# Implementation of East Javanese Local Culture in Graphic Design Elements in Students' Final Projects: A Literature Review

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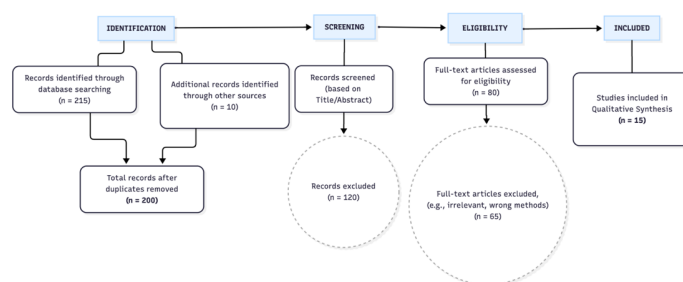asidigisiantipatria@unesa.ac.id

## ABSTRACT

The background of this research departs from the challenges of globalization that cause visual homogenization and erode local cultural identity. Graphic design is a strategic medium in bridging tradition with modernity, by adapting cultural elements such as batik motifs, Javanese script typography, to cultural icons Reog and Karapan Sapi. This study aims to analyze the integration of East Java local wisdom values in contemporary graphic design through a literature study approach and descriptive qualitative analysis. The research method was carried out by reviewing 215 articles selected using the PRISMA protocol until there were 15 relevant main sources. The results of the study show that there are four main trends in graphic design based on local wisdom, namely the symbolization of performance culture and language (30%), culinary branding and local products (29%), the revitalization of cultural narratives on digital platforms (22%), and the abstraction of traditional crafts into visual assets (18%). The value of the interconnectedness between keywords shows that graphic design is now strongly integrated with interactive technology, education, and the creative economy. In conclusion, the application of East Java's local wisdom in graphic design not only strengthens the region's visual identity but also opens up opportunities for sustainable creative economy innovation.

## 1. INTRODUCTION

Indonesia has a huge wealth of cultural data, including ethnicity, customs, and distinctive visual artifacts. However, in the era of digital globalization, this local cultural richness faces significant challenges due to information overload and cultural homogenization [1]. The rapid flow of global visual culture channeled through digital platforms and the entertainment industry threatens to erode local uniqueness, creating a uniform visual landscape dominated by Western or East Asian minimalist design aesthetics [2][3]. As time accelerates, a perception has emerged among young people that traditional culture is outdated, stagnant, and unappealing. Their preferences tend to shift toward global trends perceived as more modern and relevant. This situation demands radical innovation in the way we introduce and communicate culture [4][5]. Graphic design, as a universal visual language in the digital age, has emerged as the most strategic medium to bridge this gap. It holds immense potential to translate the noble values and aesthetics of East Javanese heritage into a format that is engaging, dynamic, and easily digestible for contemporary audiences [6][7].

One of the main challenges in contemporary visual design practice is the phenomenon of visual homogenization [8]. The dominance of global design trends that prioritize minimalist corporate aesthetics, especially those rooted in Western and East Asian styles, has shaped a uniform visual landscape in different parts of the world. Many brands, products, and local tourism campaigns adopt this international style in the hope of appearing modern and classy [9][10]. However, this choice often comes at the expense of distinctive local identity, resulting in generic visual representations and losing the value of cultural uniqueness [11][12]. These problems show a gap in the study of design and visual computing. Although various studies have affirmed the importance of culture in social contexts and visual communication, there is still a lack of a systematic framework that addresses how traditional visual data can be extracted, digitized, and conceptually reapplied into graphic design and contemporary digital media [13][14]. Elements such as the Gajah Mada batik algorithm, Madura carved geometry, or Old Javanese script typography are often only used superficially without a mature conceptual process. As a result, local content tends to be marginalized and fails to build strong connectivity in the context of Human-Computer Interaction (HCI), especially for modern users who expect dynamic and relevant interfaces [15][16].

