

Article

An Exploration of the Relevance between Sustainable Craft and Service Design Based on a Literature Review Study

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Abstract: Sustainable craft is a relatively new concept, and a growing body of literature has examined sustainable craft from a multidisciplinary perspective. However, these researchers found a dearth of research that examines service design as a prospective transformative tool in sustainability crafts. Therefore, this study identifies published articles and the most productive journals, institutions, and countries by conducting a bibliometric analysis of the Scopus database of research articles on sustainable crafts in the 21st century. Based on that, we conduct an open discussion about sustainable crafts and service design. Finally, we obtain some key findings about these two areas.

Keywords: sustainable crafts; sustainability; service design; scientometrics; literature review

1. Introduction

Crafts represent shared knowledge, cultural practices, and values rooted in place and environment. As such, crafts are essential to sustainable development. The connection between craft and sustainability is inherently present, and it is imperative to investigate this link systematically [1]. According to the United Nations Conference on Trade and Development [2], sustainable development could be more groundbreaking. The definition of sustainable development, as articulated by the World Commission on Environment and Development (WCED) in 1987, encompasses meeting the needs of the present generation without compromising the ability of future generations to meet their own needs [3]. In addition, the concept of sustainability is recognized in design and craft, as evidenced by Papanek's [4] and Fletcher's [5] works. Papanek [6], Blackburn [7], Fletcher [5], Fry [8], Niinimäki [9], and Nugraha [10] have already provided insights into sustainable development from the standpoint of design, product life cycle, and consumption.

With the advent of the service era, service design is an innovative and holistic method. The approach is grounded in individuals' considerations and perspectives but also incorporates systems thinking and design thinking elements. The field in question is characterized by its comprehensive, integrative, and multidisciplinary nature. Service design is a method that facilitates service innovation by incorporating established design techniques into the development of services. This approach aims to create a service journey that effectively meets the needs of both service recipients and providers. In the context of the crafts field, the utilization of service design entails applying many methods, including persona development, customer journey mapping, blueprint creation, and stakeholder mapping, to facilitate the analysis of pertinent issues. The results acquired are subsequently utilized to rectify and improve the overall quality of service. Various activities and methods can be employed to enhance multidisciplinary collaboration, communication, and ideation within the craft domain [11]. Using observations and user-centered thinking, as stressed by service design in numerous discourses and fields, enables the identification of touchpoints and stakeholders at different phases. These insights are subsequently employed to generate



Citation: Zhang, L.; de Bont, C.; Gurpinar, A.; Tang, M. An Exploration of the Relevance between Sustainable Craft and Service Design Based on a Literature Review Study. *Sustainability* **2023**, *15*, 16798. <https://doi.org/10.3390/su152416798>

Academic Editor: Mario Fagnoli

Received: 20 October 2023

Revised: 30 November 2023

Accepted: 7 December 2023

Published: 13 December 2023



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diverse viewpoints and avenues for contemplation. Moreover, service design also has the advantage of sustainability. Therefore, in this context, it is practical for this study to explore sustainable craft and service design.

1.1. Research Background and Motives

Along with the development of society and the advancement of science and technology, people have entered an era of spiritual needs, pursuing meaning and experiences through material needs [12]. These changes have prompted the future development of crafts to aim for sustainable development by gaining inspiration in various ways and creating more excellent goods, services, and encounters that improve people's quality of life.

At the same time, Nugraha [13] pointed out the clear link between traditional crafts and sustainable development. For example, the Sustainable Development Goals (SDGs) for 2015–2030 represent a comprehensive framework consisting of 17 overarching global and 169 specific goals. These goals encompass various dimensions of human development, including the economy, society, environment, culture, education, health, and scientific and technological advancement. Including such a wide range of goals signifies a significant advancement in pursuing sustainable development [14]. The importance of establishing an “efficient translation between global and national aspirations” is emphasized, and the United Nations suggests the need to situate Sustainable Development Goals (SDGs) within specific local contexts [15,16]. In light of this, sustainable development is fundamentally influenced by place-based knowledge and solutions that are distinctive to the location and culture [17,18]. Thus, crafts endowed with region-specific knowledge are an essential part of local cultural identity and an important issue for sustainable development as defined by UNESCO. Furthermore, Lupo [19] firmly believed that if sustainable crafts are more about service innovation than the continuation of traditions, then crafts can benefit from this relationship.

Sustainable craft, as discussed in this study, refers to exploring the current development of craft in all its environmental, economic, cultural, and social aspects. More importantly, shifting the focus of craft research from the craft itself to products and services through service design, drawing on the modern service mindset, is a win-win solution for the future development of the craft itself and the service design field. Morelli [20] defined this craft as ‘servitization,’ which connotes the development of material-based product identity characteristics to one that inseparably combines the material components with a service system to provide solutions that combine knowledge, goods, and services to add value to the main item and achieve a competitive and sustainable business model. While several studies have recognized that implementation in this area has excellent potential, there needs to be service design as a prospective transformative tool in sustainability crafts.

1.2. Research Aim

Sustainable crafts are still a relatively recent idea [21]. This dimension was based on the fact that ‘sustainable design’ has been incorporated into the industry as a countermeasure to the coupled effects of incredibly productive and widespread ‘throwaway’ commercialism [22]. However, the concept of sustainable craft has not yet been made explicit. Therefore, Väänänen et al. [23] argued that in light of the expanding concerns and debates about the existence and future of crafts in sustainable development, there is a requirement to define the notion of sustainable crafts. Secondly, the relationship between sustainable crafts and service design has yet to be systematically explored.

Specifically, our research aims to analyze how sustainable crafts have evolved and the current state of sustainable craft knowledge and trends in future investigations. After that, service design theory will be expounded upon in greater depth. Following this, based on the literature analysis, the interrelationship between sustainability craft and service design is explored by linking them.

Therefore, the following research questions have been proposed:

- Q1. How have theories about sustainable crafts evolved?
- Q2. Which publications are most pertinent to the subject matter of sustainable crafts and the primary subject areas?
- Q3. What are the influential periodicals and research institutes for sustainable crafts?
- Q4. What is the relationship between sustainable crafts and service design based on theoretical analysis?

2. Research Methodology

2.1. Database and Bibliometric Analysis Methods

We based our collection of literature on a scientific or bibliometric analytical approach. For this reason, scientometrics, also known as bibliometric analysis, is frequently used to examine the development of a field of study over time [24,25]. Regarding data, we consulted the two most extensive databases for scholarly literature, Scopus and Web of Science [26]. However, we also referred to the main databases Med and Google Scholar, as Harzing et al. [27] recommended.

2.2. Methodological Procedure

We conducted a systematic literature review according to the following steps.

- Characterization of the review's methodology (including its scope, databases, searches, and inclusion/exclusion criteria);
- Review of the relevant scientific literature (use of search parameters);
- Qualified assessment (inclusion/exclusion summary analysis);
- Analyzing and synthesizing data (identification of publication types, study categories, and objectives through full-text review). This approach is consistent with comparable research [28,29], as shown in Figure 1, in which each stage was conducted according to the following criteria—scoping.

