

A MORE CREATIVE WORLD IS A MORE SUSTAINABLE ONE:
EXTENDING PRODUCT USAGE THROUGH CREATIVITY, EMOTIONAL
ATTACHMENT, AND ENVIRONMENTAL AWARENESS

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Abstract

This study investigates the influence of consumer creativity on product usage extension through the mediating role of emotional attachment and the moderating role of environmental awareness within the fashion retail sector in Pakistan. Grounded in Attachment Theory, the study proposes that creative consumer engagement strengthens emotional consumer-product relationships, which subsequently encourage prolonged product usage and sustainable consumption behavior. A quantitative explanatory research design was employed using a cross-sectional survey approach. Data were collected from 400 fashion retail consumers through structured questionnaires and analyzed using SPSS and SmartPLS 4. The findings revealed that consumer creativity positively influences emotional attachment and product usage extension. Emotional attachment significantly enhanced product usage extension and partially mediated the relationship between consumer creativity and sustainable usage behavior. Furthermore, environmental awareness strengthened the relationship between consumer creativity and emotional attachment, indicating that environmentally conscious consumers develop stronger emotional bonds through creative engagement with products. The study contributes theoretically by extending Attachment Theory within sustainable consumption literature and integrating creativity, emotional attachment, and environmental awareness into a unified framework explaining product longevity behavior.

INTRODUCTION

The growing amount of consumption and the speed of product disposal is causing an increasing amount of environmental degradation globally, which is now a major concern for governments, businesses and consumers. Rising trends in waste production, resource depletion, and unsustainable consumption patterns have prompted scholars and organizations to look for ways to increase the lifespan of products, and to minimize unnecessary replacement behaviours. In recent years, researchers have focused on the importance of sustainability, not just in terms of technological innovation, but also through the consumers' behavioral and emotional relationship with products. People are increasingly being urged to repair, reuse, customize and have an emotional connection to products before discarding them quickly. Upcycling, redesigning and personalized use are now considered as key ways towards sustainable lifestyles (Wilson, 2016; Bridgens et al., 2018). Likewise, the emotional connection with products has become an important factor in the product's life span as products with emotional value are less likely to be replaced or discarded (Kowalski & Yoon, 2022). Thus, the concept of creativity and emotional involvement in sustainable consumption has become an important research area in today's consumer behavior literature.

Even though the issue of sustainable consumption has been taken up on the global agenda, the developing economies and emerging consumer markets are still plagued with serious issues of over-consumption and short product life cycles. Consumer purchasing behavior in many Asian countries like Malaysia and Pakistan is greatly influenced by rapid urbanization, the influence of social media and the shift of lifestyle preferences; these factors have hastened the tendency for consumers to replace rather than use products for a longer period of time. Environmental awareness

and sustainable values have been suggested to have an impact on consumers' intentions to act in an environmentally responsible manner (Maichum et al., 2016; Yusliza et al., 2020). Meanwhile, creative consumer behavior has become a focus due to the fact that consumers are increasingly modifying, personalizing and repurposing products, which can potentially prolong the life cycle. Consumer creativity and emotional attachment to products and their usage extension is however under-researched in the context of emerging markets, where sustainability awareness is still developing.

Consumer creativity is the capacity of consumers to create new and unique uses or modifications of products that can promote sustainable consumption practices (Chen, 2018). Previous research shows that creative interactions with products increase consumers' psychological and emotional bonds with their possessions (Bridgens et al., 2018). Emotional attachment is the emotional connection that consumers build with products that have personal significance or symbolic value (Kowalski & Yoon, 2022). Emotionally attached consumers tend to keep and look after products, which can increase the lifespan of products (Choi et al., 2018). Moreover, the environmental awareness is the consumers' understanding and concern about the environmental impacts of consumption behavior (Maichum et al., 2016). Research indicates that environmentally conscious people are more inclined to engage in sustainable actions and product life extension practices (Burton & Eike, 2023).

While there is a growing body of research on sustainable consumption and durability of products, the literature still presents several key gaps to be addressed. First, previous studies have mainly explored sustainable consumption in terms of purchasing intentions, green buying behaviour or recycling behaviour, with little consideration of

the extension of product use as a sustainable outcome (Kemi & Zilahy, 2025). The extension of product use is especially relevant, as it will directly decrease the amount of waste produced and the amount of unnecessary resource use. Second, while consumer creativity has been related to green innovation and sustainable practices, previous studies have concentrated on organizational creativity or production-oriented views instead of consumer-level creativity (Chen & Chang, 2013; Afridi et al., 2023). Thus, there is a lack of evidence on the effect of consumer creativity on sustainable post-purchase behavior.

Third, previous research has studied emotional attachment and environmental awareness individually, and few studies have combined these two factors in one model that explains sustainable product use behavior. While previous studies have recognized that emotional attachment can increase consumers' willingness to keep products (Kowalski & Yoon, 2022), the mechanism that leads to the creation of emotional attachment via creativity has been overlooked. In the same manner, environmental awareness has been frequently used as a direct determinant of sustainable behaviour and not as a contextual variable that enhances the psychological links between consumers and products. Fourth, most previous studies have been done in Western countries and have been dominated by fashion or textile industries (Armstrong et al., 2015; Niinimäki & Hassi, 2011) leaving a gap in the context of emerging economies and wider consumer contexts. Thus, there is a lack of an overarching framework that encompasses consumer creativity, emotional bond, environmental concerns, and product longevity in existing sustainability literature.