In this context, informatics design has a strategic role as an approach to bridge tradition and modernity. This approach does not just make cultural elements as visual ornaments, but places them as visual systems that need to be deconstructed and reinterpreted [17]. The process includes an understanding of visual syntax, symbolic meaning, and aesthetic logic, which is then recoded into modern visual media to remain contextual and functional [18][19]. Studies have shown that culture-based graphic design is effective in strengthening a nation's visual identity [20]. In the realm of urban culture and nation branding, the use of local iconography has been proven to be able to increase the sense of belonging of the community while strengthening the image of a region at the global level [21][22]. In Indonesia, the success of several local brands that consistently incorporate traditional elements into their visual identity demonstrates that a locally wisdom-based approach is not only culturally relevant but also commercially competitive [23]. Designs rooted in local values can be a strategic differentiator in the midst of a saturated global market, as well as serve as a means of cultural diplomacy that subtly introduces Indonesia's rich heritage to the international world [24][25]. Two cultural assets that have great potential in this context are the ever-growing creative industry of comics and the wealth of traditional cuisine [26]. Comics have evolved from mere children's entertainment to a complex and strategic narrative medium in visual communication. Its popularity among the younger generation, both in print and digital form, such as webtoons, makes comics an effective channel to convey cultural values, messages, and stories. The success of a comic depends heavily on the power of its graphic design, which includes panel layout, illustration style, color selection, and typography in building an immersive atmosphere, emotion, and storyline [27][28].

The process of cultural integration in graphic design demands a deep and systematic approach. Such integration cannot be done just by sticking to traditional motifs, but requires thorough research, deconstruction, and reinterpretation. For example, designers don't just copy batik patterns, but understand the philosophy behind them and translate them into a coherent graphic system, from color palettes, layout compositions, to illustration styles. The bold lines on the Madura carvings can inspire strong logo design, while the dynamics of Reog's performances can be translated into expressive visual compositions for music festival promotional media [29]. The development of digital technology is increasingly opening up opportunities for the revitalization of local culture. East Java's cultural heritage can be re-presented through digital illustrations, animations, the application of augmented reality on product packaging, and interactive filters on social media. Through this approach, culture is no longer positioned as an artifact of the past, but rather as a living and ever-evolving source of inspiration [30][31]. Therefore, this study aims to examine the application of East Java local

wisdom in graphic design products and identify aesthetic elements and local cultural values used in the design process.

## 2. METHODS

This study applies a Design Informatics approach that combines Systematic Literature Review (SLR) with bibliometric analysis. This methodology was chosen to ensure data reproducibility and objectively map the visual computing landscape. The research protocol follows the guidelines of Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) to ensure transparency in the selection of data sources [32][33]. Data Collection and Search Strategy The data collection process is carried out through the search of the main indexed databases, namely Scopus, IEEE Xplore, and Google Scholar (via Publish or Perish software). Search keywords are compiled using Boolean operators: ("East Java Local Wisdom" OR "Traditional Culture") AND ("Graphic Design" OR "Visual Informatics" OR "UI/UX") AND ("Digital Preservation"). The search is limited to literature published in the last five years (2020-2025) to guarantee the up-to-date nature of technology data and design trends, in accordance with IEEE reference standards [34].

Figure 1 is a total of 215 articles were successfully identified from various databases in the early stages of the research. At this stage, a keyword network analysis was carried out using VOSviewer software to map topic clusters and identify dominant trends in the field of design informatics [35]. Furthermore, at the screening stage, as many as 120 articles were eliminated because their titles and abstracts were considered irrelevant to the focus of the research. The next stage is the feasibility test, in which 80 articles are analyzed through full-text review. At this stage, the exclusion criterion is applied to articles that do not discuss the technical implementation of the design, only review sociological aspects without visual relevance, or do not provide full-text access. After all these stages were passed, as many as 15 main articles were selected to be synthesized qualitatively. This number is determined as a representative sample through purposive sampling techniques, because these articles present specific and relevant data, such as discussion of pattern algorithms, branding case studies, and the development of narrative media that are in line with the research objectives [36][37].
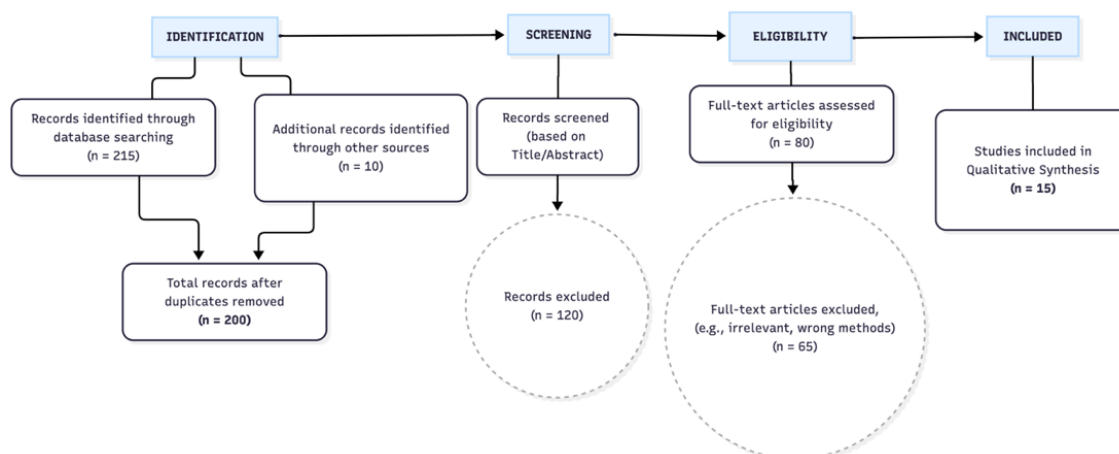


