



The Use of Scratch as an Interactive Medium for Digital Fashion Catalogs: Creative Technology Integration in Education and the Local Creative Industry

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Abstract: The fashion industry continues to evolve alongside advancements in digital technology and the growing demand for interactive visual experiences. However, many small and medium enterprises (SMEs) and fashion design students still face limitations in creating innovative and accessible promotional media. This study explores the use of Scratch, a block-based visual programming platform, as an interactive medium for digital fashion product catalogs. The research adopts the ADDIE development model, encompassing the stages of needs analysis, interface design, prototype development, implementation, and evaluation based on feedback from designers, academics, and industry practitioners. The developed catalog prototype integrates navigation, animation, and sound elements to enhance user engagement. Findings indicate that Scratch enables the creation of interactive, aesthetic, and functional catalogs without requiring advanced programming skills. Beyond serving as a digital promotional tool, this approach also holds potential as a creative learning medium in the context of entrepreneurship and technological literacy. Thus, Scratch presents itself as an inclusive solution to support digital transformation in education and the local creative industry.

Keywords: Fashion industry, SMEs, Fashion design, Digital catalog, Interactive media, Scratch, Visual programming

1. Introduction

1.1 Background of Study

The fashion design industry is currently experiencing rapid dynamics, driven by advancements in digital technology (Fonna, 2019), shifting lifestyles, and the growing consumer demand for engaging and personalized visual experiences (Kridaningsih, 2023). The paradigm of fashion design has expanded beyond aesthetics and material functionality, evolving into a form of visual communication that blends art, culture, and technology (Sunarto, 2023). In this context, product presentation media play a crucial role in strengthening brand identity, expanding market reach, and creating immersive consumer experiences (Saptadi et al., 2024).

In Indonesia, local fashion trends such as modest fashion, urban casual wear, and the reinterpretation of traditional textiles (wastra nusantara) continue to thrive, fueled by emerging young designers and creative entrepreneurs who emphasize cultural identity and contemporary aesthetics (Hayat, 2018). This development highlights the growing need for promotional media capable of delivering strong and interactive visual messages.

Meanwhile, advances in interactive technology present new opportunities for visual media presentation, particularly through platforms such as Scratch a block-based visual programming environment developed by the MIT Media Lab. Scratch enables users including students and small business owners to create interactive media without requiring advanced programming skills (Susanto et al., 2025). Originally designed for teaching basic computer science, Scratch is now widely used for developing games, animations, simulations, and interactive presentations (Setiawan et al., 2023).

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Interactive design principles from the gaming world such as user engagement, narrative flow, and interface responsiveness have proven effective in creating compelling digital experiences and can be adapted for digital fashion catalog development (Pertiwi et al., 2025).

1.2 Problem Statement

Although the advancement of digital technology has opened up numerous new opportunities in the world of fashion design, a significant gap remains in its utilization, particularly among MSME actors, students, and novice entrepreneurs (Rela et al., 2025). One of the main challenges faced is the limitation of resources whether technical, financial, or access to advanced design software. Conventional promotional media, such as printed catalogs or static digital catalogs (e.g., PDFs), often fail to convey strong visual narratives or create engaging interactive experiences for modern consumers (Chatzigeorgiou et al., 2025). In today's digital era, consumers are accustomed to dynamic and interactive visual content found on social media, mobile applications, and digital games. As a result, passive promotional media are no longer effective in capturing attention or fostering user engagement.

Moreover, most interactive media development platforms available in the market require advanced technical skills, such as coding or the use of professional design software skills not commonly possessed by all creative practitioners, especially in regions with limited access to technology. This hampers the digitization process of product promotion, particularly for young designers and students who are still developing their entrepreneurial potential.

In this context, there is a need for a technological solution that is inclusive, accessible, and supportive of creative learning processes. Scratch, as a block-based visual programming platform, offers significant potential to address these challenges (Sonjaya & Munir, 2025). However, to date, there has been limited research specifically exploring the use of Scratch in the context of fashion design or interactive product promotion. Therefore, it is important to examine more deeply how this platform can be effectively utilized to support the development of interactive digital catalogs that align with both market demands and current educational needs.

1.3 Research Objective

The main objective of this study is to explore and analyze the potential of Scratch, a block-based visual programming platform, in the development of interactive digital promotional media, specifically within the context of fashion design (Shohifah, 2025). This research aims to gain a comprehensive understanding of how Scratch's intuitive and accessible features can be utilized by students, teachers, and small business owners to create fashion product catalogs that are not only visually appealing but also capable of providing a more immersive and communicative user experience.