The modern consumer market is marked by the rapid turnover of products, impulsive buying behavior and the short life cycles of products, all of which add to environmental degradation and unsustainable consumption. Organizations are still

encouraging the use of sustainable products and green branding, but consumers may still be discarding products that are still usable. This action contributes to environmental waste and the lack of sustainability. Current sustainability initiatives focus more on the intention to buy green products, with much less effort going into the promotion of longer lifespan of products. Furthermore, the psychological processes through which creativity can foster personalization and emotional attachment to products and ultimately increase the usage of the product are not understood. This emotional connection could be a key factor, as customers who have an emotional connection to products are less likely to discard them early. Moreover, environmental awareness can enhance consumers' inclination to turn creative involvement into emotional attachment and sustainable action. But empirical evidence explaining these relationships is still disjointed and sparse, especially in emerging consumer settings. Thus, the role of consumer creativity in product usage extension through emotional attachment in different degrees of environmental awareness needs exploration.

The aim of this study is to analyze the effect of consumer creativity on product usage extension, by examining the mediation of emotional attachment and the moderation of environmental awareness in the context of sustainable consumption. The theoretical foundation of this study is sustainable consumption theory and attachment theory, both of which are used to explain how consumers build relationships with products and how they act to extend the lifespan of products and promote environmentally responsible consumption. Theoretically, this study is a first attempt to combine consumer creativity, emotional attachment and environmental awareness in one sustainability construct. In practice, it provides insight for marketers and policymakers to promote product longevity behaviors. The study contributes

to the literature on sustainable consumption in the context of emerging markets where there is still a lack of research on extending product use.

Literature Review

Theoretical Foundation

The Attachment Theory offers a solid theoretical foundation to the understanding of how consumers form emotional bonds with products and how this bond affects their consumption behavior in terms of sustainability. The theory was first introduced in psychology to account for emotional bonds between people, and has since been adapted for use in the consumer behaviour literature to account for human-object relationships and emotional possession attachment. At the core of Attachment Theory is the idea that people form emotional, symbolic, and psychological bonds with objects that are personally meaningful, memory attached, and/or identity affirming. These emotional connections shape attitudes and intentions to act, such as behaviors related to the preservation, protection, and continued use of belongings. In the realm of sustainability literature, Attachment Theory is gaining more and more relevance as consumers who are emotionally attached to a product are more inclined to keep it, repair it and avoid premature disposal (Kowalski & Yoon, 2022). Likewise, Cherrier and Farrelly (2025) claimed that product attachment increases consumers' willingness to sustain a product's life span as the product is incorporated into the consumers' self-concept and identity. This theoretical view has a high relevance with the current study because consumer creativity can enhance the personal interaction with the products, which in turn can boost emotional attachment and lead to extension of product use.

The theory also offers a meaningful explanation for the mediating role of emotional attachment and

the moderating role of the environmental awareness of sustainable consumption behavior. Creative engagement enables consumers to customize, adapt or transform products, giving rise to greater symbolic value and emotional significance. Previous research indicates that creative activities like customization, redesign and upcycling lead to stronger consumer-product relationship as consumers feel that products are extensions of personal identity and creativity (Wilson, 2016; Bridgens et al., 2018). Furthermore, the emotional reaction to sustainable practices may be more pronounced among environmentally conscious consumers as the sense of moral and social good associated with sustainable actions leads to stronger emotional reactions to using a product longer. While some studies have explored the use of Attachment Theory in different contexts, like fashion sustainability, green branding, and sustainable product-service systems, previous applications are still sparse and contextually limited (Armstrong et al., 2015; Fazal-e-Hasan et al., 2025). Previous studies have mostly focused on the direct link between attachment and sustainable behaviour, neglecting the psychological mechanisms that lead to the development of attachment to creativity. Moreover, current theoretical applications have been mostly in the context of the Western consumer market and fashion-related products, and therefore may not be applicable to other product categories and new emerging economies. Therefore, the theoretical integration of the development of consumer creativity and its impact on emotional attachment is still lacking, as is the impact of the environment on the relationship in sustainable product usage behavior. These limitations can be overcome by broadening Attachment Theory to a more extensive sustainability-focused behavioural model.