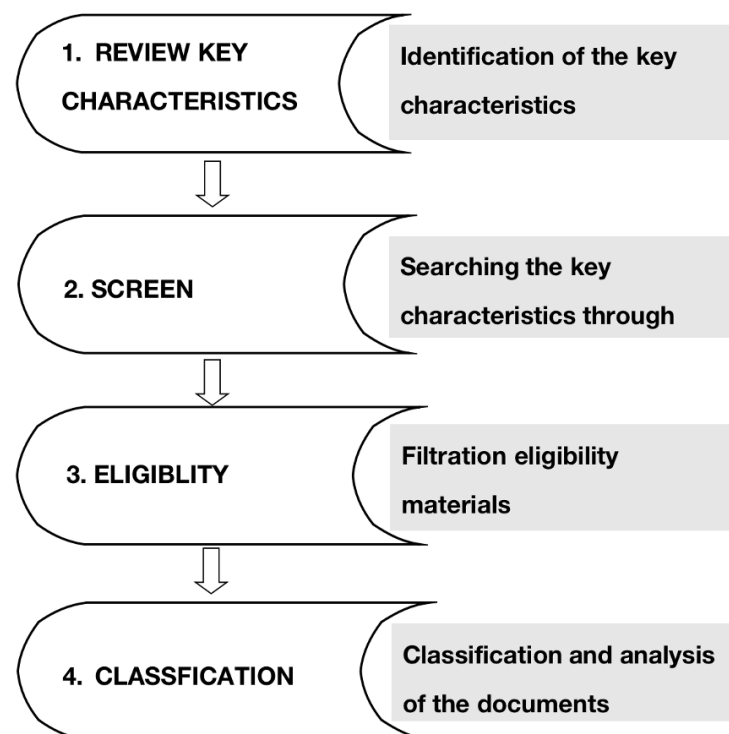


Figure 1. Scheme of the proposed systematic literature review approach.

2.2.1. Confirmation of Critical Features

Confirm the “Title, Abstract, and Keywords of the Article” field. The following terms are (TITLE-ABS-KEY (“Craft”) or “Crafts” or “Craft Practices”, which may include “Craft Products”, which may include “Crafts”, which may include “Craft Production” or “Crafts” or “Crafts” or “Crafts” or “Crafts Industry” or “Crafts”) and (“Sustainable” or “Sustainability” or “Sustainability”).

2.2.2. Review of Key Features through Databases

A search was conducted for the selected terms, and relevant data were downloaded from the database based on the key features, yielding 1628 documents that matched the search requirements. Then, the time filtering was performed, and the time range of 2001–2021 was selected. This time range, due to the concept of sustainable crafts, is relatively new, and based on “design for sustainability” was incorporated into the sector. The overall quantity of documents matching the search requirements was 788.

2.2.3. Filtering and Confirmation of Eligible Materials

The purpose of this process is to perform an evaluation. Abstract analysis was performed to assess the articles’ eligibility in the abstracts. Next, we selected research articles because Paul et al. [30] stated they were assessed tied to originality and underwent a thorough peer-blind review procedure to ensure improved science caliber. Therefore, 360 publications that did not fit the search parameters were eliminated—consequently, a total of 428 documents satisfied the search criteria.

2.3. Analysis Phase

We analyzed authors, publications, fields of study, nations, affiliations, worldwide collaborative networks, and terms from the sample of articles that met the search requirements. Regarding writers, organizations, and nations, the global collaborative network was created based on co-authors’ analysis. Thus, as the co-authors’ frequency increased, their interrelationships strengthened, increasing their conceptual relationships.

2.3.1. Trends in Sustainable Craft Publications

This segment showcases the main characteristics of the results of scientific research on sustainable crafts from 2000–2021. In particular, the outcomes relate to the quantity of papers published in various publications, nations, and institutions.

Stahel et al. [31] claimed that the first article on sustainable crafts, optimizing the longevity of handmade goods, was published in 1986 by Stahel, W. R. Since then, the Scopus database has at least 863 publications published in this field of study. Mainly since 2015, this research area has grown considerably and occupies an essential place in the current scientific literature.

2.3.2. Most Influential Sustainable Crafts Subject Areas and Publications

This subsection presents the primary findings of the subject fields of sustainable craft publications.

Figure 2 shows the distribution of thematic areas in sustainable craft research journals published based on the different subject sections of the database Scopus.

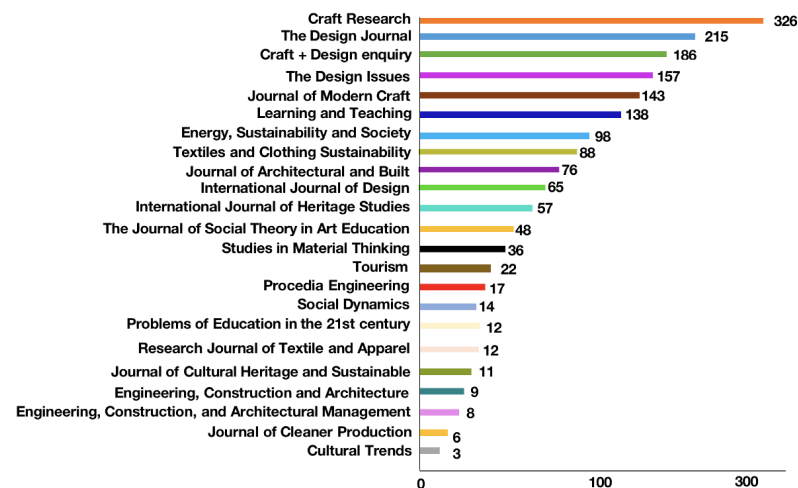


Figure 2. Thematic areas in Sustainable crafts journals. Source: authors' own.

2.3.3. International Network for Sustainable Crafts

Regarding sustainable craft research, the United States and the United Kingdom are the most productive countries. These two nations also have the most significant distribution of research findings concurrently. Figure 3 displays the worldwide collaborative network of working nations on sustainable crafts.

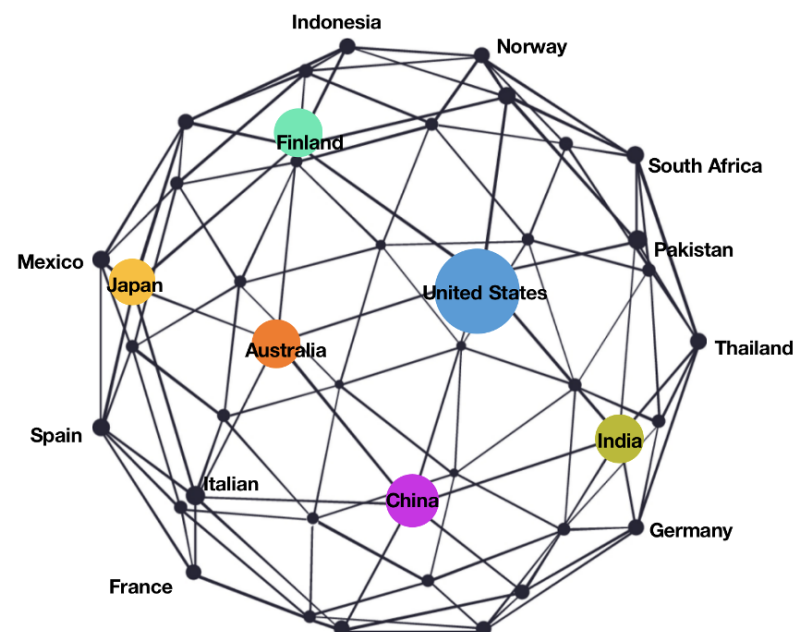


Figure 3. A global network of countries cooperating in sustainable crafts. Authors' work.

2.3.4. The Most Prominent Sustainable Craft Topics and Publications

The presence of numerous countries and their active participation indicates the existence of a globally extensive and reliable network for international cooperation on sustainable crafts.

Table 1 presents a comprehensive overview of the top 10 journals in sustainable crafts, together with their key attributes, spanning 2001 to 2021.