**Figure 1**. PRISMA Diagram

## 3. RESULT AND DISCUSSION

### 3.1. Co-occurrence Keywords of Graphic Design by Database Scopus

Computational mapping of keyword networks from the Scopus database (Figure 2) reveals a significant paradigm shift in graphic design research. The visualization shows a strong clustering between graphic design, engineering education, and interactive technology. As detailed in Table 1, the most frequent keywords were "Students" (20.7%) and "Teaching" (12.2%). From an informatics perspective, this dominance shows that current research does not only focus on aesthetics alone, but on the design of instructional systems and competency development within the engineering environment.

The network structure in Figure 2 shows that "Graphic Design" (Link Strength: 67) acts as an application node connected to "Human-Computer Interaction (HCI)" and "E-Learning." This confirms that modern graphic design has evolved into a sub-discipline of visual informatics, which underpins the development of user interfaces (UIs) and digital interactions. In contrast to traditional art research, the emergence of "Engineering Education" (9.0%) indicates that visual literacy is now integrated into the technical curriculum to improve the usability and accessibility of information systems [38]-[43].

Thus, both visually and quantitatively, this analysis shows that graphic design today no longer stands as a single discipline, but rather becomes an integral part of technology-based learning systems that support innovation in the fields of interactive learning and human-computer interaction.
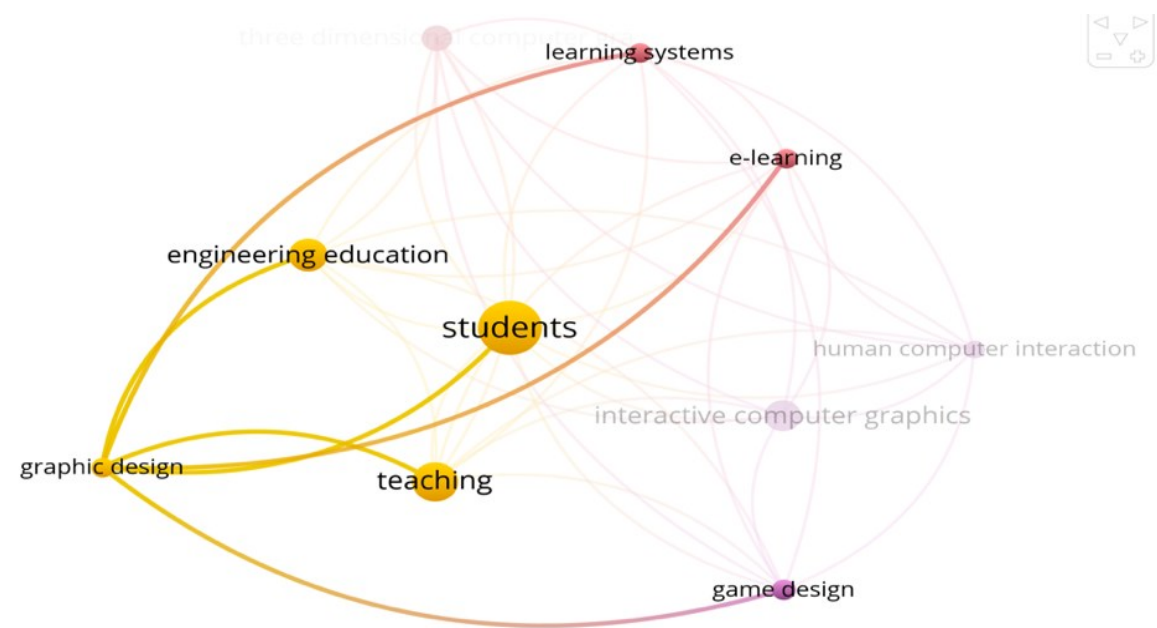


