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Textile Sustainable Development Related to Culture: A Scientometric Approach

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ABSTRACT

The sustainable development of textiles has been a notable concern for the textile industry and society in recent years. From green textiles and circular textiles to cultural textiles, academia has conducted many explorations. The problem of the connection between the cultural needs of increasingly educated consumers and the development of textiles has become increasingly prominent, which has also triggered many new social problems. This study aims to explore how culture promotes sustainability in textiles and can meet consumer demands. This study uses scientometric methods to conduct a thematic analysis of cultural factors in the development of textiles. From 2013 to 2023, the Web of Science and Scopus databases included a total of 306 articles related to the cultural factors in textiles. The results of this study are as follows: 40 main research keyword clusters appeared in the knowledge base, 6 research themes were identified, and a conceptual framework of culture in the development of textiles was constructed. At the same time, this study provides suggestions on how to better establish communication between textiles and culture. The results of this study will help textile practitioners better understand the current status, hot spots, and research trends of cultural sustainability in the textile industry while establishing closer connections with consumers.

KEYWORDS

textile, sustainability, culture, scientometrics

INTRODUCTION

The textile industry is considered one of the industries that faces huge challenges in integrating sustainability into its business practices. As an industry that provides basic human needs, the textile industry's contribution to the economy is positive, but it also has many environmental and social problems at the level of sustainable development [1]. Not only does textile production consume a large amount of energy, but social problems are also serious. Excluding social issues such as fair trade [2] and social responsibility of the textile industry [3], due to the consumption orientation of fast fashion and disposable culture, the lifespan of textile products has shortened, resulting in \$400 billion worth of textiles being wasted annually [4]. This phenomenon also reflects that current consumers will consider the cultural attributes of products when purchasing. The current fast-fashion textile culture does not foster sustainable development. For traditional textile culture itself, the current consumption orientation is also not conducive to the protection and inheritance of textile culture [5]. Therefore, to

solve these increasingly prominent problems, it is necessary to emphasize the role of culture in textile sustainability.

Culture not only enriches the connotation of textile products but also plays an important role in the economic added value of textile products [6]. Textile culture refers to the accumulated practices, beliefs, knowledge and values associated with the production, use and significance of textiles in a particular society. This includes the historical development, traditional craftsmanship, symbolism and socio-economic role of textiles, and their impact on identity, heritage and cultural expression. Textile culture also involves the study of how textiles intersect with various aspects of life, reflecting the complex interplay between material culture and social norms [7-8]. Therefore, it is very necessary to explore the sustainable development of textiles from a cultural perspective. Relevant research involves collectivism [9], personal morality [10]; perceived aesthetic risk [11]; knowledge, attitude and practice [12]; materialism and product usability [13]; perceived value [14]; optimism, pessimism, perceived consumer effectiveness and environmental concerns [8]; religious influence [15]; cultural values [14]; cultural heritage [16]; textile system [17]; ethics [18]; sustainable development [19]; aesthetics [20], etc. Many scholars have conducted relatively independent research on textile culture from different perspectives or disciplines. There is presently a deficiency in the systematic integration of these independent studies, rendering it challenging to distinctly identify research focus or trends. This may lead to an oversight of the current research status and key issues grounded in reality.

A scientometric literature analysis is a method that helps subsequent researchers develop an in-depth understanding of a specific target area [21]. Existing cultural research in the field of textiles focuses on the study of specific measures, lacks a systematic perspective, and is prone to subjective interpretation bias [22]. Therefore, the main purpose of this study is to conduct a comprehensive analysis of cultural research in the field of textiles through scientometric analysis and with the help of keyword co-occurrence, document co-citation, cluster analysis, and other techniques. The results of this study include cultural research themes and a conceptual framework within the field of textiles. At the same time, this study provides suggestions on how to better establish communication between textile culture and consumers. The results of this study will help textile practitioners better understand the current status, hot spots, and research trends of cultural sustainability in the textile industry while establishing closer connections with consumers.

MATERIALS AND METHODS

This study employed scientometrics as a research methodology. It aims to impartially unveil patterns, dynamics, and the impact of scientific publications, along with the interconnections between authors, institutions, and research topics [23].

Tool Selection

Thematic analysis is the identification of patterns and construction of themes through in-depth reading of topics, which helps in understanding culturally relevant textile research trends [24]. Thematic analysis was a suitable method in this study to identify themes in a less mature field [25]. This research selects CiteSpace as the analysis tool. CiteSpace provides a valuable, timely, replicable, and flexible method to track research trends and identify critical evidence [26]. Using CiteSpace for literature analysis can identify cutting-edge areas, gather specialized research areas, and examine research trends by identifying emerging value [27]. Its application enhances a comprehensive understanding of the academic landscape and facilitates insightful observations of research dynamics [28]. This article aims to scrutinize and interpret the existing literature review concerning culturally pertinent textiles, an area that has garnered increasing scholarly interest but is presently constrained in scope. The objective is to capture essential data pertinent to the research goals through thematic analysis, aiming to elucidate discernible patterns within the research dataset [25].

