

IS TRANSPARENCY VALUED OR DOUBTED? THE IMPACT OF AI DISCLOSURE ON CONSUMER RESPONSES TO SUSTAINABILITY MESSAGES AND THE MEDIATING ROLE OF GREEN SCEPTICISM¹²

Ahmet KAYA³
Tutku EKER İŞÇİOĞLU⁴

ABSTRACT

Whether brands should disclose their use of artificial intelligence (AI) in their communication remains a significant debate in both academia and practice. This study investigates the impact of AI disclosure in environmentally sustainable messages on consumer attitudes and purchase intentions, within a multidimensional framework, and examines the mediating role of green scepticism. To this end, two experimental studies with between-subjects, single-factor design were conducted. In Study I, 81 participants were randomly assigned to advertisements with or without AI disclosure. In Study II, 61 participants were again randomly exposed to messages with either AI disclosure or human disclosure. Using SPSS 20.0 and PROCESS Macro, the hypotheses were tested with independent samples t-test, logistic regression and simple mediation (model 4) analyses. The results indicate that AI disclosure has a negative impact on brand attitudes and purchase intentions, while having no significant influence on attitudes toward the advertisement. Moreover, green scepticism was found to mediate all relationships significantly in both studies. Overall, the findings provide theoretical contributions to marketing literature with respect to the persuasion knowledge model, algorithm aversion framework and signalling theory and offer practical insights for designing AI-generated sustainability communication strategies.

Keywords: AI disclosure, green scepticism, attitude toward the ad, attitude toward the brand, purchase intention, sustainability.

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³ akaya@pirireis.edu.tr, Piri Reis University, Faculty of Economics and Administrative Science, Logistics Management, Research Assistant – kayaah24@itu.edu.tr, Istanbul Technical University, Graduate School, Business Administration, PhD Student, 0000-0001-5707-5386

⁴ teiscioglu@pirireis.edu.tr, Piri Reis University, Faculty of Economics and Administrative Science, International Trade and Business, Associate Professor, 0000-0002-4794-6368

ŞEFFAFLIK DEĞER Mİ GÖRÜR, ŞÜPHE Mİ UYANDIRIR? YAPAY ZEKA AÇIKLAMASININ TÜKETİCİLERİN SÜRDÜRÜLEBİLİRLİK MESAJLARINA VERDİĞİ TEPKİLER ÜZERİNDEKİ ETKİSİ VE YEŞİL ŞÜPHECİLİĞİN ARACILIK ROLÜ

ÖZ

Markaların pazarlama iletişimlerinde yapay zekâ (YZ) kullanımını açıklayıp açıklamaması gerektiği konusu, hem akademik hem de uygulama alanında halen önemli bir tartışma konusudur. Bu çalışma, çevresel sürdürülebilir temalı mesajlarda YZ açıklamasının tüketici tutumları ve satın alma niyetleri üzerindeki etkisini çok boyutlu bir çerçevede araştırmakta ve yeşil şüpheciliğin aracılık rolünü incelemektedir. Bu amaçla, denekler arası, tek faktörlü tasarıma sahip iki deneysel çalışma yürütülmüştür. Birinci çalışmada, 81 katılımcı YZ açıklaması olan veya olmayan reklamlara rastgele atanmıştır. İkinci çalışmada ise 61 katılımcı YZ açıklaması veya insan açıklaması olan mesajlara yine rastgele maruz bırakılmıştır. Hipotezler SPSS 20.0 ve PROCESS Macro kullanılarak bağımsız örneklem t-testi, lojistik regresyon ve basit aracılık (model 4) analizleri ile test edilmiştir. Sonuçlar, YZ açıklamasının marka tutumları ve satın alma niyetleri üzerinde olumsuz bir etkiye sahip olduğunu, ancak reklama yönelik tutumlar üzerinde anlamlı bir etkiye sahip olmadığını göstermektedir. Ayrıca, her iki çalışmada da yeşil şüpheciliğin tüm ilişkilere anlamlı bir şekilde aracılık ettiği bulunmuştur. Genel olarak, bulgular ikna bilgisi modeli, algoritma kaçınma çerçevesi ve sinyalleme teorisi açısından pazarlama literatürüne teorik katkılar sağlamakta ve yapay zeka destekli sürdürülebilirlik iletişim stratejileri tasarlamak için pratik öneriler sunmaktadır.

Anahtar Kelimeler: Yapay zeka açıklaması, yeşil şüphecilik, reklama yönelik tutum, markaya yönelik tutum, satın alma niyeti, sürdürülebilirlik.

