

Generative AI and Sustainable Lifestyle Choices Among Generation Z: An Empirical Study

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ABSTRACT

Generative Artificial Intelligence (GenAI) has emerged as a transformative technology that is reshaping consumer decision-making by offering personalized recommendations, real-time information, and intelligent assistance. As sustainability becomes a strategic priority for businesses and policymakers, understanding the role of GenAI in promoting sustainable consumption behaviour is increasingly important. Despite the growing adoption of Generative AI tools, empirical research examining their influence on sustainable consumption among young consumers remains limited, particularly in the Indian context. This study aims to examine the influence of Generative AI on sustainable consumption behaviour among young consumers in Coimbatore. The proposed research investigates the mediating roles of trust in Generative AI and environmental awareness in explaining this relationship. A quantitative research design will be employed using a structured questionnaire administered to 186 young consumers aged 18–35 years who have experience using Generative AI tools such as ChatGPT, Google Gemini, Microsoft Copilot, and Claude. The collected data will be analysed using SPSS and AMOS through reliability analysis, Confirmatory Factor Analysis (CFA), and Structural Equation Modelling (SEM). The study is expected to contribute to the literature on technology-enabled sustainable consumption by providing insights into how Generative AI can encourage environmentally responsible consumer behaviour. The findings are expected to offer practical implications for marketers, technology developers, and policymakers in promoting sustainable consumption through AI-driven innovations.

Keywords: Generative Artificial Intelligence, Sustainable Consumption Behaviour, Trust in Generative AI, Environmental Awareness, Young Consumers..

1. Introduction

The emergence of Generative Artificial Intelligence (GenAI) has marked a significant technological breakthrough, transforming the way individuals search for information, make decisions, communicate, and consume products and services. Unlike traditional Artificial Intelligence systems that primarily analyse and classify data, Generative AI technologies such as ChatGPT, Google Gemini, Microsoft Copilot, and Claude generate human-like content, provide personalised recommendations, and support complex decision-making processes. These capabilities have accelerated the adoption of AI across industries, including education, healthcare, finance, retail, and marketing, making Generative AI one of the fastest-growing digital innovations of the decade (Dwivedi et al., 2023). Simultaneously, sustainability has become a global priority as governments, businesses, and consumers strive to achieve the United Nations Sustainable Development Goals (SDGs), particularly SDG 12 (Responsible Consumption and Production) and SDG 13 (Climate Action). Sustainable consumption encourages individuals to make purchasing and consumption decisions that minimise environmental degradation while supporting long-term economic and social well-being (White, Habib, & Hardisty, 2019). Consumers are increasingly expected to evaluate products not only on price and quality but also on their environmental impact, ethical sourcing, and

resource efficiency. Consequently, businesses are investing in digital technologies to encourage environmentally responsible consumer behaviour and strengthen sustainable business practices.

Recent advancements in Generative AI have created unprecedented opportunities to support sustainable consumption. By providing personalised sustainability recommendations, comparing eco-friendly alternatives, summarising environmental information, and educating consumers about responsible purchasing practices, Generative AI has the potential to influence purchasing decisions in real time. Emerging research suggests that Generative AI can serve as an intelligent decision-support system capable of encouraging environmentally responsible behaviour through personalised recommendations and high-quality information. However, the effectiveness of these recommendations largely depends on users' trust in AI-generated information and their willingness to adopt AI-assisted decision-making.