Data Collection

To ensure rigour and appropriate literature collection, the selection of data followed the PRISMA protocol [29]. The first stage is to identify keywords and databases. This study needs to determine the knowledge status of culture in textiles, so a combination of research terms in the corresponding fields of these two keywords is used. Overall, a total of 6 keywords were identified and converted into search strings. The last search string used was ("culture" or "cultural") AND "textile" or "textiles" or "textile product" or "textile products"). The second stage is the research strategy and selection process. The data of this study come from two mainstream databases, Web of Science and Scopus, and conduct a comprehensive examination of academic research on the topic of "Culture in Textiles" in an international context. The selection criteria for the literature are: (1) published in 2013-2023, (2) at least with "culture" or "textiles" as the keywords, and (3) connecting culture with textiles. The specific inclusion/exclusion criteria are shown in Table 1.

Table 1. Inclusion and exclusion criteria

Inclusion Criteria	Exclusion Criteria
The article discusses culture in textiles.	The article does not discuss culture in textiles.
Documents type: Journal articles	Conference proceedings, book chapter, trade journal, etc.
Research area: Art and humanities; Business, management and accounting; Social science	Research area outside Art and humanities; Business, management, and accounting; Social science
Language: English	Non-English language

A cursory search of these two databases, Web of Science and Scopus, yielded 1342 articles. After applying the inclusion/exclusion criteria, 306 papers were obtained. The time frame selected for the study ranges from 2013 to 2023. This time frame was chosen mainly to observe the trends and trajectories of cultural research in the field of textiles. The screening process and results are shown in Figure 1.

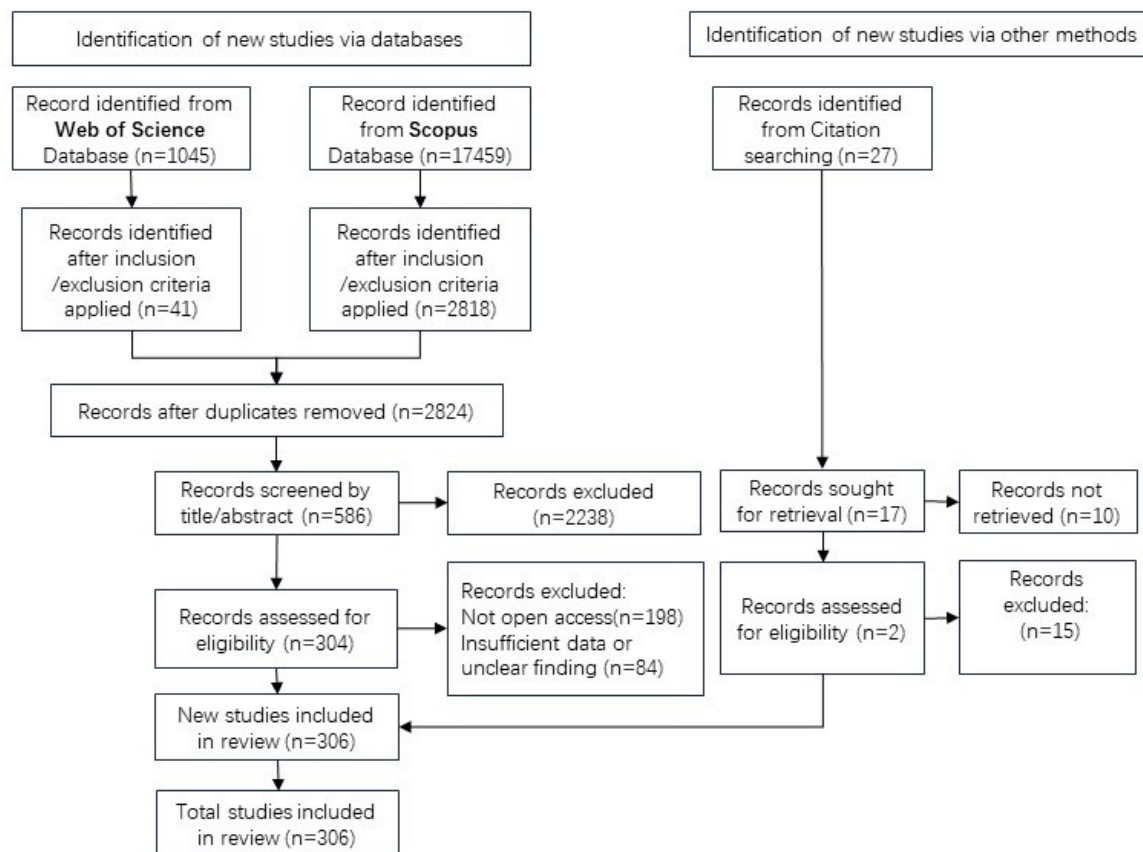


Figure 1. PRISMA Flow

Data Analysis

This study combed through systematically screened data and systematically used co-occurrence analysis, co-citation analysis, and cluster analysis to identify potential relationships in the collected data. The focus is on refining and visualizing the thematic topic. Then interpret and discuss the results of the analysis.

When conducting a co-occurrence analysis of keywords in this study, the annual slice was selected as 1. The high-frequency keywords derived through co-occurrence reflect the main focus of cultural research in the field of textiles in the past ten years and the time of their emergence. The analysis of this result can summarize the development trends of culture in the field of textiles, and provide predictions and references for the development trends of potential research hotspots in the future.