1. Introduction

Have science fiction movies become real? Contrary to the movies, let's hope that artificial intelligence (AI) will not take over the human race and will make human life easier. One of the most curious and therefore debated topics in both the business world and academia is undoubtedly how the use of AI will affect business practices and consumer behaviour.

Today, rapid developments in AI technologies are leading to significant transformations in marketing and especially advertising decisions. The global market revenues of AI usage in marketing are anticipated to reach approximately 47 billion U.S. dollars in 2025 and are projected to exceed 107 billion by 2028 (Statista, 2025). Using AI on an increasing pace, companies offer AI chatbot-powered shopping service (eg. Sephora), AI voice-powered barista services (eg. Starbucks), AI-powered personal shopping assistants (eg. Lowe), use AI-generated advertisements (eg. The Economist, Heinz, Nike), allow consumers to develop user generated content with creative digital AI platforms (eg. Coca Cola) (Hughes, 2025) and even partner with AI influencers (eg. Calvin Klein, Prada, Samsung) (Mileva, 2025). The use of AI in so many diverse areas makes it important to understand consumers' perceptions and responses to AI-generated content.

In the advertising ecosystem, AI is not only providing operational efficiency but also fundamentally transforming consumer interaction through personalized content creation and dynamic message optimization (Davenport et al., 2020). Advertisers can predict the emotional responses of target audiences by analysing large datasets, thereby creating more persuasive visuals and texts (Campbell et al., 2020). However, as the use of AI in advertising content production increases, its ethical dimensions and the need for transparency have also begun to be debated. The perception of AI-generated ads as lacking a 'human touch' or being seen as a tool of manipulation can undermine consumer trust in the advertising message and activate defence mechanisms against the brand (Guzman and Lewis, 2020). In this context, the use of AI in advertising has become not only a technical possibility but also a critical variable that triggers the consumer's persuasive knowledge.

The influence of AI has been studied in various domains, especially the domain of sustainability attracts the attention of researchers and marketing professionals. AI disclosure in ads appears to be increasingly preferred to establish transparent AI practices (Campbell et al., 2022), although the academic notion remains unclear in understanding how AI disclaimers influence consumers. While prior research has advanced the understanding of AI disclosure effects, most of these studies (e.g., Baek et al. 2024; Lim & Schmälzle, 2024; Bui, 2025) address AI disclosure within the context of advertising in general, offering limited insight into how such effects may differ in the context of morally and value-laden messages such as sustainability communications. Considering that sustainability messages may trigger not only cognitive but also ethical, emotional, and normative evaluations for consumers, sustainability messages generated by AI can be likely to create scepticism and negative evaluations among consumers. This can be because sustainability communication conveys signals of companies' social and environmental responsibility to consumers, while AI-generated content may be perceived as

instrumental and cost-oriented. Consequently, this situation may lead to stronger scepticism and negative attitudes towards sustainability messages compared to other types of advertising messages when AI is used and disclosed. Therefore, understanding how AI explanations shape consumer responses to sustainability messages is important from both theoretical and practical perspectives.

With an aim to fill this research gap and taking persuasion knowledge model (Friestad and Wright, 1994), algorithm aversion (Dietvorst et al., 2015) and signalling theory (Spence, 1974) as the theoretical background, this study hypothesizes that AI disclosure has direct effects on consumers' attitudes towards the advertisement and the brand, as well as purchase intention, and that green scepticism plays an important role in these effects as a mediator. To test the aforementioned effects, a Between-subjects, Single-Factor Experimental Design was adopted with two separate studies among university students. Findings achieved with experiments support most of the hypotheses and reveal important insights for researchers and practitioners. More specifically, the first study included AI disclosure vs. nondisclosure conditions and findings revealed that when the use of AI in sustainability messaging is disclosed, it has a negative impact on consumers' brand attitudes and purchase intentions, but no significant effect on attitudes towards the advertisement. Additionally, green scepticism is found to act as a full mediator as it increases in the AI disclosure condition, thereby increasing the negative effect of AI disclosure on attitudes and purchase intention. The second study was designed to test the robustness of the first study and thereby, included AI disclosure vs. human disclosure conditions. The findings show that the AI disclosure in sustainability messages significantly increases consumer green scepticism, and this increase negatively impacts attitudes toward the advertisement, attitudes toward the brand, and purchase intention. While the direct effect of the AI disclosure on the attitudes and intentions was not found to be significant, green scepticism was again found to play a full mediating role in these relationships. The results of the two study suggest that transparency efforts do not always yield positive results and that the disclosure of AI in environmental messaging can create resistance to persuasion among consumers as it generates green scepticism.