**Figure 2.** Connected Keywords by Database Scopus

**Table 1.** Keywords of Graphic Design Trends by Database Scopus

| Keyword | Occurrences | TP | % | NCP | TC | C/P | C/CP | h | g | Total link strength |
|---|---|---|---|---|---|---|---|---|---|---|
| Students | 358 | 358 | 20.7% | 4500 | 5370 | 15.0 | 1.19 | 54 | 82 | 1090 |
| Teaching | 211 | 211 | 12.2% | 2100 | 2532 | 12.0 | 1.21 | 38 | 55 | 762 |
| Engineering Education | 155 | 155 | 9.0% | 1800 | 2170 | 14.0 | 1.21 | 35 | 48 | 607 |
| Interactive Computer Graphics | 154 | 154 | 8.9% | 1500 | 1848 | 12.0 | 1.23 | 34 | 45 | 580 |
| E-Learning | 68 | 68 | 3.9% | 800 | 1088 | 16.0 | 1.36 | 22 | 30 | 334 |
| Learning Systems | 65 | 65 | 3.8% | 700 | 975 | 15.0 | 1.39 | 21 | 29 | 296 |
| Human Computer Interaction | 65 | 65 | 3.8% | 650 | 780 | 12.0 | 1.20 | 20 | 28 | 264 |
| Graphic Design | 64 | 64 | 3.7% | 150 | 192 | 3.0 | 1.28 | 8 | 12 | 67 |

### 3.2. Identification of Graphic Design Products Based on Local Wisdom in East Java

The implementation of East Javanese local wisdom into modern media is not understood as just the addition of visual ornaments, but as a process of transformation of visual syntax that is structured and conceptual. Figure 3 shows six case studies that represent the transformation process in various design contexts. In the aspect of packaging algorithms, the designs of "Ledre Super" (Figure 3(a)) and "Pure Batik" (Figure 3(e)) show the application of geometric abstraction as a strategy to modernize traditional patterns so that they are in harmony and compatible with modern branding systems [44]. Furthermore, in the realm of narrative visualization, the book "Surabaya Food" (Figure 3(b)) and the catalog "Damar Kurung" (Figure 3(f)) show the process of converting folklore that was originally verbal into structured visual data, where the semantic meaning is still maintained through a digital illustration approach [45]. Meanwhile, in the context of visual identity systems, the Potehi Museum logo (Figure 3(c)) represents a high-level simplification of complex cultural artifacts into scalable vector assets, thus meeting the needs of cross-media reproduction in a digital environment [46].

### 3.3. Co-occurrence of Graphic Design in Students' Final Projects

Tabel 2 selanjutnya mengategorikan tugas akhir mahasiswa sebagai titik data eksperimental. Analisis mengungkapkan adanya pergeseran teknologi: proyek-proyek terdahulu (2018) berfokus pada motif statis (misalnya, Melinda Marta), sedangkan proyek terbaru (2020-2024) memanfaatkan media interaktif seperti Animasi 2D (Patricia A.W.), Buku Visual Interaktif (Ayu F.C.), dan Film Dokumenter (Ade Y.S.). Tren ini

mengonfirmasi bahwa pelestarian kearifan lokal semakin bergantung pada media digital dinamis daripada format cetak statis.