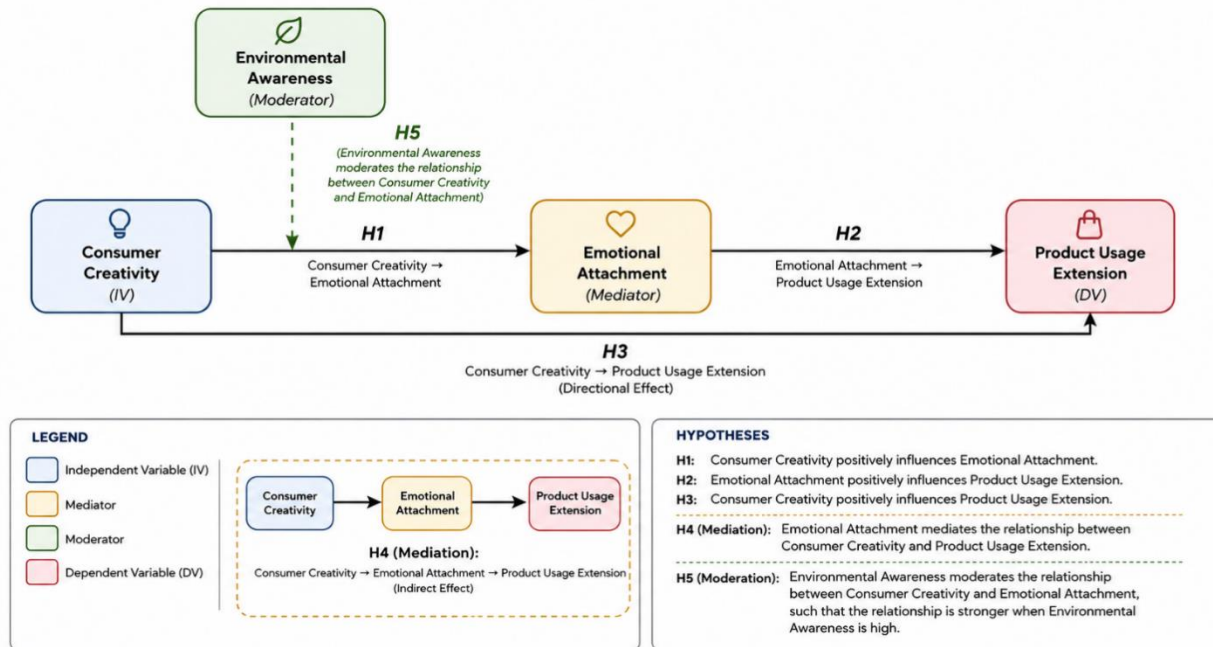


Figure 1: Research Model

Hypotheses

Consumer creativity has been increasingly identified as an important psychological factor behind sustainable consumer behaviour as it offers consumers the opportunity to interpret, personalize and emotionally engage with products. Theoretically, Attachment Theory proposes that emotional connections develop when consumers invest personal meaning, effort and identity into the possessions. The process is enhanced by creative behaviour, as people who adapt or individualize products see them as unique expressions of personal identity and self-expression. Modern sustainability research suggests that creativity can transform the products from just functional products to meaningful possessions, which can enhance the attachment between consumers and products (Chen, 2018). Likewise, Duong (2026) highlighted that the importance of creative branding and sustainability knowledge in strengthening emotional connections between consumers and products is that creativity contributes to the perceived uniqueness and

personal relevance of products. Based on these arguments, consumer creativity is not only a behavior but also a psychological mechanism that can enhance emotional ownership and consumer attachments.

The empirical evidence largely confirms the positive relationship between consumer creativity and emotional attachment, but there are some inconsistencies in the relationship between different contexts and the methodological approaches. Research in upcycling and sustainable product redesign shows that when consumers are involved with the process of creative product modification, they feel more emotionally connected to the product and they also value the product more (Wilson, 2016; Bridgens et al., 2018). Similarly, the study by Haris Fadzilah et al. (2025) reveals that sustainable practices with a focus on creativity have a positive impact on consumer emotional responses towards environment-friendly products. But, much of the previous research has been conducted in the

context of fashion, crafts or branding, and there is still very little research on consumption contexts in general. In addition, some of the studies were heavily qualitative in nature and used exploratory methods, which raise questions about generalizability and causal inferences. There are also mixed evidence that creativity, without emotional or symbolic value in the product experience, does not necessarily lead to attachment. It might be that some consumers will be creatively engaged for functional use and not emotional connection, suggesting that there are contextual and psychological factors that impact this relationship. Nevertheless, the literature is unanimous in suggesting that creative involvement leads to an increase in the emotional involvement of consumers with the product, in terms of personalization, relevance of identity and symbolic meaning. However, there is a lack of empirical considerations in the field of emerging economies and sustainable product usage contexts, resulting in a lack of context and theory. Therefore, the present study proposes the following hypothesis:

H1: Consumer creativity positively influences emotional attachment.

Emotional attachment is a key factor in sustainable consumption as it is likely that products that are emotionally valued will be kept, protected and continuously used over time. According to Attachment Theory, people learn to adopt "preservation-oriented" behaviors with items that have emotional value or symbolic meaning. Emotionally attached consumers may view products as part of their self-identity, a memory, or a personal experience and find it challenging to dispose of the product. This emotional bond promotes product maintenance, repair, and extended use, thus contributing to sustainability goals. Emotional attachment has become a key mechanism in recent sustainability literature when it comes to decreasing waste production and promoting the longevity of products (Kowalski &

Yoon, 2022). Choi et al. (2018) also suggested that consumers who are emotionally attached are less likely to engage in the premature replacement behavior as attachment makes them feel the product is irreplaceable and has sentimental value. Therefore, emotional attachment can be seen as a key psychological mechanism that can link consumer experiences to sustainable post-purchase behavior.

Recent empirical results offer significant evidence for the positive effect of emotional attachment on product extension, with some inconsistencies in the context. Cherrier and Farrelly (2025) discovered that higher levels of object attachment strongly promote consumers' efforts to give their products a second life and sustainably use them. Likewise, Burton and Eike (2023) found that consumers with emotional connections are more likely to reuse, repair and preserve garments. Emotional attachment also has been shown to decrease the willingness of consumers to change a product even if a replacement product is available, as part of research on sustainable product-service systems (Armstrong et al., 2015). But there are some scholars who believed that the effect of attachment can be different in every product category, cultural value, and consumption motive. For instance, a utilitarian product which does not have a lot of symbolic value may not create much attachment despite extended use. Further, previous research focused mainly on the fashion and textile sectors, and empirical knowledge is scarce in other consumer goods sectors. In methodological terms, some studies used cross sectional designs and thus failed to reflect long-term attachment development and behavioral change. Additionally, although cultural perceptions of ownership and sustainability vary in emerging market contexts, these are underrepresented. These restrictions suggest that the link between emotional attachment and product use extension needs to be further empirically tested in different contexts and

sustainability settings. Therefore, the current study hypothesizes the following relationship:

H2: Emotional attachment positively influences product usage extension.