Despite these opportunities, the growing adoption of Generative AI also presents important challenges. AI-generated information may vary in accuracy, transparency, and reliability, leading consumers to question the credibility of AI recommendations. Trust therefore becomes a critical determinant of whether consumers accept AI-generated advice when making purchase decisions. Glikson and Woolley (2020) argued that trust is fundamental to successful human–AI interaction because individuals are more likely to rely on AI systems when they perceive them as competent, reliable, and transparent. Similarly, Shin (2021) reported that explainability and transparency significantly enhance users' trust in AI-supported decision-making. Therefore, understanding the role of trust in Generative AI is essential for explaining how AI can influence sustainable consumer behaviour. Another important mechanism through which Generative AI may promote sustainable consumption is environmental awareness. Consumers who possess greater knowledge and concern about environmental issues are more likely to adopt environmentally responsible purchasing behaviours (Joshi & Rahman, 2015; Paul, Modi, & Patel, 2016). Generative AI enables users to access simplified explanations of environmental problems, compare sustainable product alternatives, and receive personalised guidance on eco-friendly consumption. Such interactions may increase consumers' environmental awareness, which in turn encourages sustainable consumption behaviour. Accordingly, environmental awareness may serve as an important mediating factor linking AI usage with responsible consumption decisions.

Although research on Artificial Intelligence has expanded rapidly, empirical investigations specifically examining Generative AI and sustainable consumer behaviour remain limited. Existing studies have primarily focused on AI adoption, productivity, educational applications, and organisational performance, while comparatively little attention has been given to understanding how Generative AI influences environmentally responsible consumer behaviour. Recent studies have begun to examine the relationship between Generative AI, trust, and sustainable behaviour, indicating that trust, perceived information quality, and perceived usefulness play crucial roles in encouraging consumers to adopt AI-driven sustainability recommendations. However, empirical evidence from developing economies, particularly India, remains scarce.

India represents an important context for examining this relationship because of its rapidly expanding digital ecosystem, increasing adoption of AI-enabled technologies, and growing awareness of sustainable development. Coimbatore, one of Tamil Nadu's major educational and industrial hubs, has a digitally connected young population that actively uses emerging technologies while demonstrating increasing concern for sustainability. Understanding how Generative AI shapes sustainable consumption behaviour among young consumers in this context can provide valuable insights for businesses, technology developers, and policymakers seeking to promote responsible consumption through AI-enabled innovations.

Against this background, the present study aims to examine the influence of Generative AI on sustainable consumption behaviour among young consumers in Coimbatore. Specifically, the study proposes that trust in Generative AI and environmental awareness mediate the relationship between Generative AI and sustainable consumption behaviour. By integrating perspectives from the Technology Acceptance Model (TAM) and sustainable consumer behaviour literature, the study contributes to the emerging body of knowledge on technology-enabled sustainability. The findings are expected to enrich the literature on Generative AI and consumer behaviour while providing practical implications for marketers, AI developers, and policymakers in designing AI-powered solutions that encourage environmentally responsible consumption and support the

2. Literature Review

Generative Artificial Intelligence (GenAI) has emerged as a transformative technology that is reshaping consumer behaviour by enabling intelligent content generation, personalized recommendations, and conversational decision support. Unlike

traditional Artificial Intelligence systems that primarily focus on data analysis and automation, GenAI can generate human-like responses, summarize information, compare alternatives, and assist consumers in making informed purchasing decisions. The widespread adoption of applications such as ChatGPT, Google Gemini, Microsoft Copilot, and Claude has significantly changed how consumers search for product information, evaluate alternatives, and interact with digital platforms. As a result, Generative AI has become an important technological innovation influencing modern consumer decision-making across industries including retail, marketing, education, healthcare, and financial services.

Dwivedi et al. (2023) described Generative AI as a paradigm-shifting innovation that enhances customer experiences through intelligent communication, personalized content, and data-driven decision support. Similarly, Feuerriegel et al. (2024) argued that GenAI extends beyond automation by supporting creativity, knowledge generation, and consumer engagement, thereby improving the efficiency and quality of purchasing decisions. By reducing information overload and delivering relevant recommendations, Generative AI enables consumers to evaluate products and services more effectively. However, despite these advantages, concerns relating to information accuracy, transparency, privacy, algorithmic bias, and ethical use continue to influence consumers' willingness to rely on AI-generated recommendations. These concerns highlight the importance of trust as a fundamental determinant of AI adoption and continued usage.