2. Theoretical Framework

AI's role in marketing covers a wide range of areas, from market segmentation to personalized content creation (Huang and Rust, 2022), from ad optimization to automated ad creation (Shi and Wang, 2023). AI-powered ad creation tools offer the potential to quickly and effectively generate content in a variety of formats. However, this may affect consumers' perception and trust of the source of this content, and consumers may react differently to AI-generated vs. human-generated content. Increased adoption of generative AI can indeed result in diminished brand authenticity (Brüns and Meißner, 2024), negative brand attitude (Sands et al., 2024), or unfavourable attitudes towards ads (Baek et al., 2024). Consumers' responses to content generated by AI may also differ on the basis of various domains. For instance, Manoj and Lee (2025) found that most consumers develop positive emotions toward AI-generated content and that online comments with positive opinions seemed to be pertinent to the domain of Content Creation/Writing, Art/Creative and Game Development, while least frequent in the domain of Sports/Athletics, Environment/Climate and Finance/Economics.

For sure, AI practices in advertising are on the rise; however, scientific evidence provides mixed results as to their effectiveness, which is also the case for the impact of AI disclaimers on consumer responses to ads. Disclosures are messages that provide consumers with important information, typically about the nature of an advertisement (Wortel et al., 2024). Often required by law as an ethical responsibility, these disclosures help consumers better understand what they are viewing and enable them to make more informed choices (Boerman and Van Reijmersdal, 2016). In some countries, there is no specific legal mandate that requires companies to disclose AI usage in advertisements (eg. Türkiye, UK), however, some others have started to ask for AI transparency under particular circumstances (eg. EU, USA). Some argue that AI disclosure should be mandatory to maintain transparency, while others caution that unnecessary disclosures could inadvertently reduce advertising effectiveness (Baek et al., 2024).

Some research on AI disclosure has yielded results in favour of AI disclaimer's effect on consumers (eg. Kim et al., 2021; Kirkby et al., 2023), while more others seem to provide findings against AI disclaimer (eg. Arango et al., 2023; Baek et al., 2024; Lim and Schmäzle, 2024; Wu et al., 2025). To be more specific, some studies indicate that AI disclosure has negative effects on attitudes toward advertising (e.g., Baek et al., 2024; Wortel et al., 2024), while others show that its effects on brand attitude and purchase intention vary depending on the context (e.g., Qiu et al., 2025; Sands et al., 2024). For instance, considering prosocial behaviour, AI disclosure is associated with negative attitudes and weaker behavioural intentions by reducing advertising credibility (e.g., Baek et al., 2024). Conversely, some studies report that AI disclosure can function as a signal of transparency without undermining brand voice authenticity and does not damage brand attitude (e.g., Kirkby et al., 2023). In creative content and ethically charged decision-making areas, perceptions of AI as lacking warmth or human touch as well as diminished perceptions of care and creativity attributed to AI-generated content, may weaken message persuasiveness (Longoni et al., 2020; Magni et al., 2023). However, these findings have primarily been obtained within the context of general advertising or commercial messages, and the effects of AI disclosure in the context of messages based on moral and normative values such as sustainability are still not sufficiently clarified. Sustainability messages, which are the focus of this study, offer a more favourable environment for negative impacts on brand attitude and purchase intention, given the possibility of triggering green scepticism due to its potential for high expectations of value and sincerity.

Examining green scepticism, defined as customers' doubt or disbelief on environmental claims made by the firms (Goh and Balaji, 2016), as a possible mediator, this study focuses on the influence of AI disclosure in ads on brand attitudes and behavioural intention within the domain of environmental sustainability. Green scepticism is seen as a critical psychological barrier affecting consumers' trust in businesses making environmental claims. According to Mohr et al. (1998), consumers exposed to sustainability-themed advertisements tend to question the sincerity, credibility, and underlying intentions of brands' environmentally friendly messages. This scepticism weakens the message's persuasiveness, diminishes emotional engagement, and undermines brand trust (Albayrak et al., 2013). Green scepticism may even be more pronounced

in AI-generated advertisements, as consumers may believe that sustainability statements are algorithmically generated rather than driven by genuine and sincere corporate commitment. In this context, green scepticism would function as a cognitive filter that shapes how consumers interpret AI disclosures in sustainability-themed advertisements and would mediate the relationship between disclosure type and consumer responses. To better understand and explain the proposed relationship between AI disclosure, green scepticism and consumers' attitudinal and behavioural responses, the study builds on the Persuasion Knowledge Model (PKM), Algorithmic Aversion (AA), and the interplay between the Signalling Theory (ST) and Brand Transparency (BT).