Consumer creativity has become more and more a topic in sustainability literature, as creative consumers are more likely to reinterpret the value of a product and find other uses that will increase the life of the product. Creative consumption behavior helps consumers to repair, customize, repurpose, and redesign products, which helps to reduce excessive consumption and environmental waste. Theoretically, creative involvement enhances consumers' cognitive and emotional involvement with products, thereby enhancing perceived utility and value. Creativity is said to help consumers transcend traditional consumption habits and to make products their own and meaningful belongings (Wilson, 2016). Likewise, Chen (2018) pointed out that art and creative thinking can motivate consumers to act sustainably as they are more involved in the preservation-oriented consumption. Thus, consumer creativity can have a direct impact on product usage extension as a result of consumers' innovative and emotion-laden relationship with products.

The general results from the empirical studies indicate that there is a positive relationship between consumer creativity and sustainable usage behavior, while inconsistencies and limitations within the context of the studies are apparent. Bridgens et al. (2018) discovered that creative upcycling practices would reengage consumers with products and materials, making them more likely to maintain and reuse over a longer period. Similarly, Haris Fadzilah et al. (2025) found that creativity-oriented sustainable behavior has a positive impact on environmentally responsible consumer actions. Furthermore, the literature on sustainable fashion consumption also shows that more creative consumers are more likely to engage in reuse and life-extension practices (Burton &

Eike, 2023). But, inconsistent results indicate that creative efforts are not always effective in inducing product longevity, as other factors such as social trends, technological obsolescence and material quality also impact on product disposal. In addition, past research has tended to view creativity as a general phenomenon, failing to differentiate between functional creativity and emotionally motivated creativity, and thus introducing a conceptual ambiguity in the literature. Many studies have measured sustainability intentions instead of actual post-purchase behaviour which reduces the validity of behaviours. Moreover, empirical studies are still focused on western societies and fashion related industries, with a lack of studies in emerging economies and general consumer product contexts. These gaps suggest that a more integrated approach is needed to understanding the direct link between consumer creativity and product use extension in the context of sustainability-oriented behavioral frameworks. Therefore, the present study proposes the following hypothesis:

H3: Consumer creativity positively influences product usage extension.

The mediating effect of emotional attachment offers a valuable psychological mechanism to understand the relationship between consumer creativity and sustainable product use behavior. According to Attachment Theory, the emotional ties formed between consumers and products by means of personal involvement, symbolic meaning and identity expression results in the behavioral attachment of consumers to the product. These emotional connections are reinforced by creative engagement as consumers who put effort into the personalization or modification of products often feel that they are extensions of their self-identity. Emotional attachment, therefore, can be used as a psychological mechanism to explain how creativity can help retain products and keep them in use. Modern sustainability studies highlight that

sustainability behavior is not only influenced by attitudes towards sustainability, but also by emotional and symbolic connections between the consumer and the product (Kowalski & Yoon, 2022). In a similar manner, Duong (2026) posited that consumer experiences focused on creativity foster emotional bonds, which in turn impact sustainable consumer behaviors. So, emotional attachment is a theoretical explanation for the evolution of creative product interaction into sustainable usage practices.

There is indirect evidence from empirical studies that supports the mediating role of emotional attachment, but there is limited research on directly testing this mechanism in integrated sustainability frameworks. The study of creative upcycling shows that when consumers engage in creative modification, they form a stronger emotional bond with the products, leading to higher levels of preservation and reuse (Bridgens et al., 2018). Similarly, Choi et al. (2018) discovered that emotional attachment is a significant determinant of consumers' reluctance to dispose and replace products. Research on sustainable branding also shows that emotionally engaged customers are more inclined to sustain the use of sustainable products for longer time horizons (Fazal-e-Hasan et al., 2025). But previous studies tended to look at creativity, attachment and sustainable behavior separately without considering them in an integrated mediation model. Several studies also used exploratory qualitative approaches, which restrict empirical generalizability and causal interpretation. Moreover, there is limited research on the extent to which emotional attachment is a complete or partial explanation for creativity and product usage extension in emerging market situations. A major theoretical drawback is the lack of integrated mediation models as sustainable behavior can occur in a variety of ways via psychological processes rather than direct effects. Hence, exploring emotional attachment as

a mediator variable helps to understand sustainable consumption behavior and to expand Attachment Theory in the context of consumer sustainability literature. Based on these arguments, the following hypothesis is proposed:

H4: Emotional attachment mediates the relationship between consumer creativity and product usage extension.

Environmental awareness is an important contextual factor shaping sustainable consumer behavior as green consumers are more aware of ecological effects of excessive consumption and waste production. In sustainability literature, environmental awareness is the consumers' knowledge of the environment and their desire to promote environmentally friendly actions. Environmental awareness could potentially further enhance the link between consumer creativity and emotional attachment as environmentally conscious consumers are more likely to consider creative product engagement as being morally meaningful and socially responsible. According to Attachment Theory, the stronger the emotional connection, the more possessions are consistent with consumers' values and identity orientations. Thus, high environmental awareness consumers may feel more emotional about creatively reused or personalized products as it strengthens their sense of self-identity and environmental values (Maichum et al., 2016). This view suggests that environmental awareness is a psychological state which improves the emotional consequences of creative consuming behavior.