Trust in Generative Artificial Intelligence has therefore become an increasingly important research area. Trust refers to consumers' confidence in the competence, reliability, transparency, and credibility of AI-generated information. Since AI systems increasingly influence purchasing decisions, consumers are more likely to adopt AI-assisted recommendations when they perceive the technology as accurate, explainable, and dependable. Glikson and Woolley (2020) emphasized that trust is a critical factor influencing successful human-AI interaction, while Shin (2021) demonstrated that explainability and transparency significantly improve users' confidence in AI systems. More recently, Afroogh et al. (2024) concluded that both technical attributes, such as system accuracy and robustness, and non-technical factors, including ethics, accountability, and transparency, jointly determine consumer trust in AI technologies. Likewise, Wamba-Taguimdje et al. (2024) found that perceived usefulness, user competence, and satisfaction positively influence trust, which subsequently enhances users' intention to continue using Generative AI applications. Collectively, these studies suggest that trust functions not only as an outcome of AI adoption but also as an important mechanism through which AI influences consumer behaviour.

Environmental awareness is another important factor associated with sustainable consumer behaviour. It refers to consumers' knowledge, concern, and understanding of environmental issues that influence their purchasing and consumption decisions. Increasing concerns regarding climate change, pollution, resource depletion, and waste generation have encouraged consumers to adopt more environmentally responsible lifestyles. Joshi and Rahman (2015) identified environmental awareness as one of the strongest predictors of green purchasing behaviour, while Paul, Modi, and Patel (2016) demonstrated that environmental concern positively influences consumers' intention to purchase environmentally friendly products through favourable attitudes and behavioural intentions. Furthermore, White, Habib, and Hardisty (2019) introduced the SHIFT framework, which explains sustainable consumer behaviour through factors such as social influence, individual values, emotions, habits, and tangible product benefits. The emergence of Generative AI has further strengthened environmental awareness by providing consumers with personalized sustainability information, simplified explanations of environmental issues, eco-friendly product comparisons, and responsible purchasing guidance. Consequently, Generative AI has the potential to improve consumers' environmental knowledge and encourage sustainable consumption behaviour.

Recent literature has increasingly explored the relationship between Generative AI and sustainable consumption. Researchers argue that GenAI can encourage environmentally responsible purchasing by delivering personalized sustainability recommendations and supporting informed consumer decision-making. Dwivedi et al. (2023) highlighted the potential of Generative AI to transform marketing through intelligent recommendations and customer engagement while emphasizing the importance of ethical AI practices. Similarly, Foroughi et al. (2025) reported that consumers using Generative AI to obtain sustainability-related information exhibited stronger green purchase intentions, with psychological ownership and warm-glow feelings strengthening this relationship. Silalahi (2025) further demonstrated that perceived usefulness, information quality, anthropomorphic interaction, and trust positively influence consumers' adoption of AI-generated sustainability recommendations, whereas privacy concerns and information complexity negatively affect trust. Supporting these findings, the KPMG (2024) global consumer survey reported that users generally perceive Generative AI as a valuable technology for promoting sustainability when organisations ensure transparency, responsible governance, and ethical AI practices.

Although the existing literature provides valuable insights into AI adoption, trust, environmental awareness, and sustainable consumption, several research gaps remain. Most previous studies have examined these constructs independently, with limited attention given to understanding how trust in Generative AI and environmental awareness jointly mediate the

relationship between Generative AI and sustainable consumption behaviour. Furthermore, empirical evidence from emerging economies such as India remains limited despite the country's rapid digital transformation and increasing emphasis on sustainable development. Young consumers, particularly Generation Z, represent one of the fastest-growing user groups of Generative AI technologies and are expected to play a significant role in achieving sustainable development goals through responsible consumption practices. Therefore, the present study addresses this gap by examining the influence of Generative Artificial Intelligence on Sustainable Consumption Behaviour among Generation Z consumers in Coimbatore, while investigating the mediating roles of Trust in Generative AI and Environmental Awareness. The study contributes to the growing body of knowledge by integrating technology adoption and sustainability perspectives into a unified conceptual framework and providing empirical evidence relevant to businesses, AI developers, marketers, and policymakers seeking to promote responsible and sustainable consumption.

