

## The Impact of Sustainable Design and Chinese Patchwork on Consumer Purchase Intentions

Ning Li<sup>1</sup> , Rose Dahlina Rusli<sup>2\*</sup> , Asliza Aris<sup>3</sup> 

<sup>1</sup>College of Creative Arts, Universiti Teknologi MARA (UiTM), 40450 Shah Alam, Selangor, Malaysia  
Email: 1139697251@qq.com

<sup>2</sup>College of Creative Arts, Universiti Teknologi MARA (UiTM), 40450 Shah Alam, Selangor, Malaysia  
Email: dahlina77@uitm.edu.my

<sup>3</sup>College of Creative Arts, Universiti Teknologi MARA (UiTM), 40450 Shah Alam, Selangor, Malaysia  
Email: arisasliza@uitm.edu.my

### CORRESPONDING AUTHOR (\*):

Rose Dahlina Rusli  
(dahlina77@uitm.edu.my)

### KEYWORDS:

Sustainable design  
Chinese patchwork  
Consumer behavior  
Purchase intention  
Environmental protection

### CITATION:

Ning, L., Rose Dahlina Rusli, & Asliza Aris. (2025). The Impact of Sustainable Design and Chinese Patchwork on Consumer Purchase Intentions. *Malaysian Journal of Social Sciences and Humanities (MJSSH)*, 10(5), e003344.  
<https://doi.org/10.47405/mjssh.v10i5.3344>

### ABSTRACT

With the growing attention to environmental impact issues, there has been an increased demand for eco-friendly products, making it crucial to understand the factors that influence consumer purchase intentions. This study aims to explore the impact of a sustainable design concept that combines waste fabric with Chinese patchwork art on consumer purchase intention, using denim jeans as a case product. The research employed a questionnaire survey and consumer behavior analysis methods, with 300 respondents, to systematically analyze the relationship between product attributes, consumer attitudes, and purchase intentions in the context of sustainable fashion. The study particularly examines how three factors—model input factors, model influencing factors, and model output factors—affect consumers' purchase intentions. The results of the model input factor analysis show that consumers place significant importance on sustainability and cultural elements. The results of the model influencing factors reveal that consumers with higher ecological awareness and cultural appreciation are more inclined toward sustainability and cultural design features. The results of the model output factor analysis indicate that when presented with denim products that incorporate sustainable materials and cultural elements, consumers have a higher purchase intention. These findings suggest that the integration of cultural artistry and environmental sustainability significantly enhances consumers' purchase intentions, especially among those who value environmental protection and cultural significance. These results highlight the importance of combining sustainability with cultural innovation, offering new creative directions for designers and brands.

**Contribution/Originality:** This study contributes to the existing literature by employing a new research methodology that combines surveys and consumer behavior analysis. It is the first to explore the impact of sustainable design, which

integrates fabric scraps with Chinese patchwork art, on consumer purchase intentions. The findings reveal that the fusion of cultural innovation and environmental values enhances consumers' willingness to purchase.

## 1. Introduction

Sustainability in fashion design is gaining traction amid growing concerns about environmental impact, particularly in the context of reducing waste and reusing materials. As one of the most resource-intensive industries, the fashion industry is under pressure to adopt sustainable practices, prompting a shift toward eco-friendly design and circular economy principles (Charter et al., 2023; Laukkanen et al., 2022; Wahab, 2023). Among various approaches, reusing fabric scraps has emerged as a promising strategy to reduce textile waste, aligning with the broader sustainable development agenda (Chen et al., 2021; Keßler et al., 2021). Additionally, the fusion of traditional cultural elements with contemporary sustainable design offers a novel way to enhance the appeal of eco-friendly products while preserving cultural heritage (Gao & Yezhova, 2023; Hopkins, 2022).

The Chinese art of patchwork has a long history and symbolic use of fabric, providing an opportunity to incorporate cultural craftsmanship into modern fashion. This technique not only embodies creativity and tradition but also resonates with consumers seeking authenticity and uniqueness in their fashion choices (Jinlong et al., 2021; Chen et al., 2024; Tarnovskaya, 2023; Alaswad et al., 2024; Wang & Phanthabutr, 2024; He & Ouyang, 2023). Some studies have explored the role of cultural fusion in fashion, showing that consumers are more likely to purchase products that reflect a combination of tradition and sustainability (Kim, 2025). However, few studies have focused on the specific combination of Chinese patchwork art and sustainable practices, especially in the context of consumer behavior toward denim products.

Previous research has shown that consumers' willingness to pay for sustainable products increases when these products also have cultural or artistic value (Mohammed & Razé, 2023; Chakraborty & Sadachar, 2022). In particular, sustainable denim brands that adopt innovative designs, such as incorporating traditional crafts and sustainable materials, have attracted great interest in the market (Paço et al., 2020; Adeola et al., 2021; Dangelico et al., 2022; Mandarić et al., 2022; Busalim et al., 2022; Pereira et al., 2021). This trend highlights the importance of combining environmentally friendly production methods with cultural narratives to increase consumer engagement and purchase intention.

Despite the growing body of literature in this area, there is still a gap in understanding the specific impact of combining fabric fragments and Chinese patchwork art on consumer purchase intention, especially in the denim market. This study aims to address this gap by examining the impact of this unique design approach on consumer behavior. The objectives of this study are twofold: (1) to examine how the use of fabric fragments and Chinese patchwork art in denim products affects consumers' perceptions of sustainability and cultural values; and (2) to assess the impact of these factors on consumer purchase intention. In doing so, we aim to contribute to the development of sustainable fashion strategies that combine environmental awareness and cultural appreciation, providing insights for designers and fashion brands seeking to cater to eco-conscious and culturally engaged consumers.