On this basis, this study conducts literature cluster analysis, which is the extraction and generation of themes. Documents in the same category are highly similar in theme. Through in-depth analysis such as key feature identification, internal relationship analysis, and interdisciplinary analysis, this study can understand the key themes of this research topic and clarify the current research status.

RESULTS AND DISCUSSION

Keyword Co-Occurrence Analysis

The keywords in the article can reflect the core content of the article. Through the analysis of keywords, it can partially reflect the research trend of cultural research in the field of textile sustainable development. This study conducted keyword cluster analysis on the 306 documents screened out in the early stage to obtain a network relationship diagram of keywords, as shown in Figure 2.

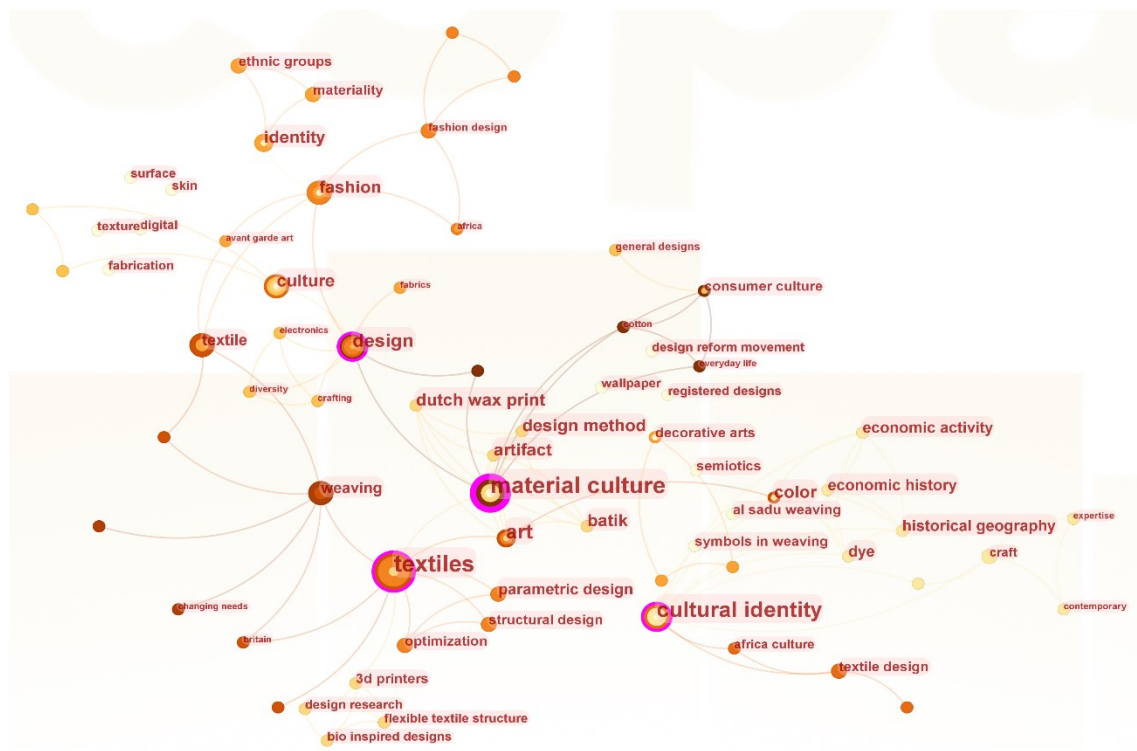


Figure 2. Keyword Co-occurrence Map

The keywords shown in Figure 1 are expressed differently in font size according to frequency. The larger the font size, the higher the frequency of occurrence. In addition, lines are used to connect two related words, and the relationship network formed provides an intuitive reference for theme clustering and extraction.

When performing cluster analysis on keywords, representation words with similar semantics can be grouped into one category [25]. For example, textiles, textile, and textile industries can be grouped into one category. According to this statistical standard, this study arranges the initially classified keyword nodes by frequency of use and selects the top 40 keyword categories. These 40 nodes contain 122 instances of keyword co-occurrence, encompassing all co-occurrences, which represent 78% of the keywords. The statistical results are shown in Table 2.

Table 2. Keywords and frequencies of culture in textile sustainable development

No.	Frequency	Key Word	No	Frequency	Key Word
1	264	Textiles/ Textile/ Textile Industry	16	17	Art And Craft/Artifact/Artisan Crafts
		Design/ Textile Design/ Product	17	17	Consumer Culture
2	211	Design/Design Elements/ Design	18	17	Ethnic Groups
		Practice	19	16	Contemporary/Contemporary Crafts/Contemporary Fashion
3	157	Material Culture/ Materiality	20	16	Procedures
4	135	Cultural Identity/Culture/Identify/	21	14	Innovation/ Innovative Design
5	96	Cultural Connotations/Cultural	22	13	Pattern Designs/ Pattern Design/
		Expression/Cultural Theory			Pattern/Ethnic Motifs
6	68	Cultural Commodification/ Cultural	23	11	Art/Decorative Arts/Ornament/Art
		Industry/ Culture Role Models			Form
		Cultural Sustainability/	24	11	Aesthetic Ability/Aesthetics
7	57	Sustainability/ Sustainable	25	10	Values
		Development/Sustainable Textile	26	9	Industrial City/Industrial
8	43	Human/Humans/Young Consumer	27	9	Design/Industrialisation
		Fashion/Fashion Design/Academic			Brand/Brand Strategy
		Enquiry Fashion/Ageing	28	9	Social Media/ Culture Media
9	42	Costumes/Apparel/Asian	29	9	Economic Activity/Economic History
		Fashion/Costume Culture/Fashion			
		Supply Chain/Fast Fashion/Garments	30	9	Collaboration
		Weaving/Aidelaishi Warp Backed	31	7	Models/ Business Modeling
10	39	Weave/Al Sadu Weaving/Symbols In	32	7	Social Responsibility
		Weaving/Weaving Practices			
		Parametric Design/Optimization/3D	33	6	Artistic Characteristics/Artistic
		Printers/Advanced	34	6	Design/Artistic Features/Artistic
11	39	Simulation/Digital/ Computer-Aided			Diversity
		Design/Artificial Intelligence/	35	6	Communities Of Practice/Community
		Computer Simulation/ Deep			
		Learning/ Computer Graphics			