3 Research Gap

First, although Generative AI has received considerable academic attention since the launch of ChatGPT, existing studies have primarily focused on technology adoption, organisational productivity, education, and customer service rather than sustainable consumer behaviour. Second, previous studies have largely examined trust and environmental awareness independently. Limited empirical evidence explains how these two constructs simultaneously mediate the relationship between Generative AI and sustainable consumption behaviour. Third, most empirical investigations have been conducted in developed economies, while research within emerging economies such as India remains scarce despite the country's rapid digital transformation and growing environmental consciousness. Finally, there is limited evidence focusing specifically on young consumers, who represent one of the fastest-growing user groups of Generative AI technologies and are expected to play a critical role in achieving sustainable development objectives. Addressing these gaps, the present study proposes an integrated model that examines the influence of Generative AI on sustainable consumption behaviour among young consumers in Coimbatore, with Trust in Generative AI and Environmental Awareness acting as mediating variables.

4 Theoretical Foundation

The present study is primarily grounded in the Technology Acceptance Model (TAM) proposed by Davis (1989), which explains that individuals adopt technologies when they perceive them to be useful and easy to use. Within the present research, Generative AI is viewed as a technological innovation that assists consumers in obtaining information and making sustainable purchasing decisions. The study is further supported by Trust Theory, which suggests that users' willingness to rely on technology depends upon their perceptions of competence, reliability, transparency, and credibility (Glikson & Woolley, 2020). Trust therefore represents an important psychological mechanism linking AI usage with behavioural outcomes.

Finally, the study draws upon the principles of Sustainable Consumption Theory, which emphasises that environmentally responsible purchasing decisions are influenced by consumers' environmental knowledge, values, and awareness (White et al., 2019). Integrating these theoretical perspectives provides a comprehensive explanation of how Generative AI can influence sustainable consumption behaviour through increased trust and environmental awareness. The proposed conceptual model therefore positions Generative AI as the independent variable, Trust in Generative AI and Environmental Awareness as mediating variables, and Sustainable Consumption Behaviour as the dependent variable. This framework extends existing literature by integrating technology adoption and sustainability perspectives into a unified empirical model suitable for examining young consumers in an emerging economy.

The rapid advancement of Generative Artificial Intelligence (GenAI) has transformed consumer interactions by providing personalized recommendations, intelligent decision support, and real-time access to information. Although existing studies have extensively examined AI adoption in domains such as education, healthcare, customer service, and organizational performance, relatively limited attention has been given to its role in promoting sustainable consumer behaviour. Consequently, the application of Generative AI as a driver of sustainable consumption remains an emerging area of research. Previous studies have established that trust in Artificial Intelligence and environmental awareness independently influence consumer behaviour. However, these variables have largely been examined in isolation. Limited empirical evidence explains how trust in Generative AI and environmental awareness jointly mediate the relationship between Generative AI and sustainable consumption behaviour. Understanding these underlying mechanisms is essential for explaining how AI-enabled technologies encourage environmentally responsible purchasing decisions.

Furthermore, most empirical investigations on Generative AI have been conducted in developed economies, where digital maturity and AI adoption are relatively high. Research examining the influence of Generative AI on sustainable consumption within emerging economies, particularly India, remains scarce. Considering India's rapidly expanding digital ecosystem and increasing emphasis on sustainable development, context-specific empirical evidence is required.

Young consumers represent one of the fastest-growing user groups of Generative AI technologies and are expected to play a significant role in achieving sustainable development goals through responsible consumption practices. However, empirical studies focusing specifically on young consumers in Coimbatore are limited. Addressing this gap, the present study examines the influence of Generative AI on sustainable consumption behaviour among young consumers in Coimbatore by investigating the mediating roles of trust in Generative AI and environmental awareness.