## **2. Methods**

This study explores the impact of fabric waste and Chinese patchwork art on consumer behavior in the sustainable fashion domain, with a particular focus on denim products. The research employs a systematic and structured study design aimed at measuring the influence of sustainability and cultural factors on consumer perceptions and purchase intentions. The methodology builds on established approaches in previous studies and has been adjusted to better suit the unique focus of this research. The following section outlines the research design, study location, target population, sampling method, data collection tools, and analysis methods.

### **2.1. Research Design**

This study adopts a quantitative research design, using a structured questionnaire as the primary data collection tool. The design aims to systematically measure and analyze the relationship between product attributes, consumer attitudes, and purchase intentions within the context of sustainable fashion. The quantitative method allows for the use of statistical techniques to analyze the data, ensuring the reliability and generalizability of the results.

### **2.2. Study Location**

The study will be conducted in China, focusing on sustainable fashion, particularly patchwork denim products. Given China's vast territory and diverse population, regional limitations and biases could impact the results. However, the use of online surveys and mainstream social media platforms for data collection effectively mitigates this issue by reaching participants from across various regions, ensuring a broader and more inclusive sample. The research targets consumers who are familiar with or interested in sustainable fashion. By utilizing an online survey platform, the study ensures broad geographical coverage and easy access to a wide range of participants, including those actively engaged in sustainable fashion products. To reach a diverse pool of respondents, the survey will be distributed via popular social media channels, employing a convenience sampling method to capture a range of demographics, including different ages, genders, and socioeconomic backgrounds. China was chosen as the study location due to the increasing demand for sustainable fashion in the region. The online survey platform is particularly suited to this context as it facilitates higher response rates and offers accessibility to a broad and engaged audience, ensuring that the data collected is both diverse and of high quality. This approach maximizes the study's relevance and ensures that insights gathered are applicable to the broader context of sustainable fashion in China.

### **2.3. Target Population**

The target population for this study consists of consumers aged 18 to 45 who have either purchased or expressed interest in sustainable fashion products. This group is chosen due to their active participation in the fashion market and their growing awareness of sustainability and cultural values. The study aims to capture a diverse sample that reflects various socio-economic backgrounds, genders, and geographical locations, ensuring that the research findings are applicable to a broader fashion-consuming audience.

## 2.4. Research Sample

### 2.4.1. Sample Size

The study will include a sample of 300 respondents, which is considered sufficient to ensure statistical power when conducting regression analysis and Structural Equation Modeling (SEM). This sample size is expected to provide reliable insights into the factors that influence consumer behavior in the context of sustainable fashion.

### 2.4.2. Determination of Sample Size

The sample size is calculated using Cohen's *d* effect size formula, targeting a medium effect size of 0.3 (Cohen, 2013). This calculation is based on relevant research in the field of consumer behavior, where similar sample sizes have been shown to yield valid results. The formula ensures that the sample size is large enough to detect significant relationships between variables, with a confidence level of 95% and a margin of error of 5%.

### 2.4.3. Sampling Method

The study will employ a convenience sampling method by recruiting respondents through an online platform aimed at individuals interested in sustainable fashion. Although convenience sampling is not random, it is a practical and effective method for collecting data from a specific consumer group. Moreover, the study will make efforts to ensure demographic diversity within the sample to minimize potential biases.

## 2.5. Research Instrument

The main data collection tool will be a structured questionnaire. The questionnaire used in this study was developed based on the research objectives and was designed to be comprehensive, reliable, and valid. It combines established scales from previous literature, with slight modifications to fit the context of sustainable fashion and cultural integration.

The questionnaire is divided into three sections, each targeting a specific construct that is critical to the research objectives. Table 1 outlines the questionnaire structure used in the study, dividing the factors into three parts: model input factors, model influence factors, and model output factors. Model input factors focus on product attributes, such as sustainability and Chinese patchwork art, and how they influence consumers' perceptions of sustainability and cultural significance. Model influence factors assess consumers' consumption values, specifically their attitudes towards sustainability, cultural heritage, and environmental preferences. Model output factors measure key outcomes—perceived value, attitude, and purchase intention—to determine how input and influence factors drive consumer behavior.

### 2.5.1. Model Input Factors Measurement Scale

This section assesses the various product attributes that may influence consumer perceptions of sustainability and cultural value. These attributes include the use of fabric scraps, the incorporation of Chinese patchwork art, and other relevant features such as the quality of materials and design. Items for this scale were adapted from

existing studies on sustainable fashion and consumer perception (Paço et al., 2020; Adeola et al., 2021; Dangelico et al., 2022; Mandarić et al., 2022; Busalim et al., 2022; Pereira et al., 2021).