No.	Frequency	Key Word	No.	Frequency	Key Word
12	37	Traditional Knowledge/Ananyino Cultural And Historical Region Heritage/Heritage	36	6	Arts-Based Methods
13	32	Conservation/Heritage Crafts/ Cultural Heritage	37	5	Dye/ Batik/Batik Craftsmen/ Paracas Embroidery/ Belarusian Embroidery
14	25	Cultural And Creative Industry/ Creative Potentials/ Creative Economy/ Creative Design	38	4	Semiotics
15	18	Craft/Craft Production/ Crafting/Craftivism	39	4	Geographic Indication And Textiles
			40	4	Green Burial/Green Logistics

Table 2 further sorts out the keywords. Keywords related to culture include Material Culture/ Cultural Identity/ Culture/ Identify/ Cultural Connotations/ Cultural Expression/ Cultural Theory/ Cultural Commodification/ Cultural Industry/ Culture Role Models/ Cultural Sustainability. It can be seen that the cultural discussion in the field of textiles in academia includes concrete material culture and abstract cultural connotation expression. The expression of cultural connotation involves cultural identity and cultural theory. At the same time, taking into account the commercial development of the textile industry, the discussion of culture extends to cultural commercialization, cultural industrialization, and cultural sustainability. The above keywords constitute the preliminary concept of cultural research on the textile industry.

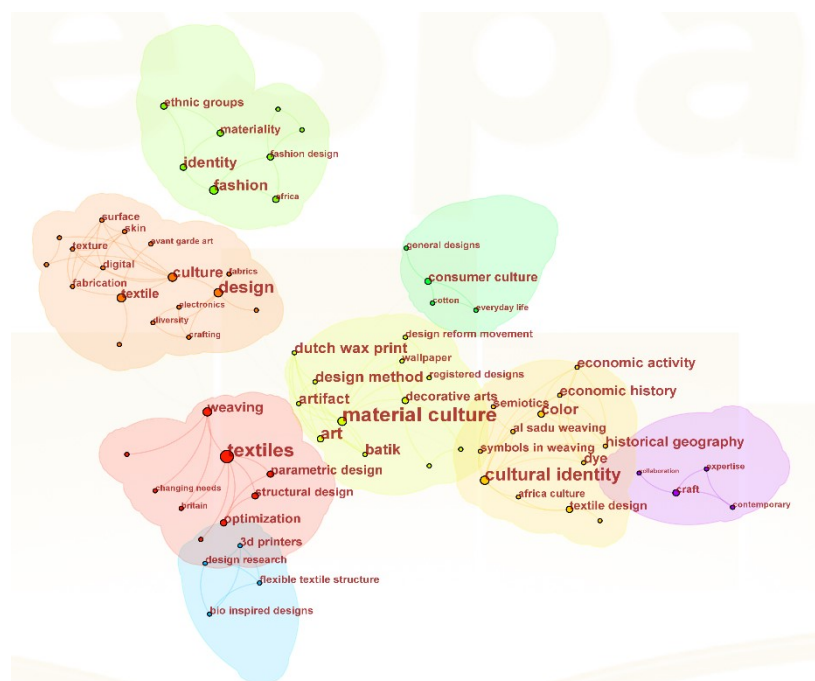


Figure 3. Keywords clustering knowledge map

Figure 3 shows the 8 generated themes, which are marked with different colour blocks. Based on the basic concepts of textiles, expansion of research fields, and analysis of different theme characteristics, this study summarizes 8 topics into 6 categories of clustered topics, as shown in Figure 4.