Sustainability Switzerland has the highest number of publications in sustainable crafts, totaling 35. That was closely followed by Design Journal and Craft Research, with 15 and 14 articles, respectively. The Journal of Cleaner Production exhibits a relatively low publication output, with only 12 articles. Following this, the two most prolific journals in terms of productivity are Sustainability Switzerland and Design Journal.

Table 1. Top ten most productive journals in sustainable craft journals. Author’s work.

Journal	Numbers	Country
Sustainability Switzerland	33	Switzerland
Design Journal	13	United Kingdom
Crafts Research	12	United Kingdom
Journal of Cleaner Production	11	United Kingdom
Wit Transactions on Ecology and the Environment	8	United Kingdom
African Journal of Hospitality Tourism and Leisure	7	South Africa
Journal of Modern Craft	7	United Kingdom
Economic Botany	6	United States
Forests, Trees and Livelihoods	5	United Kingdom
Indian Journal of Traditional Knowledge	5	India

3. Results and Discussion Phase

3.1. Sustainable Craft Evolution Stages

Sustainable craft is a relatively novel concept [21]. It evolved from sustainable design [22]. Stahel [32] published the first article on sustainable craftsmanship in 1986. There are three primary stages in the evolution of sustainable craft science outputs. The first period endured before the break of the 2008 global financial crisis and was characterized by a virtual cessation of scientific production, while the second stage began in the wake of the financial crisis. Finally, the third stage has a surge from 2015. It could be because, according to the United Nations, the 2030 Agenda and the Sustainable Development Goals (17 SDGs) [33] promoted researchers to be more receptive to adopting the international community’s guidelines and applying them to the crafts field. In the twenty-first century, the literature about this concept has increased increasingly (Figure 4).

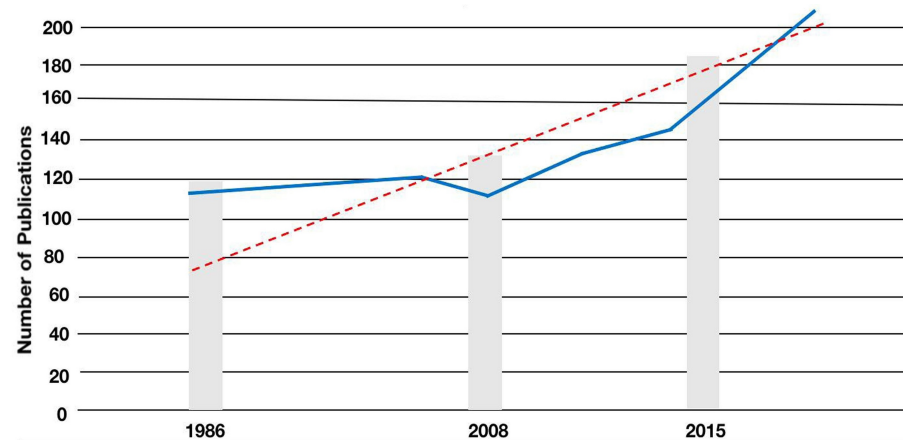


Figure 4. Three stages of sustainable craft are the progression of the number of papers published—authors’ work. The first phase lasted until the onset of the global financial crisis in 2008. The second phase began after the financial crisis. The third phase began to surge in 2015, as a result of the United Nations’ 2030 Agenda and the Sustainable Development Goals (SDGs). The blue line shows there were fluctuations during this period. However, the red line shows the overall trend was increased.

3.2. Relationship between Sustainability and Craft

Sustainable crafts are a relatively recent concept [21]. According to Bamford [22], this aspect is integrated into the industry through “design for sustainability” as a remedy for the detrimental effects of excessively efficient production and pervasive “throw-away” consumerism. According to Väänänen and Pöllänen et al. [21], sustainable craft is a multifaceted notion that presently comprises two essential elements: craft, which pertains to design, and sustainability [21] (Figure 5). They conclude that craft can bring about the transition to a more sustainable society.

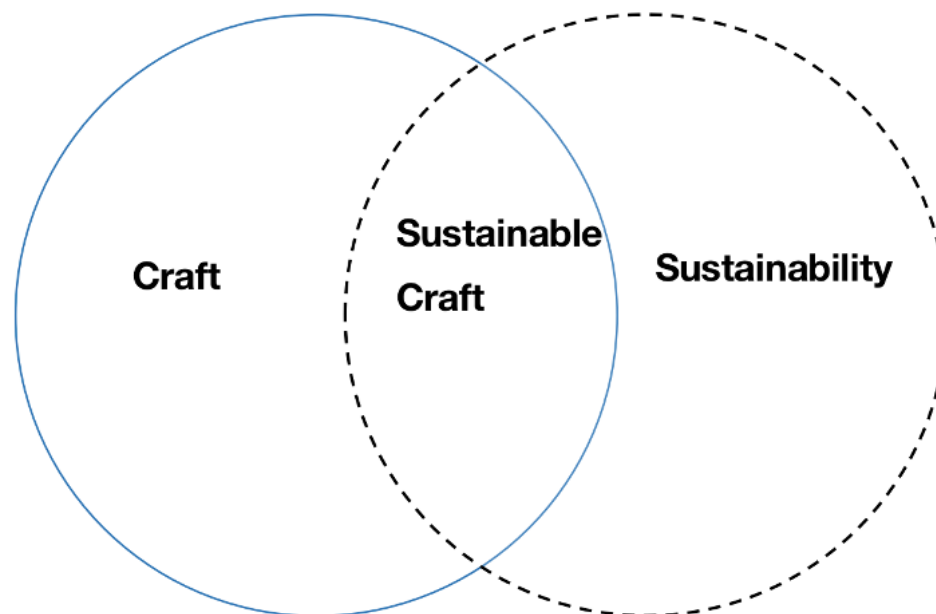


Figure 5. Two core concepts of sustainable craft.

To begin with, the term “sustainable” pertains to sustainable development (S.D.), a worldwide framework of actions that is both contentious and essential in order to “satisfy the needs of future generations” [34]. The S.D. discourse commences by considering elements of the economy, environment, and equity to enhance the welfare of both human beings and the natural world [34,35]. Over the years, as research and efforts to resolve political, social, economic, environmental, and spiritual crises have progressed, this framework has been refined [33,36]. Ehrenfeld [37] defined sustainability as flourishing, while Fry [8] advocated for radical transformations by defining it as sustainable or as sustainability. Norton [38], on the other hand, avoids defining sustainability and instead emphasizes practical approaches such as enhancing products, processes, and institutional environments.

The historical roots of sustainability within design and craft can be traced back to the 1960s and 1970s. Papanek’s impact on product functionality and design was particularly profound, as evidenced by the radical inquiries he prompted [1,22]. Later, Papanek’s (1973) *Design for the Real World* was transformed into *The Green Imperative* [4], which emphasized the critical nature of anticipating the significance of durable and functional products over those intended to be obsolete. Subsequently, Ceschin and Gaziulusoy et al. [39] argued that the concept of design for sustainability has progressed from a product-level perspective to a sociotechnical systemic one. Product design innovation entails the enhancement and progression of products, such as in environmentally sustainable or emotionally resilient design. The pursuit of novel business models involving products and services, encompassing ownership, access, and collaboration, was discussed at the product–service system level.

Despite the complexity of theoretical concepts, this study aims to explore the concept of sustainable crafts through a review of the existing scientific research literature. Therefore, explicitly existing relevant research will be discussed next.