Table 1: Overview of the Questionnaire Structure

Section	Measurement Focus	Example Items
Model Input Factors	Product attributes (sustainability, Chinese patchwork art)	<p>"I believe that using fabric scraps in fashion products reduces environmental impact."</p> <p>"Chinese patchwork art in denim products increases the appeal of the product."</p> <p>"The quality of materials used in sustainable fashion products is important to me."</p>
Model Influencing Factors	Consumer attitudes (sustainability, cultural values)	<p>"I prefer buying fashion products that contribute to environmental sustainability."</p> <p>"I value cultural heritage reflected in the products I purchase."</p> <p>"I consider a brand's sustainability efforts when making purchase decisions."</p>
Model Output Factors	Perceived value, attitude, purchase intention	<p>"I feel that denim products incorporating fabric scraps and Chinese patchwork art offer higher perceived value."</p> <p>"I would recommend denim products that incorporate traditional craftsmanship to my friends."</p> <p>"I am more likely to purchase denim products that include sustainable materials and cultural elements."</p>

### 2.5.2. Model Influencing Factors Measurement Scale

This scale evaluates the consumer’s attitudes toward sustainability and cultural preservation, capturing their consumption values and attitudes related to eco-friendly and culturally significant fashion. Items in this section are derived from scales measuring eco-consciousness, cultural appreciation, and purchase behaviors (Kim, 2025).

### 2.5.3. Model Output Factors Measurement Scale

This section measures the impact of the above factors on consumers’ perceived value, attitude toward the product, and their purchase intention. These three outcome variables are key to understanding consumer behavior in the context of sustainable fashion and culturally integrated designs (Mohammed & Razé, 2023; Chakraborty & Sadachar, 2022).

Table 2 presents the 5-point Likert scale used in the study to measure respondents' agreement with various statements. The scale allows respondents to indicate their level of agreement, ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). This format ensures consistent measurement for all items, making it easier to analyze the data quantitatively.

Table 2: 5-Point Likert Scale for Measuring Respondents' Agreement Level

Description	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Scale Value	1	2	3	4	5

## 2.6. Data Collection

The data collection process involved distributing the questionnaire to consumers who were familiar with or had experience purchasing sustainable fashion items. The sample was convenience-sampled to cover a diverse group of respondents of different ages, genders, and socioeconomic backgrounds. Respondents were recruited through an online platform to ensure broad coverage and participation.

Before the questionnaire was fully distributed, two tests were conducted: first, a small-scale test with 30 respondents was conducted to improve the clarity and appropriateness of the questions. The questionnaire was then adjusted based on initial feedback to ensure that the questions were concise and aligned with the needs of the target population. After that, a pilot test with 25 participants further optimized the wording of the questions and ensured that they were easy to understand.

Finally, the questionnaire was distributed through an online platform, specifically targeting consumers with experience or interest in sustainable fashion, in order to increase the response rate and data diversity.

## 2.7. Data Analysis

Data analysis will combine descriptive and inferential statistical techniques. Descriptive statistics (e.g., means, standard deviations) will be used to summarize sample characteristics and Likert scale responses. Inferential statistics will be applied, including factor analysis to validate constructs, regression analysis to examine predictive relationships, and structural equation modeling (SEM) to test theoretical frameworks. All analyses will be conducted using SPSS (version 27) software.

## 2.8. Ethical Considerations

Ethical approval was obtained from UITM ethics committee. All participants were informed of the purpose of the study and their rights, including confidentiality, voluntary participation, and the option to withdraw at any time. Informed consent was obtained prior to participation, with additional clarification provided where necessary to ensure participant understanding.

## 3. Results

The results section presents the analysis of the data collected from the structured questionnaire designed to explore the impact of fabric scraps and Chinese patchwork art on consumer behavior, specifically in the context of denim products. The analysis is presented with clear tables and figures to enhance the clarity of the findings, and statistical tests are performed to investigate the relationships between product attributes, consumer attitudes, and purchase intentions.

### 3.1. Descriptive Statistics

The initial step in data analysis involved calculating descriptive statistics to summarize the key characteristics of the respondents and their answers. A total of 300 completed questionnaires were collected. [Table 3](#) presents the makeup of the sample population of

survey respondents, providing insight into the diverse profile of participants who participated in the study.

Table 3: Demographic Distribution of Survey Respondents

Demographic Factor	Category	Frequency	Percentage
Gender	Male	120	40%
	Female	180	60%
Age Group	18-24	80	26.7%
	25-34	120	40%
	35-44	60	20%
	45+	40	13.3%
Income Level	Low (<¥3,000)	50	16.7%
	Medium (¥3,000-¥20,000)	150	50%
	High (>¥20,000)	100	33.3%

In terms of gender, the sample shows a relatively balanced distribution, with both male and female respondents being well-represented. This balance ensures that the survey findings reflect the perspectives and behaviors of both genders, allowing for a more accurate understanding of how different groups may respond to the study's key questions or issues.

Regarding age, the sample covers a broad range of age groups, indicating that the research captures the opinions and behaviors of individuals from various stages of life. The majority of respondents were in the 18 to 34 age bracket, with a significant portion from the 25 to 34 age group. This demographic is often considered crucial in studies related to emerging trends, technology use, and consumer behaviors. However, there is also representation from older age groups, ensuring that the survey results are not skewed toward a specific age cohort. This age diversity is important because it provides a more holistic view of the population's behaviors and attitudes.