A key focus of this study is the design and development of an interactive digital catalog prototype using Scratch, incorporating visual elements such as product images and descriptions, as well as interactive features including navigation buttons, motion animations, sound effects, and product selection tools that respond directly to user actions.

This study also seeks to evaluate the effectiveness of the developed prototype in delivering promotional messages in a more engaging and functional way compared to conventional static promotional media. Additionally, it aims to uncover the educational value of using Scratch as a creative learning tool across disciplines, integrating visual arts, digital technology, and entrepreneurship.

Through this approach, the study is expected to not only produce a practical technological solution but also strengthen digital literacy and design thinking skills among youth and local creative industry players. Ultimately, the outcomes of this research are intended to contribute meaningfully to the development of more inclusive promotional media and support the digital transformation of the education and creative fashion sectors in Indonesia.

1.4 Significance of the Study

This study holds significant value both academically and practically. From an academic perspective, it is expected to contribute to the growing body of literature on the use of creative technologies in fashion design and entrepreneurship education. By examining the application of Scratch as a tool for creating interactive promotional media, this research expands the utilization of visual programming platforms that have traditionally been associated with basic computer science education (Fields et al., 2015). It also offers new insights into the integration of visual arts, digital technology, and user interaction in the design process of effective promotional media.

From a practical standpoint, the study offers tangible benefits for students, teachers, and small business actors in the fashion sector who seek to develop digital promotional tools without relying on expensive and complex professional software. By introducing a more inclusive, accessible, and locally adaptable approach, Scratch emerges as a relevant alternative solution to enhance product promotion strategies, improve the visual appeal of catalogs, and foster digital creativity among novice users. Furthermore, the findings of this study can serve as a model for project-based learning that is applicable to vocational education and creative entrepreneurship curricula. Thus, this research has the potential to support digital transformation in both education and the creative industry, while empowering the younger generation to meet the challenges of the digital economy era.

2. Methodology

This study employs the ADDIE (Analysis, Design, Development, Implementation, Evaluation) model as its development approach, which is widely used in instructional design research due to its systematic and iterative nature (Ebrahimi et al., 2025). This model was chosen for its ability to facilitate the design and evaluation process of interactive digital products, particularly a fashion catalog developed using the Scratch application. Each phase in the ADDIE model is carried out sequentially and integratively to ensure the effectiveness and achievement of the development objectives.

2.1 Analysis Stage

The researcher conducted a needs assessment and identified challenges faced by the target users in the context of fashion catalog design and distribution. This activity involved a literature review as well as exploratory interviews with key informants to identify the characteristics of conventional catalog media, the need for interactive media, and the potential of utilizing Scratch as an inclusive and creative technological solution (Pane, 2024). The information gathered served as the foundation for formulating the initial design specifications of a media product that is relevant to the needs of both industry and education.

2.2 Design Stage

The researcher designed the structure of the interactive catalog, including navigation flow, product information layout, user interface, as well as visual and animation elements to be presented on the Scratch platform, referring to Figure 1, then continuing to Figure 2, and so on. The design was based on graphic design principles and user experience strategies commonly applied in game development, in order to create engaging and easily accessible interactions. The researcher also developed interactive scenarios to ensure user engagement throughout the catalog exploration process.