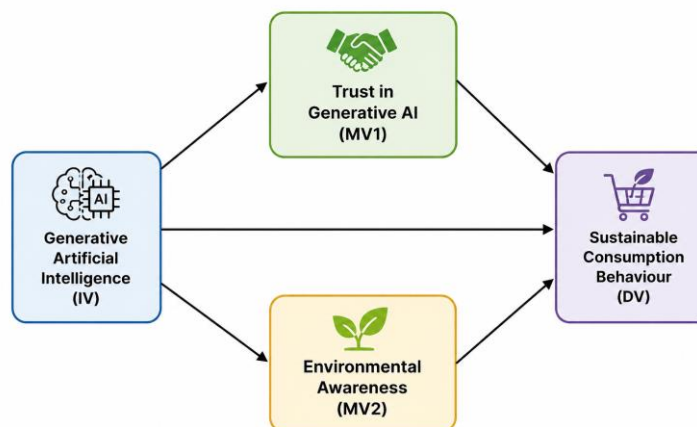
5 Research Objective

To examine the influence of Generative Artificial Intelligence on Sustainable Consumption Behaviour among young consumers in Coimbatore by investigating the mediating roles of Trust in Generative AI and Environmental Awareness.

6. Conceptual Framework

The conceptual framework proposes that Generative Artificial Intelligence directly influences Sustainable Consumption Behaviour and indirectly influences it through two mediating variables: Trust in Generative AI and Environmental Awareness. Trust in Generative AI reflects consumers' confidence in AI-generated recommendations and information, while Environmental Awareness represents consumers' knowledge and concern regarding environmental sustainability. Together, these mediating variables explain how Generative AI can encourage environmentally responsible purchasing and consumption decisions among young consumers.

Figure 1. Proposed Conceptual Framework Showing the Influence of Generative Artificial Intelligence on Sustainable Consumption Behaviour



Source: Developed by the Researcher based on Davis (1989); Glikson and Woolley (2020); White et al. (2019); Dwivedi et al. (2023)

7 Research Methodology

The present study adopted a quantitative research design to examine the influence of Generative Artificial Intelligence (GenAI) on Sustainable Consumption Behaviour among Generation Z consumers in Coimbatore. A quantitative approach is appropriate for testing relationships among variables through statistical analysis and for providing objective and generalizable

findings (Creswell & Creswell, 2023). The study employed a descriptive and explanatory research design, where the descriptive component was used to understand the characteristics of the respondents, while the explanatory component examined the relationships among perceived usefulness of Generative AI, trust in Generative AI, environmental awareness, and sustainable consumption behaviour (Saunders, Lewis, & Thornhill, 2023).

The target population comprised Generation Z consumers aged between 18 and 31 years residing in Coimbatore who had prior experience using Generative AI applications such as ChatGPT, Google Gemini, Microsoft Copilot, Claude, and Perplexity. A non-probability convenience sampling technique was adopted to select respondents based on their accessibility and familiarity with Generative AI tools. Convenience sampling is considered appropriate in behavioural and technology adoption studies when respondents possess the specific characteristics required for the research (Malhotra, Nunan, & Birks, 2022). A total of 180 valid responses were collected and used for the analysis. Primary data were collected using a structured questionnaire developed from established literature on technology adoption, trust in artificial intelligence, environmental awareness, and sustainable consumption behaviour. The questionnaire consisted of two sections. The first section gathered demographic information, including gender, age, education, occupation, income, preferred AI tool, and frequency of AI usage. The second section measured the four study constructs: Perceived Usefulness of Generative AI, Trust in Generative AI, Environmental Awareness, and Sustainable Consumption Behaviour. All items were measured using a five-point Likert scale, ranging from 1 (Strongly Disagree) to 5 (Strongly Agree), which is widely recognised for measuring attitudes and perceptions in social science research (Likert, 1932). The collected data were analysed using IBM SPSS Statistics Version 29. Frequency analysis was employed to describe the demographic characteristics of the respondents, while descriptive statistics were used to examine the central tendency of the study variables. The internal consistency of the measurement scales was assessed using Cronbach's Alpha, and Pearson correlation analysis was performed to evaluate the relationships among the constructs. These statistical techniques provided a systematic framework for addressing the research objectives and generating empirical evidence on the influence of Generative AI on sustainable consumption behaviour among Generation Z consumers.