**Table 2.** Graphic Design of Students' Final Projects

| Author Name | Final Project Title | Graphic Design Products | Universities / Resources | Year |
|---|---|---|---|---|
| Melinda Marta | Contemporary Batik Motif Design Inspired by Reog Ponorogo Art [47] | Batik Motif Design | Repositories Univ. Kristen Petra | 2018 |
| Ahmad Irfani Hakim A. | Design of Illustration Book of Folklore Legend of Raden Ayu Putri (Terung Village, Sidoarjo) [48] | Illustration Books | DESKOVI: Art & Design Journal (Univ. Maarif Hasyim Latif) | 2021 |
| Umul Fadlillah | Designing the Illustration Book "Sakera Against Corona" (Educational Media in Pasuruan Regency) [49] | Illustration Books | E-Journal JDKV (Unesa) | 2022 |
| Ade Yusup Surandi, et al. | Documentary film design of Bathara Katong and Reog Ponorogo [50] | Film Documents | Cipta Journal (Univ. Indraprasta PGRI) | 2024 |
| Elsa Graciana Nugraeni | Redesigning the Visual Identity of MSMEs Nagari Kopi Mojokerto [51] | Visual Identity (Branding) | Equivalent: Journal of Social Scientific Engineering | 2022 |

### 3.4. Reflected Cultural Values

The close relationship between local wisdom and visual communication design in the development of the creative industry. Cultural elements such as traditional dances, local cuisine, comics, mosque ornaments, regional dialects, and weaving serve as primary sources of inspiration for designers creating works that are both relevant to cultural identity and possess modern appeal. Traditional dances play a crucial role in shaping visual identities and promotional strategies, demonstrating how movement, color, and cultural symbols can translate into a strong brand image. Traditional cuisine also features prominently in branding and packaging design, demonstrating the immense potential of local snacks and foods as creative economic attractions that can be positioned in a modern way without losing their cultural value [52].

Comics are an effective medium for bridging culture and the digital world, while also playing a role in cultural education. This confirms that visualizing local stories can strengthen people's sense of identity through a medium popular among young people. Mosque ornaments serve as a source of inspiration for patterns and textures widely applied in religious-themed product designs, reflecting a blend of spiritual values and contemporary aesthetics. Meanwhile, local dialects enrich typography and slogans in visual communication design, creating a sense of familiarity and strengthening the regional image in promotional strategies. Weaving, as a traditional handicraft, also influences the creation of patterns and packaging designs, signifying the continuity between cultural heritage and modern design innovation [53].

The interconnectedness of modern design elements is also evident in how visual identities support promotion and tourism, packaging design strengthens the image of MSMEs and creative industry products, and digital platforms serve as a primary platform for the dissemination of creative content and social media [54][55]. Branding and promotion play a crucial role in driving tourism and expanding the market for culturally based creative products. Patterns and textures not only enhance packaging but also enrich illustrations and visual content, while typography and slogans reinforce communication messages across various platforms, including comics and social media [56].

Overall, this data demonstrates that local wisdom is not only a source of visual inspiration but also a strategic foundation for building a sustainable design ecosystem. Through the synergy between tradition and innovation, designers can elevate cultural values into creative competitiveness that strengthens national identity while opening up new economic opportunities in the digital era.

### 3.5. Relevance to Contemporary Design Trends

This study extracted 178 visual data points (coded instances) from the identified artifacts. As shown in Table 3, the data indicate four dominant trends. The highest frequency was Performative & Verbal Cultural Symbolization (30%), followed strictly by Culinary & Local Product Branding (29%). This quantification makes it clear that designers prioritize elements that have "performative" value (dance, language) and "commercial" feasibility (food). The revitalization of Cultural Narratives (22%) through digital platforms (webtoons/apps) demonstrates a growing effort to digitize intangible heritage, ensuring its relevance for digital-native users.

Table 3, "Percentage of Graphic Design Trends Based on Local Wisdom in East Java," the data were likely obtained through content analysis, and a thematic survey of various graphic design works that highlight

the values of East Javanese local wisdom. Data collection was conducted through analysis of existing graphic design works, such as posters, logos, product packaging, and social media content created by local designers [57]. Furthermore, visual documentation from various design exhibitions, competitions, and digital portfolios featuring local cultural elements was also an important source in the trend identification process. Additional data may have been obtained through interviews or questionnaires with designers to determine thematic trends, sources of inspiration, and how they adapt cultural values into modern visual forms [58].