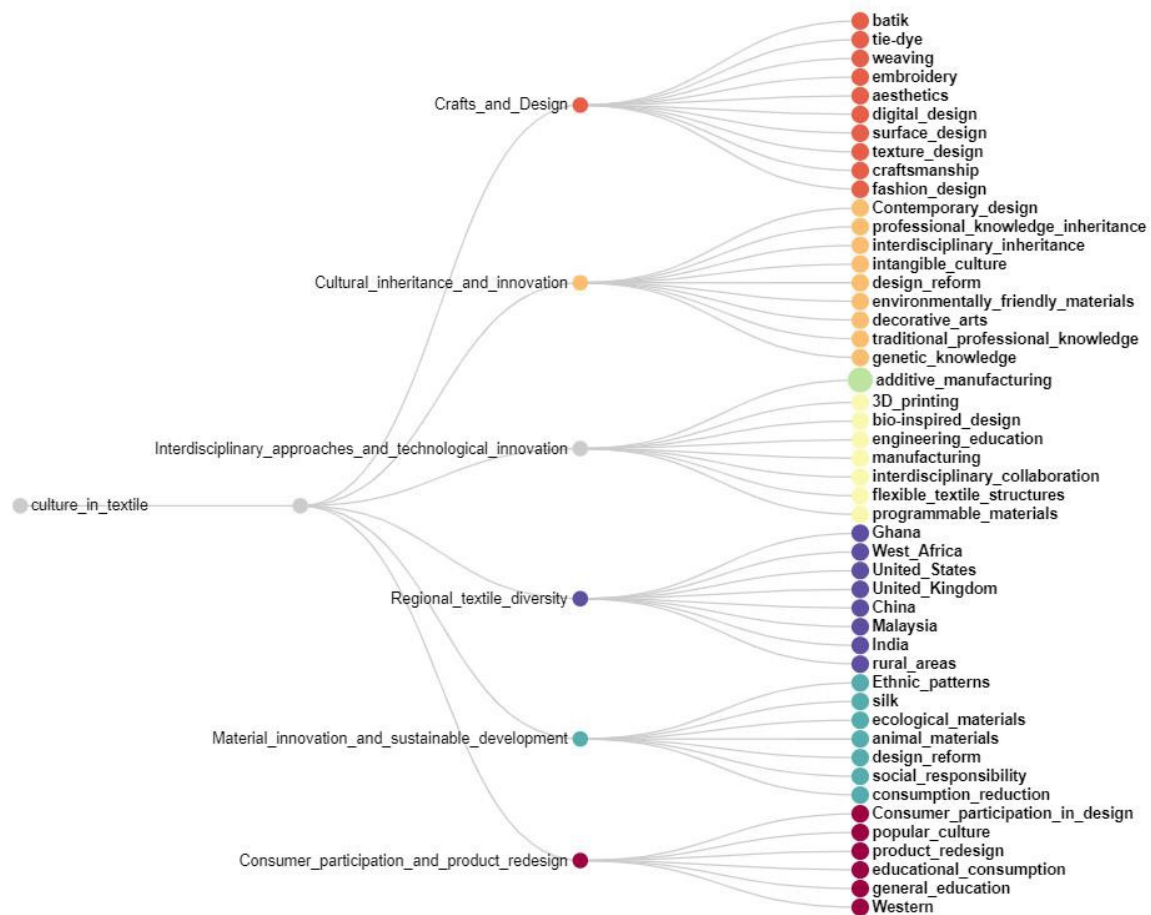


Figure 4. Theme cluster map

Theme 1: Crafts and Design

This theme includes Batik, tie-dye, weaving, embroidery, aesthetics, digital design, surface design, texture design, craftsmanship, and fashion design. This theme examines the relationship between handicraft techniques (such as batik, tie-dye, and weaving) and design aesthetics and culture, exploring the design aesthetic expression, surface texture, craftsmanship, and integration of these textile techniques with contemporary technology. Many scholars agree that handmade textiles include visual, textual, material, digital senses, body, decoration, function, ritual, personal, social, and economic, and are a field that spans art and crafts. Material culture and visual culture are unified in textile practices. Textile crafts play a role not only because of their functionality but also because these crafts have symbolic value to specific social groups. This symbolic value is culture. The ideas of a social group are embodied through craftsmanship, and the differences and layers of craft practices develop

contemporary textile culture [29]. Regarding the relationship between culture and craftsmanship, some scholars believe that contemporary textile crafts affected by the global economy have become the product of a single culture called "fast fashion". Business structures dominated by fast fashion ignore cultural references, ecological considerations, and concepts of quality. Ignoring handicrafts and emphasizing the simplification of technology also contributed to the dilution of cultural significance [30]. Therefore, separation from craft practices can lead to misunderstandings of craft culture, which in turn can lead to the devaluation of cultural products. The protection of craftsmanship and handicrafts is very necessary and requires the joint efforts of institutions, organizations, and individuals [31].

Theme 2: Cultural inheritance and innovation.

This theme includes contemporary design, professional knowledge inheritance, interdisciplinary inheritance, intangible culture, and design reform. This topic explores cultural inheritance and innovation in the textile industry, including the inheritance and interdisciplinary inheritance of professional knowledge, as well as innovative applications in design reform, environmentally friendly materials, etc., and fully explores the combination of traditional culture and modern textiles. method. Countless intangible cultural heritages are the wealth left by our ancestors. Due to changes in contemporary lifestyles, the development of traditional culture has encountered difficulties. Addressing this challenge necessitates the formulation of strategies aimed at reimagining traditional cultural symbols in a novel, critical, and unfettered manner, while also meeting the aspirations of young consumers for individual expression through artistic autonomy [16]. Culturally sustainable design of textiles does not seek to perpetuate "outdated" values. Instead, we extract and transform the culture in traditional crafts and face sustainable development with a positive attitude. Textile product design must promote innovation while maintaining traditional characteristics, focus on experimentation and sustainable exploration, and maximize design opportunities for the sustainability of traditional culture by highlighting the innovation process [32].