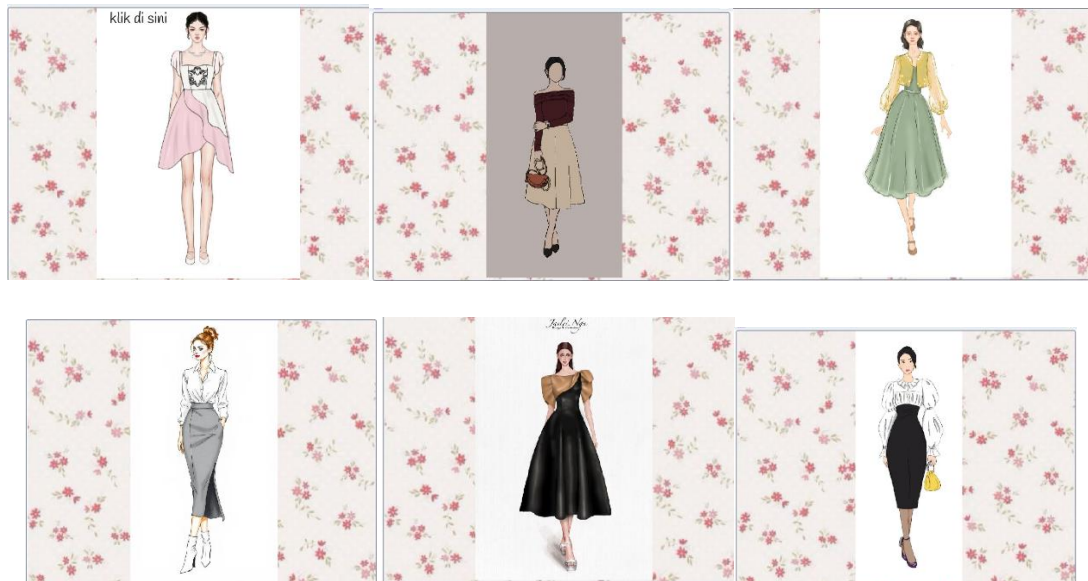


Figure 1: Fashion Design

2.3 Development Stage

The Development stage was carried out by implementing the design into an interactive catalog prototype within the Scratch environment. The development process involved creating visual programming scripts to support key functions such as product navigation, product description display, basic animations, and sound integration. The prototype was tested internally to ensure that all elements functioned according to the design.

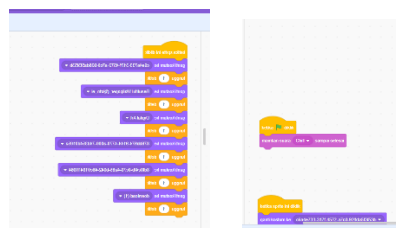


Figure 2: Coding

3. Results

The results of the study indicate that the development of an interactive digital fashion catalog using Scratch through the ADDIE approach significantly addresses the limitations of conventional catalogs. In the initial phase, exploratory interviews with various stakeholders revealed that traditional catalogs whether printed or static digital formats—have numerous shortcomings, such as limited adaptability to fashion trends, poor product storytelling capabilities, and a lack of interactivity to engage modern digital consumers. These findings served as a crucial foundation for designing an interactive catalog that integrates intuitive navigation flow, dynamic visual elements, and interactive features such as animation and sound.

During the implementation and evaluation stages, the prototype was tested by six participants representing diverse backgrounds: two fashion industry experts, two MSME practitioners, and two academics in the fields of visual communication design and educational technology. Semi-structured interviews revealed that participants responded positively to Scratch as an accessible interactive platform that does not require advanced programming skills. They found that Scratch allows users to independently and enjoyably explore catalog content, with product-to-product navigation, interactive descriptions, and animations that enhance the overall user experience.

Nevertheless, several participants also offered suggestions for future improvements. They proposed enhancements in visual quality through better color contrast, refined typography, and the addition of features such as image zoom, background music, and more varied and interactive pages. Thematic analysis of the participants' narratives provided in-depth insights into current user needs and expectations for digital catalog media. These findings affirm that the use of Scratch as a fashion promotion tool not only enriches the visual presentation but also supports a creative and adaptive entrepreneurial learning process in response to technological advancements.

4. Implementation

The Implementation stage involved prototype testing with a group of key participants, consisting of fashion industry experts, fashion practitioners, and academics in the fields of design and educational technology. Participants were asked to use the interactive catalog and provide feedback through structured interviews. This activity aimed to obtain direct input on the clarity of the interface, ease of use, content relevance, and the potential for real-world implementation.

4.1 Evaluation

Finally, in the Evaluation stage, the researcher assessed the effectiveness and quality of the interactive catalog based on feedback from the participants. The evaluation was conducted formatively by identifying areas that required improvement in terms of both design and functionality. The feedback was analyzed using a thematic analysis approach, which allowed the researcher to systematically interpret qualitative data, identify emerging dominant themes, and formulate conceptual and practical implications from the findings.

4.2 Semi Structured Interview

This instrument was designed to gather in-depth yet focused information, with questions centered on participants' perceptions of the catalog design, media interactivity, and the relevance of using Scratch in the context of fashion product promotion.

The participants in this study consisted of six individuals selected purposively to represent diverse and insightful perspectives. They included two fashion industry experts (a senior fashion designer and a local brand owner), two creative practitioners (a young designer and a fashion-focused MSME entrepreneur), and two academics with backgrounds in visual communication design and educational technology. The involvement of these various stakeholders enabled the researcher to gain rich and relevant insights aligned with the development objectives.

4.3 Thematic Analysis

Thematic analysis is a qualitative approach that focuses on identifying patterns or key themes within participants' narratives. The analysis process began with data coding, followed by categorization, and interpretation of thematic meanings related to the effectiveness of the catalog design, the practicality of using Scratch, and the media's contribution to both the learning process and product promotion. This analysis provided a comprehensive understanding of participant responses and assisted the researcher in formulating recommendations for further development.