3.3. Research Targets

The selected literature on sustainability crafts was further analyzed and split into different research objectives. As illustrated in Figure 6, the scope of the studies was more about the craft environment (C1), culture (C2), education (C5), and economic aspects (C9), followed by studies related to design, personal aspects, and values (Figure 6).

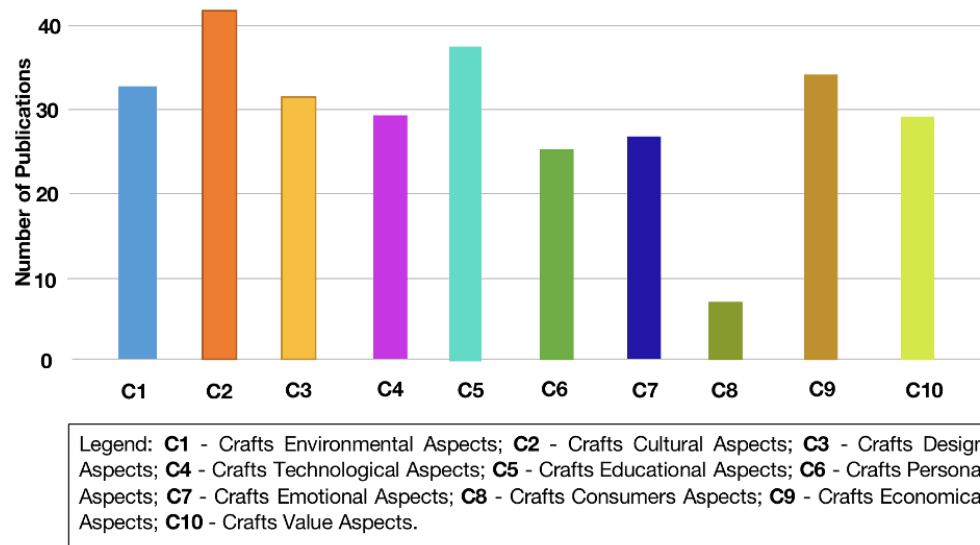


Figure 6. Publish counts for the research objective.

3.3.1. Environmental Aspects

Craft producers are changing the game regarding environmental sustainability through their inventive approach to product development, which embraces sustainability in the materials or methods employed [40]. Craft manufacturers have long used recycled materials [11]. In contrast, recycled materials offer many benefits, including using less energy than raw materials [41].

Crafts have made significant dedications to sustainability. Some studies recommended a theoretical framework to improve energy efficiency and minimize the craft department's reliance on fossil fuels [42]. In contrast, others have pushed for craft practices that are good for the environment and can be long lasting [43,44].

Based on that, craft practitioners think about sustainability mainly regarding the world, such as materials or production [45]. The quality supplied by materials, design, and technology makes craft items sustainable [46]. After that, Pao et al. [42] strongly supported renewable energy sources.

Thus, this new circular economy paradigm was first linked, making the artisan sector more sustainable [47]. In light of closed circular cycles that support the natural absorption of materials and energy or permit their recovery in order to reintegrate them into the cycle [46,48], the emergence of many concepts, such as McDonough and Braungart's et al. [49] cradle-to-cradle loop and performance economy [32], Pauli's [50] blue economy, and Commoner's [51] ecology have been observed. These approaches align with the "circular economy" and involve more efficient use of recycling.

The above mentioned perspectives viewed materials, processes, and life cycles as a continuum. Everyone influences others and directly or indirectly contributes to environmental and other sustainability-related areas.

3.3.2. Cultural Aspects

Stuart Walker mentioned that tradition is deeply concerned with the present, values that matter to us, and those who came after us [52]. Hence, culturally significant crafts are connected to contemporary sustainability challenges. Specifically, the user's text should be rewritten with an academic tone and style. Cultural importance and meaning encompass diverse, interconnected elements, including tradition, locality, community, personal identity, spiritual welfare, aesthetics, environmental considerations, materials, technology, skills, and the trade of goods and services. Culture possesses immense value and serves as a significant catalyst for promoting sustainable development. Designs and products that arise from behaviors rooted in specific geographic locations have the potential to possess

“cultural significance” when they contribute to the development of a distinct local identity. According to Gould et al. [53], these entities potentially possess significant historical connections with many communities and cultures.

Consequently, they hold considerable potential to contribute to future endeavors related to sustainability, cultural resilience, and overall well-being. Moreover, incorporating cultural components into a brand, product, or experience elicits a strong response from customers due to the emphasis on both rational and emotive attributes that culture brings forth. Culture plays a significant role in establishing a distinct identity for businesses and crafts, setting them apart from their competitors. Additionally, culture strengthens the connection between consumers and these brands or crafts, fostering a sense of identification. The consideration of culture’s comprehension and utilization and its ability to help design move forward is examined within the context of service design.

3.3.3. Design Aspects

Bamford [22] claimed that sustainable craft was based on adding sustainable design into the field. Based on that, Niinimäki [9] said the crucial factors are distinctiveness, a meaningful relationship with the product, and the incorporation of empathic and sustainable design principles.

According to Ihatsu [54] and Nugraha [13], sustainable craft also incorporates craft-design and art-craft orientation. Agreements on design and art were reached toward a single aim of sustainability in the name of sustainability [26,55].

The concept of sustainable craftsmanship is the link between craftsmanship, design, and the long-term viability of traditional crafts. Because the use of traditional patterns, shapes, and motifs dramatically contributes to the transmitting of culturally relevant crafts [55–57].

In addition, according to Fraser et al. [58], future forecasting techniques that rely on trends can positively impact sustainable craft and artisan production. By gaining a comprehensive awareness of the current market dynamics and design trends, it becomes possible to infuse fresh creative ideas into conventional production techniques. Consequently, the partnership between craft, craft design, and industrial design has the potential to rejuvenate artisan communities.

Papanek exerted a significant influence on the field of product design, mainly through his critical examination and questioning of their functioning. Papanek (1973) [6] offered a comprehensive analysis in his work *Design for the Real World* [6], wherein he presented a thorough critique of the concept of “design for profit and consumption”. He advocated adopting responsible design practices prioritizing ecological sustainability and social responsiveness. Furthermore, these prognostications persist in discovering tangible implementations within sustainable craft design. The evaluation should consider a product’s usefulness and sustainability [1,59]. Moreover, the interaction of sustainable crafts and design can create real value [60]. Therefore, a craft–design approach can restructure conventional codes and languages to outline a continuous invention process that can be duplicated over time.

A crucial element of sustainable crafts that necessitates consideration is the significance of regenerative design. This design approach facilitates heightened utilization of products and services while concurrently fostering stakeholder awareness. Consequently, according to Jabbour et al. [61], it contributes to a reduction in the consumption of natural resources. Below, Figure 7 summarizes sustainable craft design aspects.



Figure 7. Sustainable craft design aspect.

3.3.4. Technological Aspects

Mass production, rapid fashion, and technology are believed to compete with contemporary craft [62]. The three siblings' customary separation into art, craft, and design is supplemented by technology. Thanks to technological advancements, e-commerce and online platforms have proliferated, giving makers and craftspeople access to a virtual marketplace and communication channel. The Internet is a "shared space" where people worldwide can come together and work together [63]. Online platforms help people change from passive viewers to active creators, eventually fostering contact amongst like-minded individuals. At craft fairs, seminars, and courses, for example, craft was offered, sold, or taught virtually [64]. Craft activity has expanded since Etsy's virtual community was founded [65]. Thus, technology has sustainable craft-making advantages.

Some studies talked about how technology can be used to improve craft goods and methods. For example, Farrer et al. [66] talked about how craft can be used to make prototypes. The sustainably made product with the technology context was endowed with quality, uniqueness, timeless design, lifespan, purposefulness, and beauty [23]. Figure 8 summarizes the technological aspects of sustainable craft.