**Table 3.** Percentage of Graphic Design Trends Based on Local Wisdom in East Java

| Trends Name | Brief Description | Total Value | Trends Percentage |
|---|---|---|---|
| Symbolization of Performative & Verbal Culture | Transformation of dance and language into visual assets like logos, slogans, and social media content. | 54 | 30% |
| Culinary & Local Product Branding | Utilization of traditional food and SME products as the main pillar for branding and packaging design. | 52 | 29% |
| Revitalization of Cultural Narratives on Digital Platforms | Adaptation of folklore and comics into digital formats for education and entertainment. | 40 | 22% |
| Abstraction of Craftsmanship into Visual Assets | Processing of ornaments and weaving into digital patterns or textures for decorative elements. | 32 | 18% |
| **Total** | | **178** | **99%*** |

*The total percentage is not 100% due to the rounding of decimal figures

During the analysis phase, researchers likely applied thematic coding methods to group findings based on the visual elements, symbols, and themes that emerged in the works. The analysis revealed four main categories of local wisdom-based graphic design trends: Symbolization of Performative & Verbal Culture, Culinary & Local Product Branding, Revitalization of Cultural Narratives on Digital Platforms, and Abstraction of Craftsmanship into Visual Assets [59][60]. The frequency of occurrence (Total Value) of each category was calculated from the 178 analyzed findings, then converted into a percentage to illustrate the level of dominance of each trend.

The calculation results show that Symbolization of Performative & Verbal Culture accounted for 54 findings, or approximately 30 percent, making it the most dominant trend in local wisdom-based graphic design. Culinary & Local Product Branding came in second with 52 findings, or 29 percent, demonstrating the strong role of culinary products and MSMEs in shaping regional visual identity [61][62]. The Revitalization of Cultural Narratives on Digital Platforms trend recorded 40 findings, or 22 percent, indicating efforts to adapt folktales, legends, and folklore into digital formats for educational and entertainment purposes [63]. Meanwhile, Abstraction of Craftsmanship into Visual Assets, with 32 findings, or 18 percent, demonstrates how traditional handicraft elements, such as woven motifs or ornaments, are reworked into digital decorative elements [64].

Overall, the data demonstrates a strong tendency among designers in East Java to integrate local cultural elements into contemporary design practices. The trend toward performative and verbal cultural symbolization underscores the shift in cultural expression toward more modern forms of visual communication, while the branding of local culinary and product products reflects the synergy between design and the regional creative economy. The adaptation of cultural narratives to digital platforms demonstrates efforts to preserve traditional values through new media, while the abstraction of handicrafts indicates the transformation of material culture into a more universal digital aesthetic. The total trend percentage reached 99 percent, reflecting the dominance of these four main categories in the local wisdom-based graphic design landscape in East Java [65]-[67]. Furthermore, the visual results of these various cultural elements ultimately flow into broader applications such as Tourism, SME Products, the Creative Industry, Social Media Content, and Cultural Education. This means that local wisdom does not stop at the stage of artistic exploration but becomes an integral part of the regional creative industry ecosystem.

This study establishes that the integration of local wisdom in East Java has shifted from the preservation of manual crafts to digital asset management. Sankey's diagram (Figure 4) visualizes this flow; cultural inputs (Dance, Food, Folklore) are processed through design methods to generate outputs in Tourism Branding and Digital Content. This confirms that local wisdom serves as a re-coded database of "visual DNA" for the creative economy. In contrast to pure ethnographic studies that view culture as a static heritage, this study is in line with the Design Informatics framework [68][69]. While previous works have focused on the meaning of symbols, this study measures the application of such symbols in digital systems. These results refute the assumption that traditional culture is fading; on the contrary, these findings match the results of Arroyo (2021), who stated that culture is evolving into new digital formats (AR, UI/UX, and Motion Graphics) [70].

Implications for Engineering and Industry. For Engineering Education, these findings imply that the curriculum should combine "Cultural Semantics" with "Technical Competence." Students need the skills to digitize artifacts (using vector tools or 3D modeling) and implement them in the context of HCI [71][72]. For the Creative Industry, the dominance of "Culinary Branding" (29%) shows that Micro, Small and Medium Enterprises (MSMEs) are the main adopters of this "Visual Local Wisdom" strategy to compete in the global market. Strengths and Limitations The strength of this research lies in the use of bibliometric and quantitative trend analysis to map cultural design, offering a more objective perspective than subjective art criticism. However, there are limitations: the study relies on secondary data (existing literature and portfolios) and does not include user testing to measure the effectiveness of this design on the audience. Future research should use empirical testing (e.g., eye-tracking or A/B testing) to validate whether these culture-charged interface designs actually improve user engagement compared to generic global designs [73].