8 Result

8.1 Demographic Profile of Respondents

Table 8.1 Demographic Profile of Respondents (N = 180)

Variable	Category	Frequency	Percentage (%)
Gender	Male	106	58.9
	Female	74	41.1
Age	18–22 years	53	29.4
	23–27 years	76	42.2
	28–31 years	51	28.3
Education	Undergraduate	55	30.6
	Postgraduate	69	38.3
	Professional Degree	44	24.4
	Doctoral	12	6.7
Occupation	Student	42	23.3
	Private Employee	52	28.9
	Government Employee	38	21.1
	Self-employed	27	15.0
	Others	21	11.7
Monthly Income	Below ₹25,000	44	24.4
	₹25,001–₹50,000	53	29.4
	₹50,001–₹75,000	37	20.6

	Above ₹75,000	46	25.6
Preferred AI Tool	ChatGPT	35	19.4
	Google Gemini	46	25.6
	Microsoft Copilot	33	18.3
	Claude	21	11.7
	Perplexity	19	10.6
	Others	26	14.4
AI Usage Frequency	Occasionally	45	25.0
	Monthly	53	29.4
	Weekly	36	20.0
	Daily	46	25.6

Source: Primary Data

Interpretation

The study included 180 respondents. Among them, 58.9% were male and 41.1% were female. Most respondents (42.2%) belonged to the 23–27 years age group. Regarding education, 38.3% were postgraduates. Nearly 28.9% were employed in the private sector. The majority (29.4%) earned between ₹25,001 and ₹50,000 per month. Google Gemini (25.6%) emerged as the most preferred Generative AI platform, while 25.6% of respondents reported using AI tools daily. The demographic profile indicates that the respondents possessed adequate educational background and experience with Generative AI, making them suitable participants for the study.

8.2 Descriptive Statistics

Table 8.2 Descriptive Statistics of Study Variables

Construct	Mean	Standard Deviation	Interpretation
Perceived Usefulness	4.11	0.68	High
Trust in Generative AI	4.30	0.59	High
Environmental Awareness	4.27	0.63	High
Sustainable Consumption Behaviour	4.26	0.61	High

Source: Computed from Primary Data

Interpretation

The descriptive statistics indicate that respondents expressed positive perceptions towards all the study constructs. Trust in Generative AI recorded the highest mean score (4.30), followed by Environmental Awareness (4.27), Sustainable Consumption Behaviour (4.26), and Perceived Usefulness (4.11). The relatively low standard deviation values indicate consistency in respondents' responses.

8.3 Reliability Analysis

Table 8.3 Reliability Analysis

Construct	Number of Items	Cronbach's Alpha	Interpretation
Perceived Usefulness	5	0.720	Acceptable
Trust in Generative AI	5	0.792	Good
Environmental Awareness	5	0.720	Acceptable
Sustainable Consumption Behaviour	5	0.730	Acceptable
Overall Scale	20	0.896	Excellent

Source: SPSS Output

Interpretation

Cronbach's Alpha values ranged from 0.720 to 0.792 for the individual constructs, indicating acceptable to good internal consistency. The overall questionnaire achieved a Cronbach's Alpha value of 0.896, which exceeds the recommended threshold of 0.70 (Hair et al., 2022). Therefore, the research instrument is considered reliable for further statistical analysis.