Theme 3: Regional textile diversity.

This theme includes the study of textile culture in Ghana, West Africa, the United States, the United Kingdom, China, Malaysia, India, and other regions. This theme focuses on the diversity of textile traditions in different regions and explores the cultural significance and artistic expression contained in the textile practices of these regions. Some studies have conducted qualitative explorations of historical textiles from specific regions from an archaeological perspective. Niemeyer & Agüero conducted textual research on the textile fuels of various cultures in the area around San Pedro Atacama (SPA) in the Atacama Desert in northern Chile [33]. Some studies explore textiles with

distinctive regional cultural characteristics from social, political, and economic perspectives, and the concept of intangible cultural property is discussed in the context of inherited knowledge. Nicholas proposed that the introduction of the embroidery decorative tradition into British North America was of political significance. The blooming flowers represented the imperial economy. This material culture destroyed the indigenous living environment and cultural sustainability [34]. Through an exploration of traditional Japanese textiles, T identifies the place and distribution of practical and aesthetic expertise in textile manufacturing, and its transferable value to contemporary practice [35].

Theme 4: Material innovation and sustainable development.

This theme includes ethnic patterns, silk, ecological materials, animal materials, design reform, social responsibility, and consumption reduction. This theme focuses on material innovation and sustainability in textiles. Morgan proposed a broad ecological approach to textile design by investigating the properties of the spider silk fabric material and the different human perceptions of it [36]. At the same time, this theme also studies the impact of social responsibility, consumption reduction, and personnel training on the sustainable development of textile culture [32]. The core is to establish a sustainable framework between market research and the 4Cs (consumers, costs, convenience, and communication) [37].

Theme 5: Consumer participation and product redesign.

This theme includes Consumer participation in design, popular culture, product redesign, educational consumption, general education, and Western society [38]. This subject examines the degree of consumer involvement in textile design and production, and the impact of popular culture on consumer behaviour. At the same time, it focuses on the role of strategies such as product redesign and educational consumption in meeting consumer needs and promoting industry innovation [39].

Theme 6: Interdisciplinary approaches and technological innovation.

This theme includes 3D printing, bio-inspired design, additive manufacturing, engineering education, manufacturing, and interdisciplinary collaboration. This subject explores interdisciplinary approaches and technological innovations in textile production, including the application of 3D printing, bio-inspired design, and additive manufacturing technologies [32]. It highlights interdisciplinary collaborations between engineering, design, and manufacturing to advance the development of flexible textile structures and programmable materials. In the field of computer-aided design and artificial intelligence, several studies have discussed the use of free computer-aided design programs to help design models. Conduct experiments with control and research groups to understand differences in product structure, direction, and scale between groups. Focus on controlled studies, in

vitro studies, culture media, and computer-aided design [40-41]. In the fields of printing and 3D simulation, machine learning and artificial intelligence are mentioned more and more often in textile product design. Many tendentious publications make practitioners use machine learning as the preferred tool for design as if they are catching up with the trend. On the one hand, more and more practitioners are beginning to realize the convenience of using artificial intelligence to learn from existing data and begin to predict product models before designing. However, on the other hand, easily accessible internet tools can also cause problems without sufficient expertise. For example, computational results may be considered “real”, while data visualization may only be used to generate “nice and colourful pictures” [41]. This field involves printing, 3D printing, and automation [42-43]. To cope with machine learning, practitioners in the textile industry, especially designers, must first obtain sufficient training in computer-assisted technology, establish communication or cooperation with experts, and understand the basic principles and limitations of computational methods.

Keyword Timeline Analysis

This part explores the research trends of culture in the field of textiles by analyzing "emergent words". "Emergent words" refer to keywords that have been widely discussed within a certain period, which mark the research hot spots at a specific time. This study plots the top 10 emergent words that appeared from 2013 to 2023, as shown in Figure 5.

Top 10 Keywords with the Strongest Citation Bursts



Figure 5. Keyword emergence from 2013-2023

The keyword timeline figure is used to reflect the changes in a specific research topic over time, in other words, to reflect the research trend within a specific period. Keyword timeline figures and keyword emergence figures are closely related. The timeline figure of keywords in this study is shown in Figure 6.

Figure 5 and Figure 6 intuitively reflect the changes in scholars' concerns about culture in the textile field in different periods. Based on the evolution of keywords, this study divides the study of culture in the field of textiles into three development stages.

The first stage is from 2013 to 2017. The emerging keywords are cultural identity, craft, and pattern, which belong to the basic concept category. The discussion of culture at this stage focuses on what culture is, what is textile culture, and how to identify culture in textiles. A large number of studies on the definition of culture and cultural identity emerged from 2013 to 2015. 2015 is the peak year for the discussion of textile craft. Many textile techniques are discussed: embroidery, tie-dye, batik, weaving, etc. Textile patterns were widely studied in 2017, and the symbolic expression of patterns and the profound cultural connotations behind them have been more clearly understood.

