Disclosing sustainable business practices for the fashion industry: An analysis of fashion designer entrepreneurship

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Introduction Sustainability has been garnering attention in the fashion industry; thus fashion brands are increasing their focus on being sustainable. From large international brands to small local brands, sustainability is often used as a marketing tool. Brands highlight their sustainable business practices, especially when addressing environmental problems and inequality in society. Scholars have investigated how sustainability is executed in large brands, however, there are few studies on sustainability for small designer brands. However, entrepreneurship in fashion design is important as it encompasses a significant portion of the fashion industry and meaningfully contributes to an eco-friendly clothing and textiles industry. Therefore, this study aims to use big data analysis methods to analyze the fashion designer entrepreneurship properties involved in executing sustainable business practices.

Literature Review Sustainability is currently trending, putting sustainable fashion into the mainstream. Sustainable fashion is associated with organic and eco-friendly materials, fair working conditions, certifications, sustainable business models, and tractability (Henniger, 2016). Sustainable business practices are behaviors that lead to a net overall increase in the different forms of capital associated with sustainable development, especially in terms of environment and community (Caldera et al., 2017). Many studies have been conducted on sustainability, including case studies on fashion upcycling brands (Hanadhyas & Wulandari, 2022), and customers' perceptions regarding sustainability practices (de Oliveira et al., 2022). However, compared to the studies on global companies there are insufficient studies on small local companies pursuing sustainability.

Small fashion brands are businesses with five or fewer full-time employees who produce small or large batch apparel (Ingram, 2019). Regardless of size, their impact on sustainability is significant. Fashion entrepreneurs can take the lead in a system change approach, and thus a more sustainable future. Compared to other types of brands, small-scale fashion entrepreneurs are characterized by greater sustainability and transparency and can reshape the supply chain by executing plans that large companies cannot easily pursue (Cernansky, 2022). Despite the belief that sustainability requires large investments, small companies can boost their business without large investments, using this strength to find success. Therefore, it is important to analyze the sustainability of fashion design entrepreneurship and present how small-scale companies can pursue sustainability or design brand goals that achieve sustainable business practices.

<u>*Methods*</u> To assess the social and environmental business practices of fashion designer entrepreneurship, brand introduction texts were collected. Target designer brands were selected using the *fashion open studio* platform created by the Fashion Revolution Foundation, which produces *the fashion transparency index*, measuring the yearly human rights and environmental issues of brands and identifying brands that implement socially responsible business practices. Data from 82 brands worldwide was used for the analysis.

CONCOR and keyword analysis were used to reveal the dominant sustainability trends of small-scale designers and fashion brand startups. Prior to analysis, text data was cleaned using basic text processing (i.e., tokenization, stop words removal, and lemmatization) to eliminate insignificant words, symbols, or characters. Then, the text documents were combined to create the corpus (i.e., the body of text used for further statistical analysis). Python programming language (Version 3) was used for algorithm development, along with the Jupyter Notebook (Update 2020) platform to generate visual illustrations. CONCOR (CONvergence of iterated CORrelations) analysis was conducted using UCINET for Windows (Borgatti et al., 2002), a network analysis software program. For network visualization, NetDraw packaged with UCINET was utilized.

<u>***Results & Discussion***</u> TF-IDF is a natural language processing technique useful for the extraction of important keywords within a set of documents. TF-IDF analysis showed that designers selected by Fashion Open Studio are most active in the aspects of waste, design, sustainability, textiles, handmade, upcycling, story, traditional, craft, and local. To achieve sustainability, designers focused on 'waste,' 'sustainability,' 'upcycling,' 'deconstructing,' 'supply-chain,' 'landfill,' and 'carbon footprint.' In terms of waste, for example, they convert surplus materials into zero-waste and or transform waste into other products. Secondly, to become a social enterprise, designers highlighted 'local' values, employing local workers or using locally produced textiles. Also, the word 'social' was linked with other words such as 'social-enterprise', 'social-fashion', 'social-change', or 'social-practices'. Designers tried to ensure 'women's' rights, fair 'wage,' and 'animal protection'. Furthermore, designers focused on 'textiles', specifically, upcycling discarded 'denim', or other natural materials like biodegradable 'cotton'. Designers also used words like 'natural,' 'fabric,' and 'dyes.' Furthermore, designers focused on human-centered 'design' and embraced a 'craft' spirit by using 'handmade' textiles or donated hand-me-downs. A noticeable keyword was 'VR (Virtual Reality)' which seems unrelated to sustainability but is important in reducing the usage of materials to achieve a circular economy. By utilizing VR technique, designers could make countless clothing without using actual resources. Finally, designer brands were usually located in 'Berlin,' or 'London,' and utilized 'African' textile, craftsmanship, or fabric. These findings were corroborated by the results of the network analysis. Therefore, it can be concluded that designer brands pursue eco-friendly values and social responsibility by reducing 'waste,' 'deconstructing,' following 'social or local' values, focusing on 'textile' reduction or upcycling, adhering to human-centered 'design' and hand-made processes. Then, a CONCOR analysis was performed, which can reveal the hidden subgroups and semantic structures of text. Two themes emerged from the analysis:

'Design & production,' and 'other activities.' Notable clusters were design philosophy ('handmade,' 'artistic,' 'unique,' 'vintage,' 'bespoke,' ' craft,' 'story,' 'value') and production method ('local,' 'employ,' 'deadstock,' 'supply-chain,' 'discarded,' 'upcycling'). Words such as 'animal protection,' 'inclusivity,' 'fair,' 'wage,' 'carbon footprint,' and 'raw material' indicate a tendency to improve the supply chain working conditions and environment and to use materials produced in sustainable ways.

To achieve sustainable business practices, transparency must be ensured throughout the fashion value chain, taking responsibility for society and the environment. The results of this study indicate that design entrepreneurs and start-up brands are making the effort to be sustainable, but minimal efforts have been made related to delivery, packaging, and store displays. It is expected that research on the use of eco-friendly packaging materials, reduction of packaging materials, recycling of store display fixtures, etc. will be conducted in the future by focusing on the product delivery and distribution process.

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