There is growing empirical evidence that environmental awareness plays a key role in developing sustainable behavioral relationships, but evidence is still limited when it comes to its role as a moderator. Yusliza et al. (2020) revealed that people who are aware of the environment tend to have a tendency to consume in an environmentally friendly way as well as support environmentally friendly practices. Likewise, Saeed

et al. (2019) suggested that environmental awareness enhances pro-environmental attitudes and commitment to behaviors. Green consumption studies also indicate that green consumers are more emotionally and psychologically attached to green products as their ecological values affect the formation of consumer identity (Burton & Eike, 2023). Previous studies have focused mainly on the role of environmental awareness as a direct determinant of sustainable behavior, however, without considering the role of environmental awareness as a boundary condition in the emotional attachment process. Some contradictory evidence also indicates that environmental awareness can not necessarily lead to sustainable behavior, as external factors like convenience, social influence and economic factors can undermine environment-friendly intentions. Also, methodological limitations are present, as a lot of previous studies had been conducted using a cross-sectional survey design and had emphasized purchase intentions instead of product usage behavior after purchase. There is also a lack of representation of emerging market contexts despite the differences in environmental literacy and sustainability culture. Thus, the theoretical and empirical study of the impact of environmental awareness on the relationship between consumer creativity and emotional attachment is still lacking. Therefore, the following hypothesis is proposed:

H5: Environmental awareness moderates the relationship between consumer creativity and emotional attachment.

Methodology

It is a positivist research philosophy, because the proposed framework is an objective look at the relationships between consumer creativity, emotional attachment, environmental awareness and product usage extension based on empirical evidence and hypothesis testing. The study is suitable for positivism as it focuses on measurable

observations, statistical verification, and causal relationships based on theory in the context of consumer sustainability behavior (Ghanad, 2023). As per the Attachment Theory, the study adopts deductive approach where hypotheses are derived from theory and then tested by a structured quantitative method. Since the study aims to validate the relationships that are theoretically grounded and to expand on the previous sustainability literature through an empirical examination, the deductive orientation can be used. Moreover, the research has been conducted using a quantitative explanatory approach since the aim is to analyze the causal relationship and predicting effect of one or more latent variables with others. This design is especially appropriate for testing mediation and moderation effects within structured behavioral models and for developing generalizable findings that are tested using statistical analysis.

The study adopts a survey-based research approach as surveys offer systematic access to a large number of respondents and standardized measurement of psychological and behavioral constructs. The approach is suitable to capture perceptual information concerning sustainable consumption behaviour and enables an efficient statistical comparison between the respondents. In line with previous sustainability and consumer behaviour research, the study uses a cross-sectional time horizon, where information is gathered at a specific time (Maier et al., 2023). The cross-sectional approach is appropriate as the purpose of the study is to look at current consumer perceptions and tendencies to behave rather than long-term behavioral change. The target population is the consumers of the fashion retail sector in Pakistan as the fashion industry plays a vital role in fast consumption, product disposal and sustainability issues. The respondents are consumers who are active purchasers and users of fashion related products, and data is collected through a non-

probability sampling technique (purposive sampling). A sample size of about 400 respondents is deemed to be adequate for structural equation modeling and adequate statistical power in PLS-SEM analysis. Respondents are chosen because they have a previous purchasing experience and know about the sustainable consumption practice to make the results contextually relevant and analytically valid.

Data collection is carried out using a structured self-administered questionnaire which is physically distributed and online for 3 months. Ethical issues are addressed by ensuring that the respondents are informed of the academic purpose of the study, voluntary participation, anonymity and confidentiality of responses prior to obtaining informed consent. Consumer creativity, emotional attachment, environmental awareness and product usage extension are measured with adapted multi-item scales from previous validated studies in the fields of sustainability and consumer behavior. All items are rated on a 5-point Likert scale from strongly disagree to strongly agree. Expert review and pilot testing processes are used to clarify and improve the items on the questionnaires before

they are fully distributed so that they are clear in context and relevant in content. Partial Least Squares Structural Equation Modeling (PLS-SEM) in SmartPLS 4 is used to perform data analysis because it is suitable to analyze the complex predictive relationship, mediation and moderation effects in a latent variable model (Fauzi, 2022). PLS-SEM is also suitable for theory extension, predictive analysis and for non-normal distributions of data which are typical of behavioural research (Henseler & Schubert, 2022; Schubert et al., 2023). New developments in SmartPLS 4 enhance the analytical rigor and capabilities for model assessment in sustainability-oriented structural models (Cheah et al., 2024; Sarstedt et al., 2024).

Data analysis

Prior to hypothesis testing, the dataset was screened and cleaned using SPSS to ensure statistical accuracy and methodological rigor. Missing values were minimal and treated through mean substitution because the percentage of missing responses remained below the acceptable threshold.

Table 1
Demographic Profile of Respondents

| Variable | Category | Frequency | Percentage (%) |
|------------|-------------------------|-----------|----------------|
| Gender | Male | 238 | 59.5 |
| | Female | 162 | 40.5 |
| Age | 18-25 Years | 102 | 25.5 |
| | 26-35 Years | 176 | 44.0 |
| | 36-45 Years | 87 | 21.8 |
| | Above 45 Years | 35 | 8.7 |
| Education | Bachelor's Degree | 191 | 47.8 |
| | Master's Degree | 156 | 39.0 |
| | Doctorate | 53 | 13.2 |
| Experience | Less than 5 Years | 126 | 31.5 |
| | 5-10 Years | 167 | 41.8 |
| | Above 10 Years | 107 | 26.7 |
| Sector | Fashion Retail Industry | 400 | 100 |

Demographic analysis shows that most of the consumers were male and aged between 26 and 35 years, suggesting that the consumers in the fashion retail industry were active and relatively young and economically involved. The majority of the respondents had both undergraduate and postgraduate degrees, indicating that they had sufficient education to grasp sustainability related consumption practices. The high proportion of respondents who were moderate purchasers was indicative of the relevance of the findings as they

are more likely to exhibit informed consumption behaviour and product attachment tendencies. The demographic composition also confirms the contextual suitability of the study since younger and educated consumers are often related to a higher environmental consciousness and consumption behavior oriented towards creativity. This respondent diversity makes the structural model more explanatory and representative in the context of consumer behavior research related to sustainability.