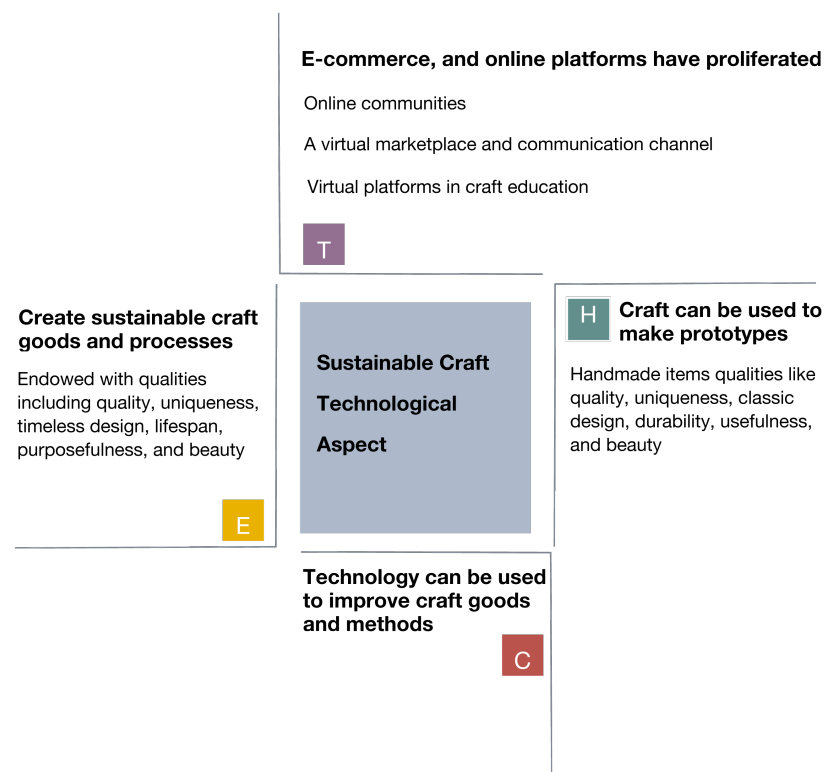


Figure 8. Sustainable craft’s technological aspects.

3.3.5. Educational Aspects

The relationship between education and professional craftsmanship and sustainable craft is essential for two reasons: First, craft as a trade generates goods that impact the environment and the economy. Second, education enhances lives and imparts skills [44,64].

Tertiary education, professional development programs, and apprenticeships are used in sustainable craft education to teach materials and production techniques to transmit skills and information [67]. Furthermore, building vocational training institutions is essential for preparing the next generation of workers, particularly those providing intermediate to advanced skill training [68]. Additionally, the training will assist artisans in enhancing their skills and creating things of a high standard [69]. Furthermore, it is imperative to educate with the following knowledge on innovative product designs [70]. Students will learn the skills required to manufacture handicrafts and how to generate fresh concepts for creating and designing products. Schools for vocational training are also essential for passing along artisan traditions, and their construction will help conserve and preserve craft heritage from extinction [71].

Craft education should include Internet use [62]. The Internet is a “shared space” [63] where people worldwide can meet and collaborate, and sustainable craft education also includes the use of technology. Moreover, sustainable craft education includes professional craft [72], recreational pursuits that improve well-being, and societal, cultural, and traditional perspectives [44]. Figure 9 summarizes the sustainable craft educational aspects.

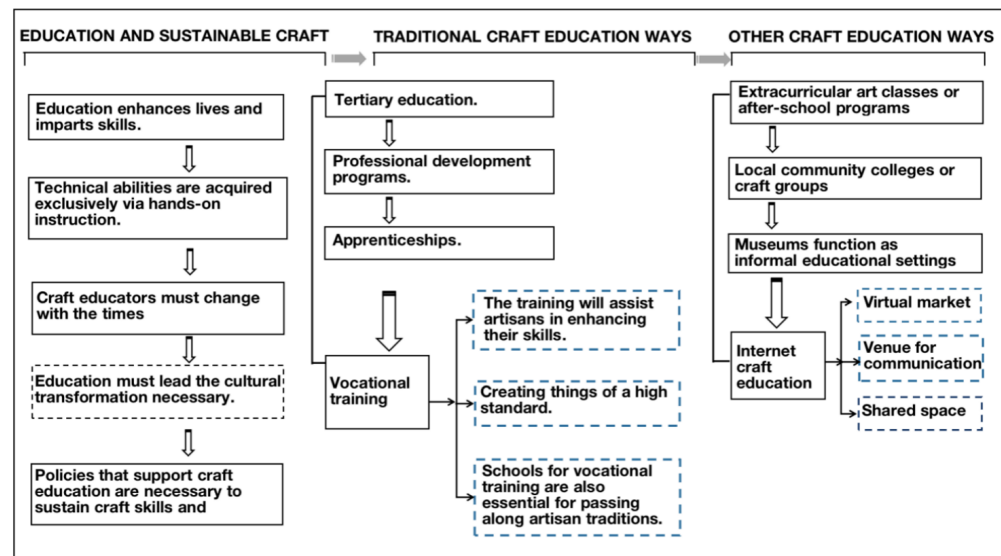


Figure 9. Sustainable craft's educational aspects.

3.3.6. Personal Aspects

The rebirth of craft starts at the individual level [21], which is owing to sustainable craft holding the ability to offer holistic awareness, healing, and intervention for a future that is healthy for individuals, societies, and cultures. It has been suggested that craft alone can improve well-being [73,74]. Additionally, the fact that crafting is seen as a calming and soothing activity inspires craft enthusiasts [75]. People could take a position and make their wares for leisure, activism, or relaxation [76]. For example, managing stress during leisure time by organizing our emotions via the physical activity of craft or the personal development it offers are examples of how craft can be a source of empowerment and well-being [44,77]. Accordingly, craft fosters the personal growth of its makers' beliefs, knowledge, and skill sets, mainly via ongoing introspection and practical application [78].

The well-being of crafting and ourselves as individuals are the most crucial places to start change. Furthermore, one sustainable development goal is well-being, which may also be viewed as a comprehensive system [79]. Thus, it aligns with the objective of sustainable development. Below, Figure 10 summarizes the personal aspects of sustainable craft.



Figure 10. Sustainable craft's personal aspects.

3.3.7. Emotional Aspects

It is considered that consumers seek products because they are manufactured with skill and care by a known individual who employs craft knowledge in their production, implying that the product and craft connect with ideals of quality and authenticity [80]. As a result, both the buyer and the producer are willing to make a wide range of “effective investments” in such handcrafted goods [81].

The product connection is a psychological condition that takes on meaning during the production process and becomes what the individual may create with the materials [11] (Figure 11).

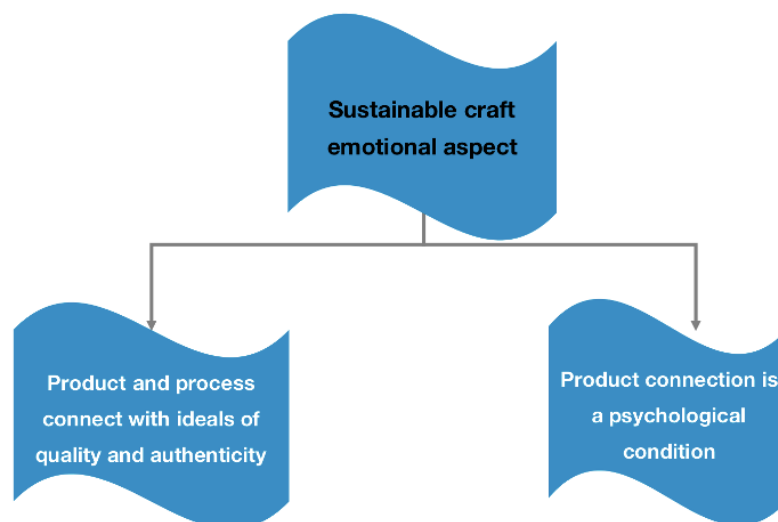


Figure 11. Sustainable craft’s emotional aspects.