Income distribution is another key aspect of the sample profile. Most respondents fell within the medium-income range, with a significant number earning between ¥3,000 and ¥20,000 annually. This suggests that the survey captured the views of individuals from the middle class, who may represent a large portion of the general population in terms of purchasing power and consumption habits. However, it is also worth noting that the sample includes respondents from higher-income brackets, providing insight into the attitudes and behaviors of individuals with greater financial means. While the inclusion of these groups enriches the study, it is important to recognize that the representation of low-income respondents might be underrepresented, which could affect the generalizability of certain findings. Overall, [Table 3](#) highlights the diversity in terms of gender, age, and income among the survey respondents, offering a broad and well-rounded view of the sample population. The sample represented a balanced distribution in terms of gender and a broad range of ages. The majority of respondents had medium income levels.

### 3.2. Reliability and Validity of the Questionnaire

[Table 4](#) shows that the reliability of the questionnaire was assessed using Cronbach's alpha, which provides a measure of internal consistency. A Cronbach's alpha value above

0.7 is considered acceptable in social science research. The overall reliability of the questionnaire was 0.85, indicating good internal consistency. The three scales (Model Input Factors, Model Influencing Factors, and Model Output Factors) all demonstrated strong reliability, with values of 0.81, 0.79, and 0.83, respectively.

Table 4: Questionnaire Reliability Survey

Scale	Cronbach's Alpha	Interpretation
Overall Questionnaire	0.85	Good internal consistency
Model Input Factors	0.81	Strong reliability
Model Influencing Factors	0.79	Strong reliability
Model Output Factors	0.83	Strong reliability

### 3.3. Factor Analysis

To validate the construct validity of the questionnaire and ensure that the items measured the intended variables, factor analysis was performed using principal component analysis (PCA) with varimax rotation. In the factor analysis in [Table 5](#), we identified three main factors: product attributes, consumer attitude, and purchase intention. These three factors together explained 72% of the total variance, indicating that the questionnaire scale has good validity in capturing these latent constructs. Among them, product attributes explained 30% of the variance, suggesting that the sustainability and cultural design of the product play an important role in consumer cognition. Consumer attitude accounted for 26% of the variance, indicating that consumers' environmental awareness and cultural identity significantly influence their purchasing decisions. Purchase intention explained 16% of the variance, showing that consumers' purchase intention is closely related to their perception of product value.

Table 5: Factor Analysis Summary

Factor	Description	Variance Explained
Product Attributes	Sustainability and cultural design elements in denim products	30%
Consumer Attitudes	Eco-consciousness and cultural appreciation in consumers	26%
Purchase Intention	Consumer intent to purchase based on perceived value and relevance	16%
Total Variance	-	72%

### 3.4. Model Input Factors

The first factor, representing product attributes, showed that sustainability and cultural elements (such as the use of fabric scraps and Chinese patchwork art) were highly valued by consumers. The results from the factor analysis indicated that these attributes contributed significantly to the perceived quality and environmental friendliness of denim products.

[Table 6](#) shows the impact of product attributes on consumers. The mean of both items is

over 4.2, indicating that most consumers believe that the use of fabric waste plays an important role in reducing environmental impact, while the incorporation of Chinese embroidery significantly enhances the product's attractiveness. These data demonstrate that consumers have a high level of recognition for sustainable and culturally distinctive products. This also indicates that, in the modern consumer market, environmental protection and cultural values are increasingly becoming important factors in purchasing decisions.

Table 6: Model Input Factors - Product Attributes

Item	Mean	SD	Impact on Perceived Quality and Environmental Friendliness
"I believe fabric scraps reduce environmental impact."	4.22	0.89	Significant
"Chinese patchwork art in denim products increases the appeal of the product."	4.15	0.92	Significant

### 3.5. Model Influencing Factors

The second factor, which measured consumer attitudes toward sustainability and cultural preservation, revealed that consumers with higher eco-consciousness and cultural appreciation tended to rate sustainability and cultural design features more favorably.

Table 7 shows the impact of consumer attitudes on purchasing decisions. The data highlights the importance of environmental sustainability (mean 4.35) and cultural heritage (mean 4.10) in shaping consumer attitudes. Scores of 4.0 and above on a 5-point Likert scale are interpreted as indicating strong preferences or influences. Most consumers tend to choose products that contribute to environmental protection and place particular value on the cultural elements embodied in the products. This indicates that when consumers strongly recognize sustainable development and cultural heritage, their preference for and intention to purchase such products will increase accordingly. Therefore, companies that incorporate cultural elements and sustainable concepts into product design will have a stronger competitive edge in the market.

Table 7: Model Influencing Factors - Consumer Attitudes

Item	Mean	SD	Influence on Purchase Decision
"I prefer buying products that contribute to environmental sustainability."	4.35	0.77	Strong
"I value cultural heritage reflected in the products I purchase."	4.10	0.85	Strong

### 3.6. Model Output Factors

The third factor measured consumers' perceived value, attitude, and purchase intention. The data indicated that consumers were more likely to consider purchasing denim products that incorporate fabric scraps and Chinese patchwork art if they perceived higher value and relevance to their personal values.

Table 8 shows the relationship between purchase intention, product attributes, and consumer attitudes. When presented with denim products that feature sustainable materials and cultural elements, consumers displayed a higher purchase intention (mean 4.28). Additionally, they were more likely to recommend such products to others (mean 4.32). In a Likert scale (1-5), scores above 4 indicate strong agreement, reflecting a high likelihood of purchase and recommendation. This data demonstrates that the environmental friendliness and cultural value of a product directly influence consumers' purchase intention and recommendation behavior. It is evident that if companies can enhance the cultural significance of their products and highlight their environmental features, it will have a significant impact on driving sales and boosting brand promotion.