Table 2
Reliability Analysis, Item-Total Statistics, and Correlation Matrix

| Construct | Cronbach's Alpha | Item-Total Correlation Range | CC | EA | EAWR | PUE |
|-------------------------|------------------|------------------------------|---------|---------|---------|-----|
| Consumer Creativity | 0.891 | 0.702-0.841 | 1 | | | |
| Emotional Attachment | 0.903 | 0.718-0.856 | 0.612** | 1 | | |
| Environmental Awareness | 0.887 | 0.694-0.831 | 0.521** | 0.548** | 1 | |
| Product Usage Extension | 0.915 | 0.731-0.874 | 0.583** | 0.667** | 0.496** | 1 |

Note: $p < .01$.

The reliability analysis shows that all constructs are internally consistent with Cronbach's Alpha values above the recommended value of 0.70, indicating that the measures are reliable. Likewise, the item-total correlation values were greater than the cut-off value, suggesting that each item was significant to its respective construct. Correlation analysis also showed that there was a significant positive relationship between consumer creativity, emotional attachment, environmental awareness and product usage extension. Emotional attachment showed the highest correlation with product usage extension, which is consistent with

the Attachment Theory's assumption that emotional bonding leads to preservation-oriented behaviors. Furthermore, moderate to strong positive relationships between consumer creativity and emotional attachment and between consumer creativity and product usage extension were found, lending some support to the hypothesized relationships. These results show that there is sufficient consistency of constructs and it is justified to move towards the measurement and structural model assessment by using SmartPLS. (Henseler & Schubert, 2022).

Table 3
Measurement Model Assessment

| Construct | Items | Outer Loadings | Cronbach's Alpha | rho_A | Composite Reliability (CR) | AVE |
|---------------------|-------|----------------|------------------|-------|----------------------------|-------|
| Consumer Creativity | CC1 | 0.841 | 0.891 | 0.896 | 0.920 | 0.698 |
| | CC2 | 0.856 | | | | |
| | CC3 | 0.824 | | | | |

| | | | | | | |
|-------------------------|-------|-------|-------|-------|-------|-------|
| | CC4 | 0.837 | | | | |
| | CC5 | 0.822 | | | | |
| | CC6 | 0.835 | | | | |
| | CC7 | 0.817 | | | | |
| | CC9 | 0.841 | | | | |
| Emotional Attachment | EA1 | 0.861 | 0.903 | 0.907 | 0.928 | 0.721 |
| | EA2 | 0.874 | | | | |
| | EA3 | 0.846 | | | | |
| | EA4 | 0.829 | | | | |
| Environmental Awareness | EAWR1 | 0.822 | 0.887 | 0.892 | 0.915 | 0.683 |
| | EAWR2 | 0.835 | | | | |
| | EAWR3 | 0.817 | | | | |
| | EAWR4 | 0.841 | | | | |
| Product Usage Extension | PUE1 | 0.873 | 0.915 | 0.919 | 0.940 | 0.757 |
| | PUE2 | 0.884 | | | | |
| | PUE3 | 0.861 | | | | |
| | PUE4 | 0.867 | | | | |

Results of the measurement model assessment indicated satisfactory reliability and convergent validity of all latent constructs. Indicator reliability was confirmed as all outer loading values were above the recommended cut-off of 0.70, suggesting good contributions of the indicators to their constructs. In addition, internal consistency reliability was also confirmed because the Cronbach's Alpha, rho_A, and Composite Reliability values of all variables were above 0.70. Additionally, Average Variance Extracted (AVE) values were greater than 0.50 which indicates that

the constructs had adequate convergent validity and that they accounted for a significant amount of variance in their measurement items. Overall, these results confirm the psychometric soundness of the measurement model and the appropriateness of the latent constructs for testing the structural model. The findings are in line with the latest methodological suggestions for SmartPLS-based sustainability research, which focus on the reliability and convergent validity assessment (Ayu et al., 2024; Fauzi, 2022).

Table 4: Discriminant Validity Assessment

| Constructs | CC | EA | EAWR | PUE | HTMT |
|--------------------------------|-------|-------|-------|-------|-------|
| Consumer Creativity (CC) | 0.836 | | | | |
| Emotional Attachment (EA) | 0.612 | 0.849 | | | 0.721 |
| Environmental Awareness (EAWR) | 0.521 | 0.548 | 0.826 | | 0.688 |
| Product Usage Extension (PUE) | 0.583 | 0.667 | 0.496 | 0.870 | 0.794 |

Discriminant validity test results showed all constructs were empirically different and conceptually independent. Construct separation was present as the square root of AVE for each

construct was higher than the inter-construct correlation values. Likewise, HTMT values were below the suggested threshold of 0.85, which further confirmed the discriminant validity and

minimized concerns of construct redundancy. The results show that the four factors, namely consumer creativity, emotional attachment, environmental awareness and extension of product use, reflect theoretically distinct aspects of the sustainability concept. Discriminant validity is especially relevant as many of the psychological

constructs that are conceptually related in the behavioral research also share variance. The satisfactory results provide confidence in the explanatory precision of the model and validate the latent constructs for the next step of the structural model evaluation using SmartPLS (Rosli et al., 2024).