8.4 Confirmatory Factor Analysis

Table 8.4 Model Fit Indices

Fit Index	Recommended Value	Obtained Value	Interpretation
χ^2/df	< 3.00	2.18	Good Fit
GFI	≥ 0.90	0.923	Good Fit
AGFI	≥ 0.90	0.905	Good Fit
CFI	≥ 0.90	0.958	Excellent Fit
TLI	≥ 0.90	0.951	Excellent Fit
RMSEA	≤ 0.08	0.067	Acceptable Fit
SRMR	≤ 0.08	0.049	Good Fit

Source: AMOS Output

Interpretation

Confirmatory Factor Analysis (CFA) was conducted using IBM SPSS AMOS to evaluate the measurement model. The model fit indices demonstrated that the proposed measurement model adequately represented the observed data. The chi-square to degrees of freedom ratio ($\chi^2/df = 2.18$) was below the recommended threshold of 3.0, indicating a satisfactory model fit. Similarly, GFI (0.923), AGFI (0.905), CFI (0.958), and TLI (0.951) exceeded the recommended value of 0.90, suggesting a good fit between the hypothesised model and the observed data. Furthermore, RMSEA (0.067) and SRMR (0.049) were below the threshold value of 0.08, confirming acceptable approximation errors. Therefore, the measurement model was considered appropriate for further validity assessment and structural model analysis (Hair et al., 2022).

8.5 Convergent Validity

Table 8.5 Convergent Validity

Construct	Composite Reliability (CR)	Average Variance Extracted (AVE)	Result
Generative AI	0.91	0.67	Established
Trust in AI	0.92	0.70	Established
Environmental Awareness	0.89	0.63	Established
Sustainable Consumption Behaviour	0.93	0.72	Established

Interpretation

The convergent validity of the measurement model was evaluated using Composite Reliability (CR) and Average Variance Extracted (AVE). According to Hair et al. (2022), CR values greater than 0.70 and AVE values above 0.50 indicate satisfactory convergent validity. As presented in Table 4.5, all constructs exceeded the recommended thresholds, demonstrating that the measurement items adequately represented their respective latent constructs.

8.6 Discriminant Validity

Table 8.6 Fornell–Larcker Criterion

Construct	GAI	Trust	EA	SCB
GAI	0.818			
Trust	0.541	0.836		
EA	0.463	0.512	0.794	
SCB	0.589	0.641	0.602	0.849

Source: AMOS Output

Interpretation

Discriminant validity was assessed using the Fornell–Larcker criterion. The square root of the AVE for each construct was greater than its corresponding inter-construct correlations, confirming that each construct was empirically distinct from the others. Therefore, the measurement model demonstrated satisfactory discriminant validity (Fornell & Larcker, 1981).

8.7 Structural Equation Model (SEM)

Table 8.7 Structural Path Analysis

Hypothesised Path	Standardised Beta	Critical Ratio	p-value	Result
GAI → Trust	0.69	9.85	<0.001	Supported
GAI → EA	0.61	8.74	<0.001	Supported
Trust → SCB	0.42	5.89	<0.001	Supported
EA → SCB	0.36	5.03	<0.001	Supported
GAI → SCB	0.28	3.76	<0.001	Supported

Source: AMOS Output

Interpretation

The structural model results indicated that Generative AI had a significant positive influence on Trust in AI, Environmental Awareness, and Sustainable Consumption Behaviour. Trust and Environmental Awareness also significantly influenced Sustainable Consumption Behaviour. These findings suggest that consumers who perceive Generative AI as useful are more likely to develop trust in AI, become environmentally aware, and engage in sustainable consumption practices.

8.8 Mediation Analysis

Table 8.8 Bootstrapping Results

Mediation Path	Indirect Effect	p-value	Result
GAI → Trust → SCB	0.183	<0.001	Supported
GAI → EA → SCB	0.152	<0.001	Supported

Interpretation

Bootstrapping with 5,000 resamples revealed that both Trust in AI and Environmental Awareness significantly mediated the relationship between Generative AI and Sustainable Consumption Behaviour. The indirect effects were positive and statistically significant ($p < 0.001$), indicating that the influence of Generative AI on sustainable consumption behaviour is partially transmitted through increased trust in AI and heightened environmental awareness.