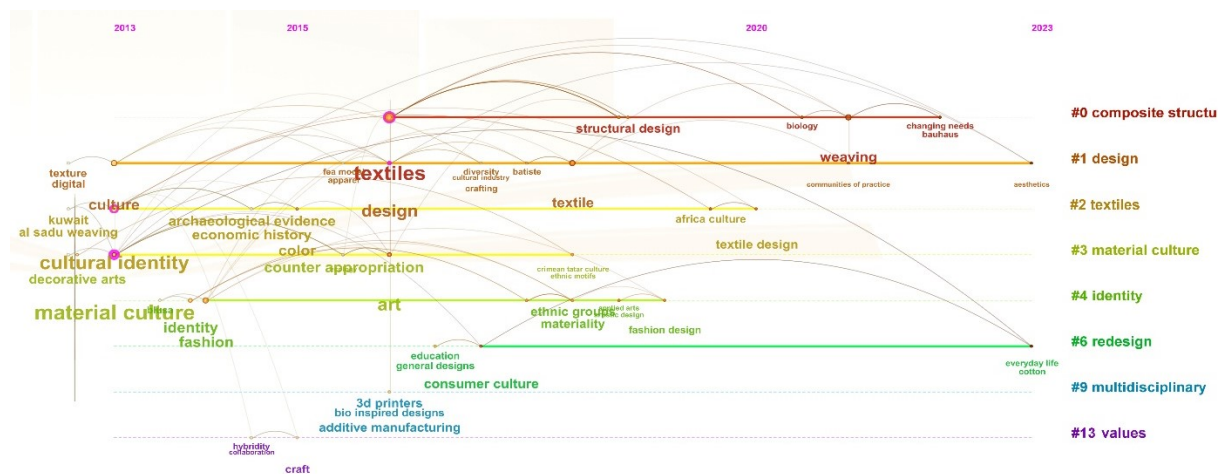


Figure 6. Keyword emergence from 2013-2023

The second stage is from 2018 to 2020. The emerging words are ethnic groups, textiles, and textile design, which belong to the basic application stage. This phase of research focused on the creators and users of textiles. Textiles from different ethnic groups and regions present more unique results. Research methods of ethnography and in-depth interviews were widely used. Paying attention to consumers in the textile product design process, consumers' wishes, behaviours, values, etc. have been studied by scholars from different disciplines.

The third stage is from 2021 to 2023. The emerging words are weaving, textile industry, textile sustainability, and traditional knowledge, which belong to the interdisciplinary application stage. The research on weaving in this stage is not the focus on the technique itself in the first stage, but on exploring new weaving technologies and new materials. The innovation of the research lies in the discovery of some new synthetic materials and the promotion of technologies such as 3D printing. With the exploration of a large number of new materials, the problems caused by textiles to the

environment have also been widely discussed. How the textile industry develops soundly and how to achieve sustainability has become a hot topic in recent years. Existing concerns include green textiles, circular textiles, corporate social responsibility, etc. At the same time, it is worth noting that traditional knowledge will become a new hot spot in 2023, which marks that the understanding of sustainable and innovative development of textiles has entered a new level. Traditional culture will exert its influence on the textile industry by leveraging its inherent environmental friendliness, thereby facilitating interpersonal exchanges and fostering a sense of natural harmony.

A conceptual framework for culture in textile

Through the review of relevant studies, this study proposes a conceptual framework for cultural textiles, which provides a reference for subsequent research and application, as shown in Figure 7.

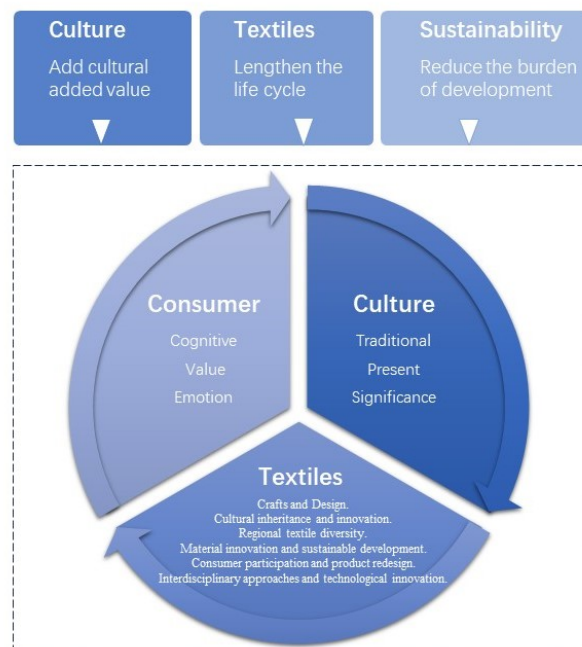


Figure 7. Conceptual Framework

This conceptual framework includes concepts and current major research directions related to textiles, culture, and consumers. The upper section of the framework comprises three core concepts pivotal to this research field. The first concept is culture, which corresponds to enhancing the cultural added value of textile products. Culture, in this context, refers to the incorporation of traditional and contemporary cultural elements into textile design and production, thereby enriching the products with unique cultural significance and appeal. The second concept is textiles, which pertains to the impact of cultural values and other influences on extending the lifecycle of these products. Textiles, defined as materials related to consumers' daily lives such as bedding, sofas, curtains, and other textile products, encompass a wide range of items whose durability and longevity can be significantly

improved through culturally informed design and usage practices. The final core concept is sustainability, which refers to achieving sustainability from the very inception of the design phase by integrating cultural elements. Sustainability here is defined as creating textile products that incorporate cultural values from the initial design concept, ensuring that sustainability is rooted in the core of the product development process. This framework also points to the links between culture, textiles, and sustainable development. Through culture, we can increase the additional cultural and economic value of products, extend the use cycle of textiles, and thereby reduce the impact on the environment caused by technological development, thereby achieving textile sustainability.