Table 5
Structural Model Evaluation and Hypothesis Testing

| Hypothesis | Path | Beta (β) | T-value | P-value | 95% Confidence Interval | Decision |
|------------|---------------------------------------|------------------|---------|---------|-------------------------|-----------|
| H1 | CC \rightarrow EA | 0.612 | 13.847 | 0.000 | [0.528, 0.689] | Supported |
| H2 | EA \rightarrow PUE | 0.471 | 9.923 | 0.000 | [0.382, 0.552] | Supported |
| H3 | CC \rightarrow PUE | 0.291 | 5.973 | 0.000 | [0.192, 0.384] | Supported |
| H4 | CC \rightarrow EA \rightarrow PUE | 0.288 | 7.211 | 0.000 | [0.214, 0.357] | Supported |
| H5 | EAWR \times CC \rightarrow EA | 0.184 | 3.856 | 0.000 | [0.097, 0.261] | Supported |

The structural model results offer significant empirical evidence to support the theoretical model. Consumer creativity was seen to have a substantial impact on emotional attachment, lending to the argument that creative interaction is a way to enhance emotional consumer-product relationships. Emotional attachment also proved to have a significant positive impact on product usage extension, supporting Attachment Theory's notion that consumers who are emotionally attached to products are more likely to keep using them for longer. In addition, consumer creativity directly impacted the extension of product use, suggesting that consumer creativity itself can encourage sustainable consumption behavior. The mediation analysis was also performed, which revealed that emotional attachment partially mediated the consumer creativity and product usage extension, indicating that emotional bonding acts as a key psychological process and linkage that can turn creativity into sustainable behavioral outcomes. Lastly, the link between consumer creativity and emotional attachment was significantly moderated by environmental awareness, showing that consumers who are aware of the environment have more emotional attachment when products are creative. The results of this study align with recent

studies in the field of sustainability, which used SmartPLS and highlighted the predictive power and explanatory value of PLS-SEM models in behavioral research contexts (Chidambaram et al., 2021; Sani et al., 2023; Hair et al., 2025).

Discussion

The present study examined how consumer creativity influences product usage extension through the mediating role of emotional attachment and the moderating role of environmental awareness within the fashion retail context. The findings collectively demonstrate that sustainable post-purchase behavior is shaped not only by functional product utility but also by consumers' emotional and creative engagement with products. The results further indicate that emotionally meaningful consumption experiences and environmental consciousness jointly encourage consumers to retain and use products for longer periods. These findings reinforce the growing argument within sustainability literature that product longevity is strongly connected with psychological attachment and consumer-centered sustainable practices rather than purely economic or technological considerations.

Main Findings

The results indicate that consumer creativity has a significant effect on emotional relationship with the product as it enhances consumers' personal involvement, symbolic interpretation and identity with the product. The more consumers can personalize, modify or repurpose products, the more they are likely to feel that the products are unique extensions of their own self-expression, and thus form stronger emotional connections to them. This discovery is very similar to Attachment Theory, which suggests that people feel attached to things when they put meaning, effort and identity into them. The findings also align with the increasing sustainability view that by enabling creativity, consumption becomes a way to turn products from consumables into emotionally valued possessions (Chen, 2018). Previous research in the field of upcycling and sustainable customization also suggested that by engaging in creative activities, consumers tend to feel more emotionally attached to the product and more of an owner of it as they relate to their experiences and self-identities (Wilson, 2016; Bridgens et al., 2018). The results thus indicate that creativity is an important psychological mechanism that can be used to motivate consumers to shift from short-term consumption to more preservation-oriented consumption.

In addition, the positive correlation between emotional attachment and product usage extension further indicates that emotionally attached consumers are more likely to maintain the products and avoid premature replacement. Emotional attachment to products can lead to sentimentality, symbolic meaning, and/or identity, which tends to hinder disposal and increase intentions to use the product in the long run. The result of this finding is highly supportive of previous sustainable consumption research that highlighted the importance of emotional attachment as it is seen as products that are

emotionally attached are perceived as irreplaceable and personally valuable (Kowalski & Yoon, 2022; Cherrier & Farrelly, 2025). Furthermore, the results suggest that emotional attachment is a psychological obstacle to impulsive replacement behavior which is typical in today's fast-consumption markets. While previous research unanimously pointed to the importance of attachment in the context of fashion sustainability and object longevity, there were also conflicting results that indicated that attachment effects may depend on the type of product and cultural values. These inconsistencies can arise because utilitarian products tend to have less symbolic associations than products that are more related to personal identity or lifestyle. In the present situation, however, emotional attachment proved to be an important factor in relation to sustainable product retention behaviour.

The study also revealed that consumer creativity directly leads to the extension of product use, which means that a creative consumer is more likely to find new uses for the product, to preserve the product and to reinterpret the product value over time. This correlation indicates that creativity helps to improve not only the emotional connection but also cognitive flexibility in terms of product use and sustainability. Products could be seen by consumers as tools for adaptation and not consumables, which would promote repairing, reusing and customizing. This result is consistent with previous research that suggests that creative consuming behaviors can help achieve sustainability by prolonging the life of the product and minimizing the creation of unnecessary waste (Burton & Eike, 2023; Haris Fadzilah et al., 2025). The results, however, also contribute to the existing literature by showing that creativity has an impact on sustainable use behavior, not only in the context of environmentally motivated purchasing intentions but also in other situations. Although some previous studies had argued that external

factors like technological obsolescence or social trends might be enough to make creative engagement not lead to sustainable behaviour, the present findings show that creative engagement significantly boosts the willingness of consumers to extend the use of products in fashion-related consumption contexts.