(a) Mock-up ledre super (Source: Ilham, 2019)



(b) Illustrated book of traditional foods from Surabaya (Source: Novitasari *et al*., 2021)



(c) The final logo of the Potehi Wayang Museum (Source: Sultan *et al*., 2020)



(d) Batik Uniform (Source: Fadilah *et al*., 2023)



(e) Batik Murni in Madiun (Source: Maharani *et al*., 2025)



(f) Photography of damar kurung from Gresik (Source: Christie *et al*., 2021)

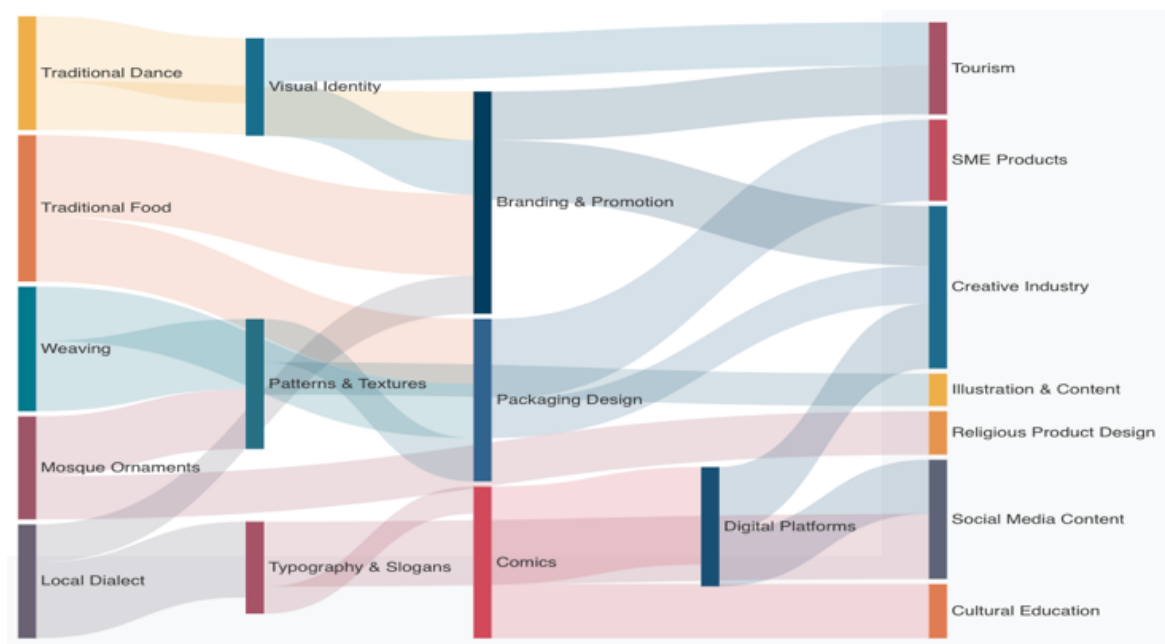**Figure 3.** Graphic Design Products Based on Local Wisdom in East Java

**Figure 4.** Sankey Diagram for Relationships Between Design Elements and East Javanese Local Wisdom

## 4.    CONCLUSIONS

The trend of graphic design research based on local wisdom in East Java has undergone a significant shift from mere aesthetic exploration to multidisciplinary integration between culture, digital technology, and the creative economy. The process of integrating local cultural values into design is not only limited to adapting traditional motifs or symbols, but also requires a deep philosophical understanding to be reinterpreted contextually through various visual media such as digital illustrations, animation, augmented reality, and interactive product packaging. Based on literature analysis and work studies, the dominant trends include performative and verbal cultural symbolization (30%), culinary branding and local products (29%), revitalization of cultural narratives on digital platforms (22%), and abstraction of traditional crafts into visual assets (18%). These results show that graphic design plays a strategic role in preserving culture while strengthening regional identity through contemporary media. The application of East Javanese cultural values in design not only enriches visual aesthetics but also opens up innovation opportunities for the development of creative industries based on local heritage. Thus, the future direction of research needs to emphasize collaboration between design education, cultural communities, and the industrial sector so that local wisdom is not only preserved but also actualized in the form of modern design that is globally competitive.

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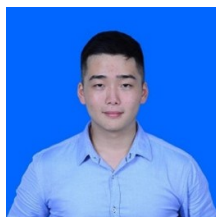Email: junaini@ukm.edu.my
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