Table 8: Model Output Factors - Purchase Intention

Item	Mean	SD	Impact on Purchase Intention
"I am more likely to purchase denim products that include sustainable materials and cultural elements."	4.28	0.83	High likelihood
"I would recommend denim products that incorporate traditional craftsmanship to my friends."	4.32	0.80	High likelihood

### 3.7. Regression Analysis

To further explore the relationships between the factors, regression analysis was conducted to understand the strength and direction of their interactions. This statistical method allowed us to quantify the influence of each variable, identify key predictors, and gain insights into how they collectively affect the outcome.

Table 9 shows the results of the regression analysis, revealing the significant effects of product attributes ( $\beta = 0.46, p < 0.001$ ) and consumer attitudes ( $\beta = 0.39, p < 0.001$ ) on purchase intention.

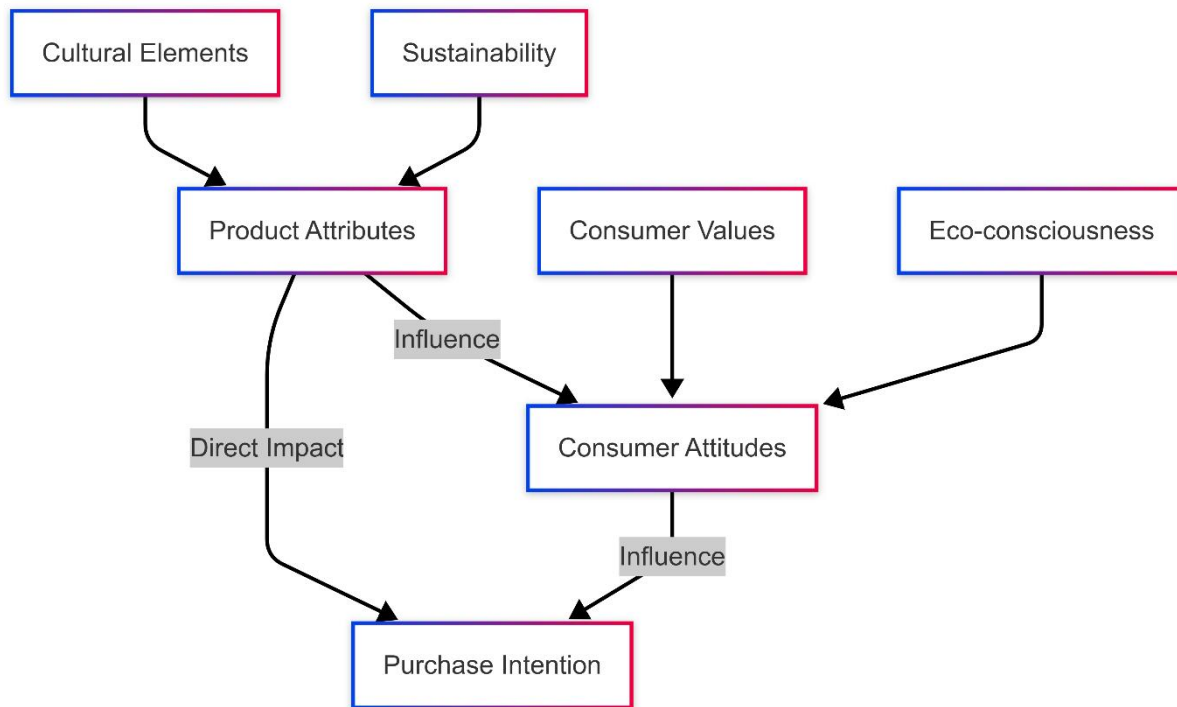
Table 9: Regression Analysis Results

Predictor	Beta ( $\beta$ )	p-value	Interpretation
Product Attributes	0.46	< 0.001	Significant positive impact on purchase intention
Consumer Attitudes	0.39	< 0.001	Significant positive impact on purchase intention

The positive regression coefficients indicate that the sustainability and cultural value of the product have a significant positive impact on consumers' purchase intention. Notably, the influence of product attributes ( $\beta = 0.46$ ) is stronger than that of consumer attitudes ( $\beta = 0.39$ ), the interpretations of these findings are based on the statistical significance of the regression coefficients ( $p\text{-value} < 0.001$ ) and the direction of the relationship (positive), suggesting that the product's characteristics play a more critical role in driving purchase intention. This finding provides strong support for companies developing new products, particularly those incorporating cultural heritage and environmentally friendly design. It underscores the importance of these two factors in enhancing consumer purchase intention.

The path model in Figure 1 uses Structural Equation Modeling (SEM) to visually represent the relationships between the variables in the study. The path model in Figure 1 shows that cultural elements and sustainability have a significant impact on product attributes.

Figure 1: Path Model of the Research Model



Specifically, cultural elements may influence product attributes by strengthening cultural identity or by meeting specific cultural needs, making the product more aligned with consumer cultural preferences. Sustainability factors, on the other hand, may optimize product attributes by enhancing characteristics such as environmental friendliness and health. These product attributes further affect consumers' values and ecological awareness, which, to some extent, determine their attitudes. Consumers' attitudes, in turn, directly influence their purchase intentions. Finally, product attributes, through their direct impact on purchase intentions, further enhance consumers' motivation to buy the product. Therefore, the model in this study reveals how cultural elements and sustainability influence consumer attitudes and purchase decisions through product attributes, reflecting the complex network of relationships behind consumer behavior. This model provides strong theoretical support for brands when formulating market strategies, especially when targeting consumer groups with strong cultural identity and environmental awareness, helping to enhance consumers' purchase intentions by optimizing product attributes.