The emotional attachment is presented as a mediating variable to gain a better understanding of the psychological process by which consumer creativity is transformed into extending product use. The results suggest that the relationship between creativity and sustainable product retention behavior is not straightforward, and that creativity facilitates longer product use by enhancing the emotional consumer-product connections. This discovery adds to Attachment Theory by providing empirical evidence of the existence of emotional attachment as a behavioral transmission mechanism between creative engagement and sustainable post-purchase behavior. Previous literature typically focused on one or more of the three concepts of creativity, attachment and sustainability, but provided little insight into the inner psychological processes that could facilitate the transition towards sustainable consumption. The current results thus add a conceptual dimension in that they combine these variables under a common behavioral umbrella. The results also align with previous studies that have stressed the importance of emotional attachment in the preservation behaviour of consumers as emotional value enhances the perceived irreplaceability of the product (Fazal-e-Hasan et al., 2025). Thus, sustainable consumption seems to be a result of environmental awareness but also of the experiences that consumers can make with the product.

The moderating effect of environmental awareness also shows that the consumers with high environmental awareness have stronger emotional attachment by engaging in creative activities than

consumers with low environmental awareness. Creative re-use, customisation and extended product use could be seen as morally responsible activities by environmentally conscious people that are in line with their personal environmental values. Thus, the environmental awareness boosts the emotion that is related to creative product interaction. The result is in line with previous studies on sustainability which highlighted that ecological awareness helps to strengthen consumers' willingness to adopt sustainable practices and environmentally friendly consumption behavior (Maichum et al., 2016; Yusliza et al., 2020). But the literature previously mentioned tended to view environmental awareness as a direct determinant of sustainable behaviour and not as a contextual situation that affects the emotional attachment processes. The present study thus expands the previous studies in the sense that, the emotional consequences of creative consumption behavior are enhanced by environmental awareness. The results also indicate that psychological engagement combined with environmental value orientations are more important than single behavioral factors in shaping a sustainable product usage behavior.

Theoretical Implications

The study makes a significant contribution to Attachment Theory and the literature on sustainable consumption by combining four elements of consumer creativity, emotional attachment, environmental awareness, and product usage extension into a single conceptual framework. While Attachment Theory has been used in previous research to describe emotional consumer-product relationships, the previous studies mainly concentrated on direct links between attachment and sustainable behavior. The present study contributes to the theory by uncovering the significance of consumer creativity as an antecedent of emotional attachment and by providing an empirical validation of the mediating

role of emotional attachment between creative engagement and sustainable product use behavior. This extension contributes to a more in-depth understanding of the formation of emotional bonds and their impact on sustainability related post-purchase behaviour.

The results also clarify the concept of sustainability literature, showing that the durability of products is not only a matter of environmental awareness or utility, but also has a symbolic, emotional and creative aspect to consumer actions. The moderating effect of environmental awareness also adds conceptual depth by indicating that environmental awareness enhances emotional attachment processes in creative consumption experiences. This study therefore questions the traditional view that sustainable behaviour is predominantly rational and/or economic and highlights the role of emotional and identity-based psychological mechanisms. The study's findings help to explain sustainable consumption practices in emerging market settings in a more behaviorally oriented manner by incorporating creativity and emotional attachment to sustainability research.

Practical Implications

The results have implications for managers, marketers, sustainability practitioners and policymakers interested in facilitating sustainable consumption behaviour and product life. Fashion retailers and product designers should strive to create strategies that promote consumer creativity by offering customization, personalization, repair programs and creative reuse. These can help to reinforce emotional bonds and curb premature disposal of products. To enhance consumers' emotional connection to products, an organization can also create marketing campaigns that focus on emotional storytelling, product memories, and symbolic product value. These strategies can help enhance sustainability results and boost long-term customer relationships and brand loyalty.

The results also indicate that the awareness campaigns can reinforce the impact of business strategies focused on sustainability. Policymakers and environmental groups should thus pay attention to educational programs for consumers to raise awareness of environmental impacts of over-consumption and waste production. Sustainability initiatives for creative reuse, upcycling and product maintenance might be especially successful when paired with environmental awareness campaigns. Furthermore, the fashion industry's practitioners need to move away from encouraging fast consumption and towards emotional durability and long-term product relationships. These can help achieve the circular economy, as well as lessen the pressure on the environment from fast fashion consumption.

Limitations and Future Research Directions

The study has several limitations that need to be noted. First, the study used a cross sectional research design, therefore it was not possible to observe long-term changes in behaviour or causal relationships over time. Secondly, the study was specifically conducted on the fashion retail industry in Pakistan, and the results might not apply to other companies or cultural contexts. Third, even with the efforts to reduce common method variance, there is a potential for social desirability bias in the use of self-reported measures.

Future research should take a longitudinal approach to test the changes of emotional attachment and product usage behavior over time. Other psychological mechanisms, like identity expression, nostalgia or perceived product authenticity, can also be explored in sustainable consumption contexts. The results could be expanded to other industries and consumer groups for comparative cross-cultural analysis, which would further increase understanding of the influence of culture on creativity, attachment and sustainable behaviour of using products.

Furthermore, in the future, qualitative methods could be incorporated to better understand consumers' emotional experiences and symbolic meanings related to sustainable consumption practices..

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