4.4 Thematic Summary of Respondents' Answers

Based on the results of thematic analysis, four main themes emerged. First, the limitations of conventional catalogs include their static nature, lack of interactivity, minimal narrative elements, inflexibility, and limited accessibility. Second, the benefits of digital interactivity were evident in its ability to enhance user engagement, convey the aesthetic value of products, and encourage deeper content exploration. Third, Scratch was perceived as an accessible visual promotional medium that does not require advanced coding skills, making it suitable for students and MSME

practitioners. Fourth, the evaluation of the prototype revealed that the navigation and animation features were considered engaging, although some aspects such as typography, color schemes, and multimedia elements could be further improved.

Table 1: Respondent's answers.

Respondent Code	Primary Job Position	Relevant Work Experience	Role in the Research
R1	Senior Fashion Designer	>15 years in the local fashion industry	Provided expert insights on fashion design and catalog promotion
R2	Owner of a Local Fashion Brand (MSME)	10 years building a modest fashion brand	Assessed promotional needs and feasibility of digital media
R3	Young Fashion Designer	3 years as a freelance fashion stylist	Represented young and digital-native designers in promotional practices
R4	Fashion MSME Practitioner	7 years producing ready-to-wear clothing	Evaluated Scratch's accessibility and benefits for MSMEs
R5	Academic – Visual Communication Design (VCD)	12 years teaching interactive design	Provided evaluation on visuals, typography, and prototype interface
R6	Academic – Educational Technology	11 years teaching digital educational media	Analyzed the potential of Scratch as a creative learning tool
R7	Interactive Practitioner Multimedia	8 years in animation and UI design	Offered technical feedback on animation and visual interactivity
R8	Vocational School Teacher – Fashion Design	9 years guiding fashion design students	Assessed the tool's relevance for vocational/design students
R9	Fashion Branding Consultant	6 years working with local fashion brands	Evaluated the catalog's narrative strength and visual identity

4.5 Table of Research Respondents' Data

To provide a comprehensive overview of the study participants, the demographic characteristics of the research respondents are summarized in Table 2. These data describe the composition of the sample and support the interpretation of the subsequent analyses.

Table 2: Respondents' data

Respondent Code	Primary Job Position	Relevant Work Experience	Role in the Research
R1	Senior Fashion Designer	>15 years in the local fashion industry	Provided expert insights on fashion design and catalog promotion
R2	Owner of a Local Fashion Brand (MSME)	10 years building a modest fashion brand	Assessed promotional needs and feasibility of digital media
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R6	Academic – Educational Technology	11 years teaching digital educational media	Analyzed the potential of Scratch as a creative learning tool
R7	Interactive Multimedia Practitioner	8 years in animation and UI design	Offered technical feedback on animation and visual interactivity

Respondent Code	Primary Job Position	Relevant Work Experience	Role in the Research
R8	Vocational School Teacher – Fashion Design	9 years guiding fashion design students	Assessed the tool’s relevance for vocational/design students
R9	Fashion Branding Consultant	6 years working with local fashion brands	Evaluated the catalog’s narrative strength and visual identity

The respondents in this study were selected using purposive sampling to ensure diversity of backgrounds and the relevance of their experience to the research topic. The composition of respondents included a combination of academics, fashion industry practitioners, and educators, designed to strengthen data validity through perspective triangulation. The respondents not only served as informants but were also directly involved as evaluators of the Scratch-based digital catalog prototype. Therefore, their contributions were twofold: providing conceptual insights as well as practical feedback on the implementation of interactive media within the context of fashion design promotion and education.

5. Conclusion

The use of Scratch as an interactive medium for digital catalogs in fashion design demonstrates significant potential in addressing the challenges of innovative, inclusive, and accessible product visualization. The findings of this study indicate that conventional fashion catalogs are perceived as lacking interactivity, narrative depth, and the ability to meet the expectations of today’s digital consumers. By utilizing Scratch’s visual, animation, and navigation features, interactive catalogs can enhance user engagement, strengthen the aesthetic appeal of products, and support creative learning among students and small business owners.

The developed prototype proved effective in delivering an immersive and educational user experience. Respondents from diverse backgrounds endorsed Scratch as an alternative platform for visual promotion that does not require advanced programming skills. Through a design approach grounded in game principles and user engagement, the catalog functions not only as a marketing tool but also as a medium for developing technological literacy in the field of fashion design. This integration of creative technology contributes to a more equitable and sustainable digital transformation of Indonesia's creative economy sector.

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Conflict of Interest

The authors declare no conflict of interest.

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