3.3.8. Consumers Aspects

Sustainability’s growth depends on a better understanding customer attitudes and behaviors [82]. Age, sustainable behavior, comprehension of sustainable craft, and opinions on the product’s usefulness influence consumer purchasing decisions [83]. Additional research suggests that consumer acceptance of sustainability is slowing the implementation of sustainability [84]. Previous research has shown that understanding and marketing the adoption of sustainable practices is critical to establishing a production model transition [85]. A proper supply–demand relationship must be maintained. As a result, it is essential to motivate customers to switch to sustainable practices [86].

Environmental worldviews and personal effectiveness influence consumers’ pro-environmental behavior [83]. Moreover, in its paper “Behavioral Analysis of Consumer Participation about the Circular Economy”, the EU emphasizes that consumers are willing to participate in the circular economy in sustainable purchasing behaviors to some level. This dedication stems mainly from their worry about the linear economy’s environmental impact and their need to save costs [87]. Customers’ awareness of the advantages of sustainability is the main factor influencing their adoption of these products at the sustainability level [88]. Most consumers need to be made aware of remanufactured items and favor newly manufactured goods over refurbished ones [89]. Environmentally conscious consumers purchase positively [90]. Crafts enable emerging craft entrepreneurs to develop innovations that reach more significant levels of sustainability while providing answers to unmet and neglected consumer requirements [91]. Therefore, it is essential to examine customer behavior and establish marketing and communication plans that present sustainable products to properly transition and develop sustainable crafts per customer needs and preferences [92].

3.3.9. Economic Aspects

Promoting initiatives that rely on a novel economic development model is vital for the sustainable craft industry. Establishing a well-rounded production system necessitates the development of three fundamental dimensions: economic, environmental, and social sustainability. Additionally, considering the influence of technological advancements is imperative. In doing so, the production model is aligned with the circular economy concepts, enhancing the equilibrium among these three aspects [93,94]. Cooperation between suppliers, stakeholders, and end consumers would lead to economically and socially sustainable business structures. Honesty was deeply entrenched in the craft values [47]. Consequently, a transparent market and product or service demand were required [43]. In addition, the artisanal industry has to be focused on green innovation. Artisanal production involves the use of production equipment and technology, and in order to establish a renewable artisanal economy, environmental regulations must be incorporated [95].

3.3.10. Value Aspects

Extrinsic and intrinsic values are associated with sustainable craft [1]. Extrinsic values mediate economic and environmental factors, whereas spiritual, cultural, and societal aspects are reflected in intrinsic values. Values emerge through artisanal production, deliberate attempts to enhance the product's life cycle, materials, and other functional properties.

As the values were already present but required more robust communication, value creation in the context of sustainable craft could be changed to raise the typical craft, for instance, by valuing demonstration. Below, Figure 12 summarizes sustainable craft's value aspects.

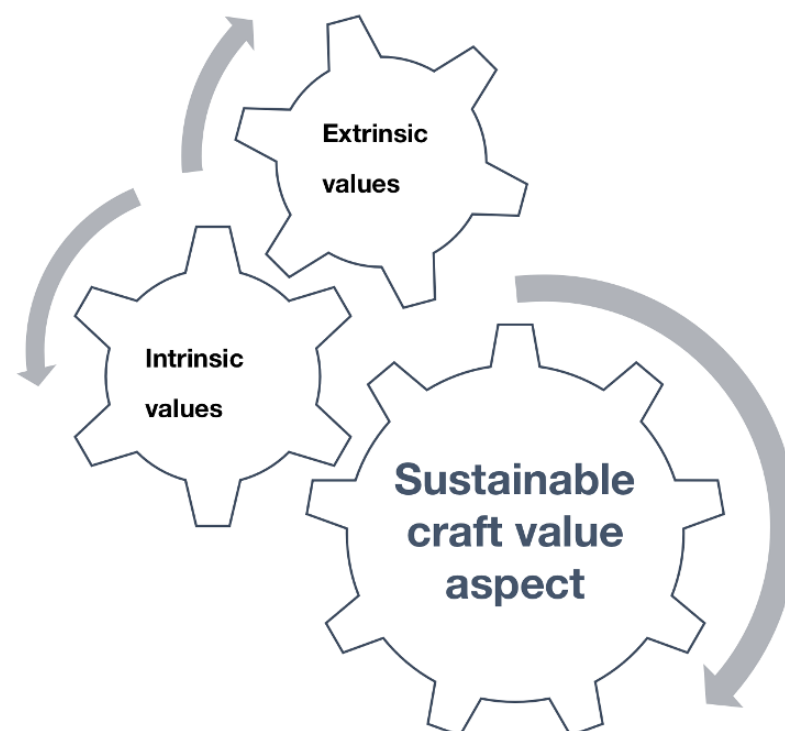


Figure 12. Sustainable craft's value aspects.

4. Service Design

Since the previous introduction briefly describes the methods and benefits of service design, the content of this next section describes service design in detail.

4.1. The History of Service Design

Service design is a relatively new area that started in the 1990s when a select group of knowledgeable academics in Germany, Italy, the United States, and the United Kingdom began to refer to it as a new design agenda.

In service marketing literature, the word “service design” was first used by Shostack (1984) [96] when he attempted to combine the terms “service” and “design”.

Around 2000, the first studios (Livework and Engine) in service design were established in London. Since then, this area has gained more attention from global design research educational and professional communities.

According to some other researchers, service design is “a methodology that often yields the design of systems and processes intended to provide a comprehensive service to the consumer” [97].

By the time the studios engaged in services had expanded in the United Kingdom, they were still just 1% of the country’s design sector. However, they had become a model for the rest of the world. Figure 13 summarizes the service design development process.

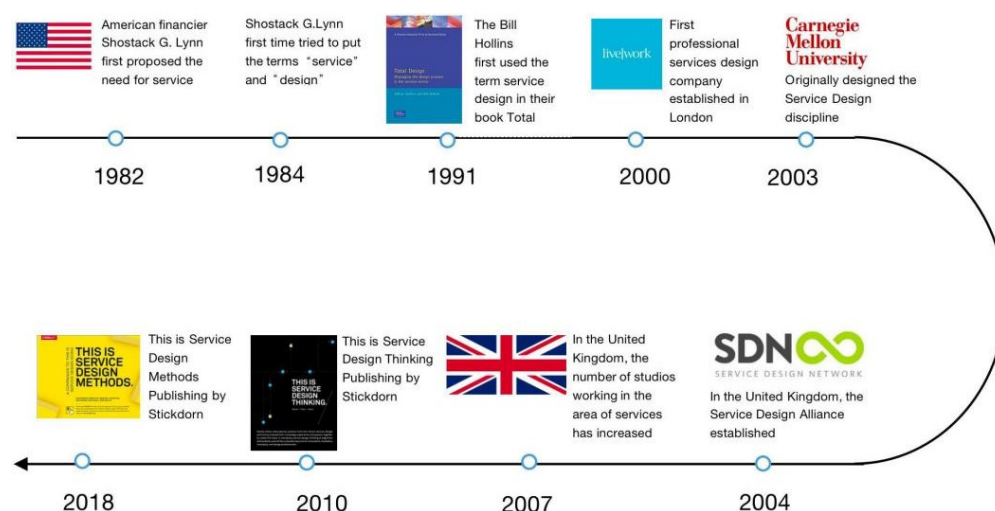


Figure 13. Service design development process.