The three sections in the circle represent these three research directions. The specific content is explained below. Based on the development of the above research hot spots and trends, this study proposes possible directions for future research.

The first direction is an innovation of traditional cultural knowledge. Research the connection between traditional culture and current textiles, and pay attention to the embodiment of different values. Future research should delve into the intricate connections between traditional cultural knowledge and contemporary textiles. This involves not only identifying and preserving traditional techniques and motifs but also exploring how they can be innovatively integrated into modern textile design and production. Researchers should pay particular attention to how these traditional elements embody various cultural values and how they can be adapted to resonate with contemporary societal trends and consumer preferences.

The second direction is about research on consumers. Future studies should focus on consumers' needs, value perceptions, cultural perceptions, and purchase intentions. This includes examining how cultural background influences consumer preferences and how these preferences shift with trends in sustainability and ethical consumption. By gaining a deeper understanding of what drives consumer choices, businesses can tailor their products and marketing strategies to better meet the demands of diverse consumer groups, thereby enhancing customer satisfaction and loyalty.

The last direction is about the culture design process. To promote sustainable textiles, it is essential to explore cultural design approaches that harmonize with ecological goals. Future research should examine how cultural narratives and aesthetics can be leveraged to create textile designs that are not only environmentally sustainable but also culturally resonant. This involves studying successful case studies where cultural elements have been effectively used to promote sustainability, as well as developing new frameworks for integrating cultural and environmental considerations in textile design.

CONCLUSION

This article analyses the quantitative literature using scientometric methods, studies the research hot spots and development trends of culture in the field of textiles through keyword clustering, keyword emergence, and other analyses, and draws the following conclusions.

First of all, the 6 major themes of keyword clustering embody the development trend of culture in textiles. The theme of Crafts and Design reveals the relationship between technology and culture in textile handicrafts. The theme of Cultural inheritance and innovation shows that the inheritance and innovation of traditional textile culture have become a consensus. The Regional textile diversity theme shows the diversity and richness of textile culture. The theme of Material innovation and sustainable development reveals the research hotspots in recent years and emphasizes the necessity of integrating textile culture into the process of material innovation and sustainable development. The theme of Consumer participation and product redesign shows that textiles are faced with consumers, and culture and consumers constitute the focal point of present and forthcoming research. The theme of Interdisciplinary approaches and technological innovation emphasizes the interdisciplinary cooperation between the fields of engineering, design, and manufacturing, offering support to textile practitioners at a practical level.

Secondly, the keyword emergence map reflects the research frontiers of culture in the field of textiles. This study divides the research front into three stages according to emergent keywords. From 2013 to 2017, research hotspots mainly focused on the discussion of basic concepts of culture and textiles. From 2018 to 2020, research hotspots mainly focus on the basic application of culture in textiles. From 2021 to 2023, research hotspots mainly focused on interdisciplinary applications and continuous innovation, indicating that the understanding of sustainable and innovative development of textiles has entered a new level, and culture will intervene in the textile industry with the advantage of being highly environmentally friendly.

Finally, this study constructs a conceptual framework of culture in the development of textiles and puts forward three suggestions for future research. The transformation and innovation of traditional cultural knowledge, consumer value perceptions and needs, and design methods for the sustainable development of cultural textiles are directions worthy of research in the future. Breaking down culture into different levels and degrees of application may provide solutions to the cultural sustainability of textiles. In the context of the sustainable development of textile culture, the purchasing intention of young consumers is considered to be an inexhaustible driving force for the sustainable development of culture.

The article identifies the current state of research in the field of textile culture through an analysis of existing literature. Numerous studies have focused on the preservation of traditional textile cultures

and contemporary issues such as sustainability and cultural diversity. However, it is noted that humanistic approaches to textile culture research remain limited and lack systematic exploration. In addition, existing research tends to focus on handicrafts and traditional culture, while ignoring how to carry out practice in the current environment of rapid development of new materials and technologies. In light of the rapid development of new materials and technologies, there is a call for researchers to pay more attention to this aspect as a humanistic breakthrough in the textile field. This emphasis is crucial not only for meeting consumers' spiritual and cultural needs and preserving cultural heritage but also for promoting sustainable development in textile culture. Therefore, it is recommended that future research should focus more on the intersection of technology and humanities, exploring new methodologies and pathways to achieve comprehensive development in textile culture and technology.

Author Contributions

Conceptualization – Cui C; methodology – Cui C; formal analysis – Cui C; investigation – Cui C; resources – Cui C; writing-original draft preparation – Cui C; writing-review and editing – Nazlina S, Sazrinee ZA, Noor Azizi MA and Cui C; visualization – Cui C; supervision – Nazlina S, Sazrinee ZA, Noor Azizi MA. All authors have read and agreed to the published version of the manuscript.

Conflicts of Interest

The authors declare no conflict of interest.

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