The data in Table 10 suggests that both product attributes (sustainability and cultural elements) and consumer attitudes toward sustainability and cultural preservation positively influence purchase intention. Consumers are more likely to purchase denim products that feature fabric scraps and Chinese patchwork art due to the perceived environmental and cultural value.

Table 10: Summary of Results

Factor	Mean	Standard Deviation	Significance
Product Attributes (Input)	4.21	0.87	p < 0.001
Consumer Attitudes	4.22	0.79	p < 0.001
Purchase Intention (Output)	4.31	0.80	p < 0.001

## 4. Discussion

This study provides valuable insights into the factors that influence consumer behavior, particularly within the denim industry, where sustainability and cultural elements such as fabric scraps and Chinese patchwork art are playing an increasingly important role. The results indicate a strong alignment between consumers' preferences for environmental sustainability and cultural authenticity, highlighting how these factors influence their purchase intentions.

### 4.1. Product Attributes and Consumer Perceptions

The results from the factor analysis revealed that both sustainability and cultural elements are highly valued by consumers. Specifically, the environmental benefits of using fabric scraps were emphasized, with the statement "I believe fabric scraps reduce environmental impact" receiving a high mean score of 4.22. This suggests that eco-consciousness is a significant driver in consumer purchasing decisions, particularly in industries like fashion, where sustainability is becoming a central concern. Additionally, the statement "Chinese patchwork art in denim products increases the appeal of the product," which scored 4.15, indicates that cultural design also positively influences consumer perceptions. This reflects the growing trend where consumers seek products that are not only environmentally responsible but also rich in cultural value.

### 4.2. Consumer Attitudes and Values

The second factor examined consumer attitudes toward sustainability and cultural preservation, providing deeper insights into why these attributes matter to consumers. Respondents who displayed higher levels of eco-consciousness and cultural appreciation tended to rate both sustainability and cultural design more favorably. For example, the statement "I prefer buying products that contribute to environmental sustainability" received a high mean score of 4.35, demonstrating that sustainability is a key priority for many consumers. Similarly, the statement "I value cultural heritage reflected in the products I purchase," with a score of 4.10, highlights the importance of cultural appreciation in consumer decision-making. These findings emphasize that aligning consumer values with purchasing behavior is crucial, as an increasing number of individuals make decisions based on their environmental and cultural beliefs.

### 4.3. Purchase Intention and Behavioral Influence

The third factor explored how these perceptions translate into actual consumer behavior, specifically focusing on purchase intentions. Respondents were more likely to purchase denim products featuring fabric scraps and Chinese patchwork art when they perceived these products as aligning with their personal values. For instance, the statement "I am more likely to purchase denim products that include sustainable

materials and cultural elements" scored 4.28, indicating the strong influence these factors have on consumer decision-making. Additionally, the statement "I would recommend denim products that incorporate traditional craftsmanship to my friends," which received a score of 4.32, suggests that consumers are not only likely to buy these products but also willing to advocate for them. This points to the potential for word-of-mouth promotion, as products that resonate with personal values tend to inspire consumer endorsement.

#### 4.4. Implications for Marketing and Design

The findings of this study have important implications for marketers and designers in the fashion industry. As consumers become increasingly selective, the demand for sustainable and culturally rich products is on the rise. Denim brands targeting this growing market segment should consider incorporating sustainable materials and culturally significant designs, such as fabric scraps and Chinese patchwork art, into their product offerings. By doing so, brands can enhance purchase intentions, build stronger brand loyalty, and cater to consumers who are not only seeking functional products but also items that reflect their ethical stance and cultural appreciation. Aligning products with these values can foster deeper connections with consumers, thereby increasing brand affinity and customer retention.

#### 4.5. Statistical Significance and Regression Analysis

The regression analysis further supports the validity of these findings, showing that both product attributes ( $\beta = 0.46$ ,  $p < 0.001$ ) and consumer attitudes ( $\beta = 0.39$ ,  $p < 0.001$ ) significantly predict purchase intention. These results provide statistical evidence that the perceived value of sustainability and cultural design directly influences consumer purchase behavior. The high explanatory power demonstrated by the path model also suggests that sustainability and cultural preservation are key drivers of consumer decision-making in the denim category. This underscores the importance for brands to emphasize these attributes in their marketing and design strategies, as they are proven to have a significant impact on purchasing behavior.

In conclusion, this study underscores the increasing importance of sustainability and cultural elements in shaping consumer preferences and purchasing behavior in the denim market. The integration of fabric scraps and Chinese patchwork art not only enhances the environmental and cultural value of denim products but also significantly influences consumer attitudes and purchase intentions. By aligning product offerings with consumer values related to sustainability and cultural heritage, denim brands can foster greater consumer loyalty and attract an increasingly conscious, values-driven market. This research highlights the growing significance of these attributes in consumer decision-making and offers valuable insights for brands looking to capitalize on these trends. As demand for sustainable and culturally rich products continues to rise, brands that embrace these consumer preferences are likely to experience increased sales and improved brand loyalty, while those who fail to do so may struggle to stay competitive in the market.

The following [Figure 2](#) illustrates the conceptual framework of consumer behavior in relation to sustainable denim products incorporating fabric scraps and Chinese patchwork art.