4.2. Various Viewpoints on Service Design

4.2.1. About the Service Design Methodology

Service design introduces novel service concepts to life and is a multidisciplinary, human-centered, holistic, interactive design methodology [98]. Meanwhile, it combines system and design thinking [99]. This characteristic makes service design work in several contexts, including studying human and social behaviors, creating novel interactions and experiences in collaboration with users, and launching transformational processes [98].

Service research perspectives are formed through interactions with service organizations [100]. The aim is to transform a structured approach to creating new services into a more open, collaborative, creative, and iterative approach to service innovation [101], triggering enjoyable service interactions and potentially efficient service improvements [102].

4.2.2. Tangible and Intangible Aspects of Services

In reality, the service designer’s attention frequently assumes a planned product. However, services can incorporate intangible components and strategic, holistic experiences that might emerge as service interactions. In addition, service design provides visual aids that inspire participation and collaboration from many parties [103].

Schaarschmidt [104] examined the consequences of consumer contact and service personalization on hybrid offering innovation results. Their findings show that consumer engagement fosters innovation in both the tangible (i.e., commodities, services) and intangible (i.e., services) components of a composite provision.

4.2.3. About Service Design Value

By developing new services inside value constellations, some research into service innovation and design has begun to resolve these complication issues to higher degrees [105]. Other studies focus primarily on the value-proposition-driven product–service system design approach [106].

However, new and more open techniques are required to design for many-to-many interactions and to establish platforms that promote the evolution and prosperity of service ecosystems [99,107,108].

Moreover, as the complexity of service systems increases, service research must comprehend the intricacies of designing and developing value networks and service ecosystems to anticipate new issues [40].

4.2.4. About Service Design Advancements

Reason and Calabretta et al. [109,110] believed that service design may enable cultural and organizational transformation and assist businesses in identifying new business prospects.

In the meantime, some academic research demonstrates the significance of service design in creating new, efficient service models [99].

Moreover, service design can affect organizational and strategic transformation and enhance the customer experience [111]. For instance, services should be built to support the interactions between customer and provider networks that increasingly co-create the consumer experience in service ecosystems [112].

5. Discussion

This part will discuss the key findings about sustainable crafts first. Then, we will discuss some of the main summaries of service design. Finally, we will explain the relationship between sustainable crafts and service design.

5.1. Discussion on Sustainable Crafts

This paper uses a scientometric approach to explore the development of sustainable craft concepts. In order to achieve this, a bibliometric analysis of research articles from the Scopus database was conducted. The following main conclusions were drawn:

The primary attributes of the study field indicate a strong growth in the concept of sustainable crafts, not only in the four areas of economy, culture, education, and society, which dominate the main areas of research, but also in the emergence of studies addressing the individual aspects, design, and other interconnections of these aspects. Thus, we find that in each of the three periods analyzed, there has been a progressive escalation in the number of keywords produced by the published research articles, as well as a growth in the quantity and quality of research topics, especially after the release of the United Nations' 2030 Agenda and Sustainable Development Goals in 2015. From this perspective, the research topic of sustainable handicrafts is still of high research value for the foreseeable future.

The literature analysis concludes that sustainable crafts are centered on the need for sustainability and are guided by crafts. The value of crafts can be increased through various collaborations, and design can be used to help crafts innovate sustainably. In addition, various technological and material elements can be combined to meet the needs of the current society and then develop better in the long run. Finally, sustainable crafts place more apparent demands on craft culture. Specifically, the culture embedded in crafts needs to evolve to develop better, and this culture is dynamic and needs to be updated and changed as society continues to change.

5.2. Summary of Service Design Literature Review Key Findings

Service design has been viewed to address sustainability-related challenges [8]. Studies have shown that service design is person-centered. Understanding human and social

practices, codesigning new interactions and experiences, and initiating transformation processes require a strategic and systemic approach [113,114]. Service innovation can be defined as an organization implementing a novel service or process provision that embraces and provides worth for at least one service network actor [115,116]. A novel service offering is frequently a novel assemblage of resources [117].

It was also discovered that service design reorients the development of novel service procedures to foster value co-creation via codesigning methods, system actor alignment with the user experience, prototyping, and holistic knowledge of user experience, constructing enduring capabilities to uphold value generation [118].

Co-design and user participation are essential concepts in service design and innovation [119]. Also, service design may provide acceptable techniques and resources to incorporate numerous stakeholders and resources into the value-creation process and support sustainable development [99]. Localization and community involvement can make service design more sustainable than product design [113,120]. Thus, Schaarschmidt et al. [104] examined the consequences of consumer contact and service personalization on hybrid offering innovation results. Their findings show that consumer engagement fosters innovation in both the tangible (i.e., commodities, services) and intangible (i.e., services) components of a composite provision. The overall sustainability of human activity may be improved through service design. Adopting the “service-dominant” logic, in contrast to traditional economies’ “goods-dominant” logic, is critical. In contrast to product-dominant thinking, which holds that value is static and limited to tangible objects, service-dominant logic views define value as dynamic and co-created when a service provider and consumer interact [113]. Figure 14 summarizes the service design literature review’s key findings.

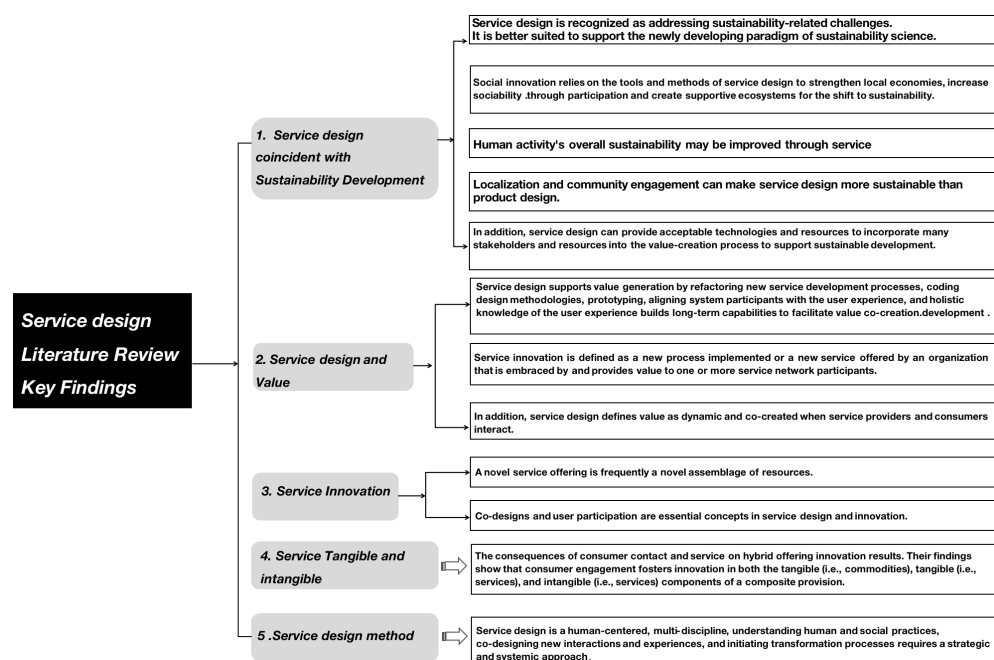


Figure 14. Service design literature review’s key findings (Sangiorgi, 2011 [99]).

