracking the journey of a product from raw material sourcing to the final product delivery. Thus, companies can document and consumers can witness reduced environmental and social impacts of fashion products (Yadlapalli & Rahman, 2022). With blockchain becoming more prevalent in the industry, it is important for future apparel professionals to understand the benefits and challenges of integrating the technology in supply chain. Therefore, the **purpose of this study** was to develop and test a learning activity designed for students to learn about blockchain technology and explore its role in creating a sustainable apparel supply chain.

**Theoretical Background***.* Inquiry-based learning (IBL) and collaborative learning (CL) pedagogical frameworks were selected for developing the learning activity. Both emphasize the active participation of students in the learning process and have been shown to promote deeper levels of understanding and high levels of achievement (Öztürk et al., 2022). IBL is an instructional approach that involves learners in the process of exploring questions, problems, or scenarios and constructing meaning from their experiences (McKinney, 2014). The central idea of IBL is to engage learners in the process of discovery, through which they generate their own questions, investigate these questions through research or experimentation, and then draw conclusions based on their findings (Shephard, 2023). IBL has been shown to promote the development of critical thinking skills (Dewi et al., 2021) and foster self-directed learning habits (Khalaf & Zin, 2018). Studies have also found that IBL can lead to greater academic achievement, as learners are actively engaged in the learning process (Öztürk et al., 2022).

Collaborative learning (CL) is another instructional strategy that emphasizes the active participation of learners in the learning process. CL involves learners working together in small groups to solve problems, complete tasks or projects, and learn from each other's experiences (Laal & Ghodsi, 2012). The main idea behind CL is that learners can benefit from each other's knowledge and skills, and that collaboration can lead to greater achievement than individual learning (Dillenbourg, 1999). Research has shown that CL can improve social and critical thinking skills, promote deeper levels of understanding, and increase academic achievement (Johnson & Johnson, 1986; Loes & Pascarella, 2017). Several studies have also found that CL can lead to a greater engagement in the learning process, as learners are more invested in the success of the group than in individual success (Vijayalakshmi & Kanchana, 2020).

IBL and CL are effective instructional strategies that promote student engagement and enhance critical thinking, problem-solving, and collaboration skills. These are essential skills for future apparel professionals as they will allow them to navigate the complex and dynamic industry and develop successful relationships with stakeholders throughout the supply chain (Karpova et al., 2011). IBL and CL were used as pedagogical frameworks to develop the learning activity for enhancing apparel students’ knowledge and intention to use new technology for building sustainable supply chain.

**Learning Activity***.* Based on IBL and CL, a learning activity was designed with a focus on research and a cross-group collaboration. Following a brief overview of the role of technology in apparel supply chain, instructor divided the students into four teams, which were tasked to research the use of blockchain technology in building a sustainable supply chain. To facilitate the inquiry process, the overarching research task was divided into four manageable questions, and each of the four team was assigned one of the following questions to investigate:

1. *How and where in the supply chain can blockchain be used to reach sustainable solutions?*
2. *What are the benefits of using blockchain technology in the apparel supply chain?*
3. *What are the challenges of integrating blockchain technology in the apparel supply chain?*
4. *What are the examples of fashion/apparel companies that offer sustainable solutions using blockchain technology?*

During the first research phase, teams worked independently to gather relevant information, assess the validity of sources, and evaluate the applicability of evidence to their assigned research question. This process facilitates the development of skills in research, information literacy, and critical thinking.

The second research phase involved a cross-team collaboration, when each team shared the findings to their unique question with other teams with the goal to develop a collective understanding of the overarching research task. This stage of the activity was designed to promote communication and collaboration across all the teams in the class. The final stage of the activity required each team to synthesize all four research questions into a comprehensive research report about the use of blockchain technology for building sustainable apparel supply chain. This stage of the activity was designed to promote critical analysis and synthesis of diverse perspectives. As a debriefing, the instructor conducted a class discussion and reviewed all four research questions. The aim of the debriefing was to ensure that all students had a solid understanding of the topic.

**Results***.* In addition to grading teams’ research reports, individual assessments were completed through pre- and post-activity reflections to evaluate the effectiveness of the learning activity in enhancing students' knowledge of sustainable supply chains and blockchain technology. The pre-activity reflection consisted of four questions to assess students’ knowledge in building sustainable supply chains and the role of technology. The post-activity reflection consisted of eight questions and included additional questions about the blockchain technology, students’ experience with the cross-team collaboration, and their feedback about the learning experience. Following IRB approval, a total of 21 student responses were collected for the pre-activity reflection and 25—for the post-activity reflection.

Most students (82%) demonstrated greater knowledge about the role of blockchain in building sustainable apparel supply chain. The team-based activity was well-received, as was evidenced by students’ comments about the cross-team collaborations. While students appreciated the collaborative and research-focused nature of the activity, some expressed a concern about the time constraints and pressure to complete the research quickly. Nonetheless, all teams were able to successfully develop high-quality comprehensive reports, indicating critical thinking skills. The analysis of the reflections indicates that students recognized the opportunities for using blockchain technology in their future careers.

**Conclusions and Implications**. The learning activity was effective in enhancing student knowledge and intention to use blockchain technology as future industry professionals. The activity can be adopted by apparel educators to ensure that students are up to date with innovative technology introduced in the industry. ILB and CL were useful pedagogical approaches to engage students and facilitate the learning about a complex topic.

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