Figure 2: Conceptual Framework of Consumer Behavior

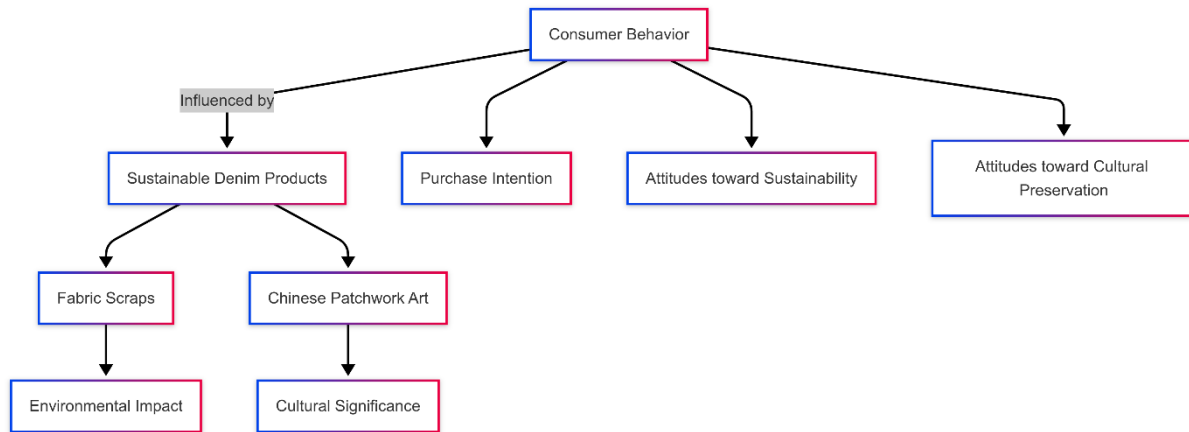


Table 11 summarizes the key findings of the study, along with their implications and actionable insights. It highlights the relationship between consumer values, such as sustainability and cultural awareness, and their impact on purchase intention and brand loyalty. The Table 11 outlines specific actions brands can take to align with consumer preferences, such as integrating eco-friendly materials, emphasizing cultural heritage, and focusing on sustainability in marketing campaigns. These insights are designed to help brands make strategic decisions that resonate with environmentally and culturally conscious consumers, ultimately driving greater engagement and loyalty.

Table 11: Summary of Key Findings and Implications

Finding	Implication	Actionable Insight
Consumers value sustainability and cultural design elements	Brands should integrate eco-friendly materials and cultural elements into products	Focus on developing sustainable denim with traditional designs like Chinese patchwork art
Eco-conscious and culturally aware consumers are more likely to purchase	Marketing strategies should emphasize product sustainability and cultural heritage	Promote sustainable practices and cultural elements in marketing campaigns
Positive consumer attitudes predict higher purchase intentions	Highlight the perceived value of sustainable and culturally rich products	Educate consumers on the benefits of sustainability and the cultural significance of products
Higher value placed on sustainability leads to stronger brand loyalty	Brands that align with consumer values can foster long-term loyalty	Build brand loyalty by consistently promoting sustainable and culturally aligned products

## 5. Conclusion

The results of this study clearly show that product attributes, such as the use of fabric scraps and Chinese patchwork art, play an important role in shaping consumer behavior in the sustainable fashion market. The combination of environmental awareness and cultural appreciation enhances consumers' value perception, which, in turn, positively influences their purchase intentions. These findings highlight the importance of sustainability and cultural preservation in modern consumer decision-making, particularly in the denim industry.

These results provide valuable insights for brands and designers, helping them incorporate sustainable practices and cultural elements into their products to appeal to a wider consumer base. Future research could explore other product categories or geographic markets to expand these findings.

In conclusion, this study reveals the significant role of sustainability and cultural elements in shaping consumer behavior in the fashion industry, especially within the denim market. The strong relationship between product attributes, consumer attitudes, and purchase intentions highlights the growing demand for sustainable and culturally rich products. For fashion brands, this presents an opportunity to innovate and differentiate. By incorporating sustainability and cultural preservation into their products, brands can not only increase sales but also build long-term consumer loyalty and establish themselves as ethical and culturally conscious fashion leaders.

Additionally, the study suggests that future research could explore the impact of these factors across different product categories and consumer groups, as well as the global implications of sustainability and cultural preservation in the fashion industry. Further investigation into specific cultural elements of consumer preferences and the impact of various sustainability practices may provide deeper insights for the fashion industry.

### **Ethics Approval and Consent to Participate**

This study followed the research ethics guidelines set by the Research Ethics Committee of Universiti Teknologi MARA (UiTM). All procedures involving human participants were carried out in compliance with the ethical standards of the institutional research committee. Informed consent was obtained from all participants in accordance with the principles outlined in the Declaration of Helsinki.

### **Acknowledgment**

The authors would like to extend their gratitude to all participants of this study for their valuable contributions and to the editors and anonymous reviewers for their expertise and insightful suggestions.

### **Funding**

No funding.

### **Conflict of Interest**

The authors declare no conflict of interest and no potential conflicts of interest concerning the research, authorship, or publication of this paper.