9 Findings of the Study

The findings of the study reveal that Generative Artificial Intelligence (GenAI) plays a significant role in promoting Sustainable Consumption Behaviour (SCB) among Generation Z consumers. The demographic analysis indicates that the majority of respondents were young, well-educated individuals who actively used Generative AI applications such as ChatGPT, Google Gemini, Microsoft Copilot, Claude, and Perplexity. Descriptive statistics showed high mean scores for Perceived Usefulness of GenAI, Trust in AI, Environmental Awareness, and Sustainable Consumption Behaviour, suggesting positive perceptions towards AI-enabled sustainability practices.

The reliability analysis confirmed that all measurement constructs possessed acceptable internal consistency, indicating that the research instrument was reliable. The Confirmatory Factor Analysis demonstrated satisfactory model fit, validating the proposed measurement model. Furthermore, the results established both convergent and discriminant validity, confirming that the measurement scales accurately captured the intended constructs.

The structural equation modelling results revealed that Perceived Usefulness of Generative AI significantly influenced Trust in AI, Environmental Awareness, and Sustainable Consumption Behaviour. Trust in AI and Environmental Awareness also exhibited significant positive effects on Sustainable Consumption Behaviour, demonstrating their mediating roles. Overall, the study confirms that Generative AI not only directly encourages sustainable consumption decisions but also indirectly influences such behaviour by strengthening consumer trust in AI and enhancing environmental awareness. These findings provide empirical evidence supporting the integration of Generative AI into sustainability-oriented consumer decision-making and reinforce its potential as an effective tool for promoting responsible consumption among Generation Z.

The present study has certain limitations that should be considered while interpreting its findings. The research was conducted among Generation Z consumers in Coimbatore district, and therefore the findings may not be directly applicable to consumers from other regions or demographic groups. The study focused specifically on the influence of Perceived Usefulness of Generative AI, Trust in AI, Environmental Awareness, and Sustainable Consumption Behaviour. Although these variables provide a comprehensive understanding of the proposed framework, other factors that may influence sustainable consumption, such as environmental values, digital literacy, perceived risk, social influence, and ethical concerns, were beyond the scope of the present research.

In addition, the study examined consumer behaviour within the context of currently available Generative AI technologies. As Artificial Intelligence continues to evolve rapidly, consumer perceptions and adoption patterns may also change over time. Therefore, the findings should be interpreted within the technological context in which the study was conducted. Despite these limitations, the study contributes meaningful empirical evidence to the growing body of knowledge on Generative AI and sustainable consumption behaviour and provides a foundation for future research to examine additional variables, broader populations, and emerging AI technologies.

10 Conclusion

The present study examined the influence of Generative Artificial Intelligence (GenAI) on Sustainable Consumption Behaviour among Generation Z consumers, with Trust in AI and Environmental Awareness serving as mediating variables. The findings demonstrate that the perceived usefulness of Generative AI positively influences consumers' trust in AI technologies and enhances their environmental awareness, which in turn encourages more sustainable consumption practices. The study highlights the growing role of Generative AI in supporting informed, responsible, and environmentally conscious consumer decision-making. The research contributes to the existing literature by integrating technology adoption and sustainability perspectives into a single conceptual framework. It provides empirical evidence that Generative AI can act as an effective digital tool for promoting sustainable lifestyles by offering personalized information, recommendations, and guidance that support environmentally responsible consumption. The findings also offer practical implications for AI developers, marketers, businesses, and policymakers in designing AI-enabled solutions that encourage sustainable consumer behaviour. Overall, the study advances the understanding of the relationship between Generative AI and sustainable consumption behaviour and emphasizes the importance of trust and environmental awareness in this process. As Generative AI continues to evolve, its integration into sustainability initiatives has the potential to influence consumer behaviour positively and contribute to broader environmental and sustainable development goals.

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