Navigating the Future: Essential Skills for Fashion Graduates in the Era of AI

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The fashion industry has experienced a significant transformation with the widespread adoption of technological tools, accelerated by the introduction of artificial intelligence (AI). Technological advancements have been rapidly embraced by the fashion industry, necessitating that administrators of fashion programs, as well as accreditors, stay informed about the evolving competencies required of fashion graduates. This study aims to analyze current entry-level job postings in the fashion industry, focusing on the required skills and competencies, including technological tools and AI-related skills. Understanding these evolving demands helps academics prepare apparel graduates to meet workforce needs, aligning with the meta-goals of the International Textile & Apparel Association (ITAA) and the accreditation standards of the Textile and Apparel Programs Accreditation Commission (TAPAC).

Review of Literature

The rapid technological advancements in the apparel industry since 2022 have significantly altered the landscape of required competencies for apparel graduates. Prior to this era of rapid technology and AI adoption, researchers investigated the competencies required of apparel graduates. Cheek and Frazier (2016) surveyed apparel industry professionals on the importance of competencies for merchandising professionals as outlined in the ITAA meta-goals. They found that competencies such as leadership and creative skills were among the most highly ranked in importance, but specific technological skills were also identified in the open-ended responses (Cheek & Frazier, 2013). Romeo and Lee (2013) examined the skills required of entry-level technical and creative designers and found that industry professionals indicated an increasing need for technological skills related to computer-aided apparel and textile design, 3D body scanning, 3D design, and product lifecycle management systems. The addition of AI technologies to this landscape has further increased the need for graduates to possess advanced technological skills. Studies by Ramos et al. (2023) and Kouslis et al. (2024) highlight AI's role in sustainability, design, trend forecasting, and personalized shopping, emphasizing the need for educational programs to adapt curricula. Jacobs and Karpova (2019) outlined essential competencies for merchandisers, such as consumption behavior and forecasting, increasingly influenced by AI technologies. These studies collectively highlight the growing importance of AI and other technological skills in the fashion industry, underscoring the need for educational programs to adapt curricula to prepare graduates for these evolving demands.

Method

Guided by the ITAA meta goals for college and university apparel program curricula, this study aimed to quantify the skills and competencies required in 2025 of

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apparel design and merchandising graduates. A total of 2,892 job postings in fashion or apparel from 2025 were analyzed from the websites Indeed, ZipRecruiter, and WayUp. The analysis focused on the ITAA meta goals of core knowledge content, curricular elements, and professional competencies. The analysis further details posted job titles, required technical and soft skills, specific software proficiencies, education levels, and AI-related skills. The analysis was conducted in Microsoft CoPilot AI with validity being assessed by comparing identified skills with a subset of the data (10%) that were independently analyzed by the researcher ensuring consistency with human judgment (McLeod, 2024). This method evaluates criterion validity, confirming that the findings align with established analysis standards.

Results

The 2,892 entry-level job postings detailed current positions in the fashion industry, including **assistant/junior designer** (723 positions, 25%), **retail sales associate** (579, 20%), **technical designer** (347, 12%), **merchandise manager** (145, 5%), **assistant buyer** (116, 4%), and **inventory planning analyst** (116, 4%). Seventy-precent of positions required a **bachelor's degree**, 20% an **associate's degree**, and 10% a **high school diploma**. Regarding the first meta-goal of core knowledge, posts asked for: knowledge of **elements and principles of design** (868, 30%), **product quality and technical standards** (651, 22.5%), **textile materials** (578, 20%), **product development** (578, 20%), **forecasting** (434, 15%), and **sustainability** (289, 10%). A significant number of postings asked for industry and business knowledge, such as **retail operations** (868, 30%) and **roles/functions of apparel sectors** (434, 15%). A limited number of posts concerned meta-goal 2: 6% looked for **research methods** and 5% for knowledge of **theoretical perspectives**. Meta-goal 3, professional competencies, were well represented in the data with employers looking for soft skills in **collaboration** (1,954, 67.5%), **communication** (1,735, 60%), **global/cultural competence** (868, 30%), **justice/equity/diversity/inclusion** (723, 25%), **ethics** (578, 20%), and **socially responsible decision making** (434, 15%). Further soft skills were asked for including **time management** (1,301, 45%), **attention to detail** (1,735, 60%), **problem-solving** (1,157, 40%), **adaptability** (1,012, 35%), and **networking skills** (578, 20%). Technical skills that were asked for included **patternmaking** (868, 30%), **fashion illustration** (651, 23%), **garment construction** (434, 15%), **trend analysis** (1,084, 37.5%), **CAD software proficiency** (289, 10%), **garment fitting** (202, 7%), **sustainability practices** (145, 5%), and **e-commerce platforms** (173, 6%). Specific software was asked for including, **Adobe Creative Suite** (1,735, 60%), **Microsoft Office** (651, 22.5%), **CLO3D** (434, 15%), **TUKAcad** (347, 12%), **Browzwear** (260, 9%), and **CorelDRAW** (217, 7.5%). Job posts looking for AI-related proficiencies included 217 positions (7.5%) asking for skills in: a) **AI-driven Design Software**: Using AI tools for fashion design and pattern creation, b) **Data Analysis with AI**: Leveraging AI for trend analysis and consumer behavior insights and c) **AI in E-commerce**: Implementing AI for personalized shopping experiences and inventory management.

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Conclusion

This study highlights the evolving competencies required for entry-level positions in the fashion and apparel industry, emphasizing the increasing importance of technological tools and AI-related skills. The findings underscore the need for educational programs to adapt their curricula to prepare graduates for these demands, aligning with ITAA and TAPAC standards. By analyzing a significant number of job postings (2,892) from three major career websites, this study provides a comprehensive overview of industry requirements. Additionally, the research reaffirms the continued importance of soft skills, such as collaboration, communication, and global competence, which remain crucial for graduates to succeed in the fashion industry. Furthermore, the study reaffirms the continued relevance of the ITAA and TAPAC standards, highlighting their role in guiding academic programs to meet the evolving needs of the industry. The study also provides a comprehensive view of entry-level competencies in early 2025, useful for subsequent analyses to examine the changing importance of competencies across time. These results are highly relevant to academia and industry as they provide actionable insights for developing curricula that equip graduates with the necessary skills to thrive in a rapidly changing landscape, ensuring that educational programs remain aligned with industry demands.

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