### **References**

Adeola, O., Moradeyo, A. A., Muogboh, O., & Adisa, I. (2021). Consumer values, online purchase behaviour and the fashion industry: an emerging market context. *PSU Research Review*, 8(1), 68-83. <https://doi.org/10.1108/prr-04-2021-0019>

- Alaswad, M., Fiad, N., Muhammad, R., Muhammad, K., Farghaly, S., & Hassabo, A. (2024). Achieving environmental sustainability using the art of patchwork in contemporary clothing design. *Journal of Textiles Coloration and Polymer Science*, 0(0), 0. <https://doi.org/10.21608/jtcps.2024.258402.1257>
- Busalim, A., Fox, G., & Lynn, T. (2022). Consumer behavior in sustainable fashion: A systematic literature review and future research agenda. *International Journal of Consumer Studies*, 46(5), 1804-1828. <https://doi.org/10.1111/ijcs.12794>
- Cohen, J. (2013). *Statistical power analysis for the behavioral sciences*. Routledge.
- Chakraborty, S., & Sadachar, A. (2022). Can a connection with the indigenous cultural values encourage sustainable apparel consumption? *Journal of Fashion Marketing and Management*, 27(1), 80-99. <https://doi.org/10.1108/jfmm-07-2021-0191>
- Charter, M., Pan, B., & Black, S. (2023). *Accelerating sustainability in fashion, clothing and textiles*. Routledge.
- Chen, S., Zhang, L., Ren, X., Xu, R., & Wang, L. (2024). Design and production of woven rope embroidery and patchwork decorative wall hangings. *Journal of Art, Culture and Philosophical Studies*, 1(1). <https://doi.org/10.70767/jacps.v1i1.52>
- Chen, X., Memon, H. A., Wang, Y., Marriam, I., & Tebyetekerwa, M. (2021). Circular economy and sustainability of the clothing and textile industry. *Materials Circular Economy*, 3(1). <https://doi.org/10.1007/s42824-021-00026-2>
- Dangelico, R. M., Alvino, L., & Fraccascia, L. (2022). Investigating the antecedents of consumer behavioral intention for sustainable fashion products: Evidence from a large survey of Italian consumers. *Technological Forecasting and Social Change*, 185, 122010. <https://doi.org/10.1016/j.techfore.2022.122010>
- Gao, X., & Yezhova, O. (2023). Chinese Traditional Patterns And Totem Culture In Modern Clothing Design. *Art And Design*, 2, 20 - 30. <https://doi.org/10.30857/2617-0272.2023.2.2>
- Hopkins, J. (2022). *Fashion Design: The Complete guide*. Bloomsbury Publishing Plc.
- He, C., & Ouyang, M.(2023). Research on the application of formal beauty in patchwork art in contemporary women's wear design. *Highlights in Art and Design*, 2(1), 22-25. <https://doi.org/10.54097/hiaad.v2i1.5190>
- Jinlong, Y., Yue, W., Yanxiang, C., Yuanyuan, Z., Huiyi, W., & Yan, W. (2021). Research on innovative design of patchwork art based on the concept of Sustainable Development—Take the creation of “HUI Yu Men Ting” as an example. *Journal of Physics Conference Series*, 1790(1), 012026. <https://doi.org/10.1088/1742-6596/1790/1/012026>
- Keßler, L., Matlin, S. A., & Kümmerer, K. (2021). The contribution of material circularity to sustainability—Recycling and reuse of textiles. *Current Opinion in Green and Sustainable Chemistry*, 32, 100535. <https://doi.org/10.1016/j.cogsc.2021.100535>
- Kim, I. (2025). *Fashion trends*. Publifye AS.
- Laukkanen, M., & Tura, N.(2022). Sustainable value propositions and customer perceived value: Clothing library case. *Journal of Cleaner Production*, 378, 134321. <https://doi.org/10.1016/j.jclepro.2022.134321>
- Mandarić, D., Hunjet, A., & Vuković, D. (2022). The impact of fashion brand sustainability on consumer purchasing decisions. *Journal of Risk and Financial Management*, 15(4), 176. <https://doi.org/10.3390/jrfm15040176>
- Mohammed, V., & Razê, A. (2023). Towards Sustainable Fashion Consumption: An Exploratory study of consumer behavior in a developing country. *Journal of Sustainable Marketing*, 1-21. <https://doi.org/10.51300/jsm-2023-105>
- Paço, A., Filho, W. L., Ávila, L. V., & Dennis, K. (2020). Fostering sustainable consumer behavior regarding clothing: Assessing trends on purchases, recycling and disposal.

- Textile Research Journal*, 91(3 - 4), 373 - 384.  
<https://doi.org/10.1177/0040517520944524>
- Pereira, L., Carvalho, R., Dias, Á., Costa, R., & António, N. (2021). How does sustainability affect consumer choices in the fashion industry? *Resources*, 10(4), 38.  
<https://doi.org/10.3390/resources10040038>
- Tarnovskaya, V. (2023). Sustainability as the Source of Competitive Advantage. *How Sustainable is it?* In International Business and Management Series
- Wang, S., & Phanthabutr, S. (2024). The design and development of Dabujiang Patchwork embroidery for modern bags. *International Journal of Sociologies and Anthropologies Science Reviews*, 4(6), 677 - 690.  
<https://doi.org/10.60027/ijsasr.2024.5232>
- Wahab, N. F. A. (2022). Using fabric manipulation as an important aspect of zero waste fashion implementing fashion sustainability. *International Journal of Design and Fashion Studies*, 5(2), 1-37. <https://doi.org/10.21608/ijdfs.2022.274083>