5.3. Exploring the Relationship between Service Design and Sustainable Craft

Sustainable craft and service design are both consistent with sustainability. Specifically, sustainability is a prerequisite for sustainable craft. Similarly, service design was recognized as addressing sustainability-related challenges. It is suited to support the newly developing paradigm of sustainability science. Moreover, service design offers a new path to sustainable craft.

Both service design and sustainable craft consider the importance of the customer experience. On the one hand, service design focuses on user experience, taking human-centredness as the core of service design research and tapping into user experience in

this way. Conversely, sustainable craft focuses on consumers' perceptions to change their purchasing decisions. For instance, according to Calvo-Porrall and Lévy-Mangin et al. [121], recycled items have the potential to be perceived by consumers as environmentally beneficial and as products that contribute to the "green economy". Hence, it can be argued that consumers may hold a positive perception of such things, and this favorable consumer attitude can significantly impact the overall positive image of these products. The study by Calvo-Porrall and Lévy-Mangin et al. [121] demonstrated that a positive perception of recycled products significantly impacts consumers' intentions to purchase.

Sustainable craft combines intangible culture and tangible material artifacts, while service design is also concerned with combining tangible goods and intangible services.

Furthermore, service design concerns value co-creation, whereas sustainable crafts consider how new value can be generated through existing materials and culture.

Notably, both recognize that this value is dynamic; for example, sustainable craft requires that the traditions within the craft must remain in flux and that a living tradition be maintained to promote sustainable development. On the other hand, the service-led logic of service design sees value as dynamic and co-created when service providers interact with consumers.

In terms of collaboration, sustainable crafts also rely on collaboration. For example, collaboration between makers, producers, designers, and organizations is essential to establishing a substitute economy of shared resources and information. On the other hand, the multidisciplinary service design approach must stimulate participation and cooperation from multiple parties.

Service design, which brings novel service concepts to life, is a multidisciplinary, human-centered, interactive methodology [113]. Also, The concept of sustainable craft revealed an interdisciplinary concept. Figure 15 below summarizes the commonalities between service design and sustainable craft.

Sustainable Craft and Service Design Relationship			
Common Points			
		Sustainable Craft	Service Design
1.	Consistency with sustainable development	Sustainability is a prerequisite for sustainable craft.	Service design is recognized as addressing sustainability-related challenges. It is better suited to support the newly developing paradigm of sustainability science.
2.	Offer a new way	Service design can act as a concrete tool for change in the sustainability crafts.	
3.	Consumer experience	Sustainable craft focuses on the consumer's perception of sustainable craft and their purchasing decisions.	Service design focuses on the user's experience.
4.	Tangible and intangible combination	Sustainable craft combines intangible culture and tangible material artifacts.	Service design is also concerned with combining tangible goods and intangible services.
5.	Value Creation	Sustainable crafts consider how new value can be generated through existing materials and culture.	Service design concerns value co-creation.
6.	Dynamic Value	Sustainable craft requires that the traditions within the craft must remain in flux, and that a living tradition be maintained to promote sustainable development.	Service-led logic of service design sees value as dynamic and co-created when service providers interact with consumers.
7.	Collaboration	Sustainable crafts also rely on collaboration. E.g., collaboration between makers, producers, designers, and organizations is essential to establish a substitute economy of shared resources and information.	The multidisciplinary service design approach must stimulate participation and co-operation from multiple parties.
8.	Multi-discipline	The concept of sustainable craft revealed an interdisciplinary concept.	Service design is a multidisciplinary, human-centered, and interactive methodology.

Figure 15. The relationship between sustainable craft and service design.

6. Conclusions

This study reviews the literature on sustainable crafts and service design, describes how the contemporary academic literature has dealt with the interdisciplinary concept of sustainable crafts, and discusses the service design theory, presenting aspects such as its properties, related tools, and methods. Finally, the relationship between the two is summarized. As such, this work contributes in a novel and inventive manner to this field of research.

Specifically, the researchers found a significant increase in the focus on sustainable crafts as a social, economic, and environmental mode of production that promotes growth and economic development while respecting the environment. Through a literature study, our findings expand upon the points made by Oyekunle and Fröcklin et al. [122,123] by identifying research on social, environmental, economic, cultural, personal, design, and value aspects related to sustainable crafts.

Consequently, through the literature review, the craft sector has addressed sustainability-related challenges. These findings may serve as a tool for comprehending and focusing on particular aspects or as a whole to assist and accentuate the debate. In addition to policymakers, they give a scientific foundation for the influence of the craft industry on the sustainability of the environment, society, and the economy. Consequently, policymakers might put in place procedures to protect and improve the survival and value of traditional crafts. Furthermore, these findings could be helpful in the crafts themselves by providing instances of sound sustainable development practices that improve sustainability on a local level. In addition, the researcher could use these findings to support future hypotheses regarding the extant discourse on sustainable crafts, and they can be examined in service design contexts.

Secondly, a database search revealed that most of the research papers on service design come from marketing and business management. At the same time, there needs to be more theoretical knowledge about service design from the perspective of sustainable craft. Therefore, there is a need to enhance service design applications in this research area. More importantly, subsequent academic research on how to view sustainable crafts in today's service design context would be valuable.

Finally, the relationship between the two was summarized based on the literature review findings, which revealed that sustainable craft and service design have many aspects in common. For example, they are both related to sustainability and meet sustainability requirements. Also, they both focus on value creation and the need for value to be dynamic. Secondly, they both combine the tangible and intangible. In addition, they both raise the importance of considering the customer experience. A further point is that they are both multidisciplinary in their approach to research.

Finally, some limitations of this investigation should be considered in future research. For example, only research articles were considered for this review. Hence, it would be beneficial for subsequent investigations to incorporate a broader range of scholarly literature, including conference papers and book chapters, that could supplement the acquired information.

In conclusion, this study aims to clarify the basic concepts by understanding the basic definitions through the relevant grooming of the literature review to map out the academic concepts and developments related to the subject study. This study provides more than a description of the concepts to paint a holistic picture of sustainable crafts and a focused and comprehensive viewpoint on the design of sustainable craft services.

Most importantly, the research results help to understand and direct attention to sustainable crafts and not only fill the research gap in the field of service design in the perspective of sustainable crafts but also provide theoretical information that can be drawn upon for subsequent research investigations in this research direction, and therefore, we suggest that subsequent research consider how to investigate service design as a transformative tool for concreteness in sustainable crafts and to propose relevant, targeted strategies which can be explored through case studies to explore specific research methodologies and related validations as well as evaluate relevant theories. That will deepen the direction of future research on the topic.

Author Contributions: L.Z. designed the research, generated and analyzed the material, and wrote the paper as part of her Ph.D. work under the supervision of C.d.B., A.G. and M.T. All authors have read and agreed to the published version of the manuscript.

Funding: This research is funded by Loughborough University and the China Scholarship Council (NO. 202208060367).

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: No new data were created or analyzed in this study. Data sharing is not applicable to this article.

Acknowledgments: This study is a part of my Ph.D. research on craft sustainability from the service design perspective. I am grateful to my Ph.D. supervisors, Cees de Bont, Avsar Gurpinar, and Mingxi Tang, for encouraging me to work on this study. Their guidance and insights have helped me to explore my Ph.D. research.

Conflicts of Interest: The authors declare no conflict of interest.

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