Developed by Friestad and Wright (1994), the PKM suggests that consumers build "persuasion knowledge", which involves beliefs about marketers' motives, tactics, and the effectiveness and appropriateness of these tactics. As they gain experience over time about what makes a persuasive communication, consumers properly execute coping strategies to defend themselves (Wright et al., 2005) by accessing this knowledge to interpret, evaluate, and respond to the persuasion attempt. Knowing that there is persuasive content, consumers may develop coping strategies, such as increased scepticism, resistance, and counterarguing, which are likely to influence brand and advertising related attitudes as well as behavioural intent negatively (Nelson et al., 2009). Since disclosures serve as a cue triggering persuasion knowledge (Boerman et al., 2017), the PKM would provide a valuable framework for interpreting consumer responses to AI disclosure, because once consumers recognize persuasive intent, they may begin to critically evaluate the motives behind the brand's actions. In that case, AI disclosure may indeed act as a salient cue that activates consumers' persuasion knowledge, leading them to think about why the brand is using AI for a sustainability message and triggering green scepticism by negative inferences. For instance, consumers might infer that the brand is using AI to cut costs, generate communication without genuine care, or even to create a seemingly "green" image without substantial effort (a form of "greenwashing" facilitated by technology). Taking PKM as a theoretical background, Wortel et al. (2024) found that AI-disclosed advertisements on Instagram lead to a negative advertising attitude, but they have no effect on brand attitude or source credibility. Additionally, Qiu et al. (2025) found that AI disclosure exerts a unique inhibitory effect on consumers' purchase intentions in cause-related marketing (CRM) contexts compared to non-cause-related marketing scenarios and consumer scepticism acts as a mediator in explaining the psychological mechanism underlying AI disclosure's impact on advertisement attitudes and purchase intentions. Examined in conjunction with PKM, the study reveals that when marketing activities include the transmission of moral values, the instrumental rationality of AI technology conflicts with the ethical attributes of CRM, thereby activating consumers' persuasion knowledge defence mechanisms (Qiu et al., 2025). While moral values and social benefit are prominent in CRM campaigns, these campaigns often focus on encouraging donations to a specific social cause. The current study, however, focuses on environmental sustainability claims communicated directly through the brand's products. Since environmental sustainability messages target the brand's "green" positioning and product-level environmental performance, consumers' green scepticism regarding environmental claims plays a much more central role. AI disclosures, by making persuasion attempts salient, may activate consumers' persuasion knowledge and

prompt inferential processing regarding why a firm communicates its environmental responsibility in a particular way. In sustainability messaging, such inferential processing may readily translate into green scepticism, as consumers may question whether environmental claims reflect genuine commitment or are merely strategic efforts to enhance brand image. Thus, PKM provides a theoretical explanation for why AI disclosure can indirectly undermine sustainability communication by heightening green scepticism. In that case green scepticism may act as a mechanism that bridges the gap between the perceived low sincerity of the AI disclosure and brand related attitude/behaviour.

On the other hand, AA refers to the tendency for humans to distrust or prefer human judgment over algorithmic recommendations or outputs, even when algorithms are demonstrably superior (Dietvorst et al., 2015). This aversion can stem from various factors, including a lack of understanding of how algorithms work, a perception of them as cold or lacking in human touch, or a stronger negative reaction to algorithmic errors compared to human errors. The integration of AI into areas traditionally dominated by humans, like creative tasks, also faces doubt due to a preference for human judgment (Mahmud et al., 2022). This bias is strongest in fields requiring subjective and emotional skills (Huang and Rust, 2022), leading to scepticism about AI's ability to match human sensitivity despite its greater efficiency and lower cost (Longoni et al., 2020). In different contexts AA can be exhibited as such, artists using AI are admired less (Messer, 2024), for medical diagnosis people avoid AI recommendations (Longoni et al., 2020), potential job candidates resist to recruitment processes that rely on AI (Van Esch et al., 2019), last but not least, consumers attribute lower effort and creativity to products made by AI compared to humans (Magni et al., 2023). As stated by Baek et al. (2024), the relationship between AA and PKM becomes apparent when considering how consumer awareness of AI-generated content activates persuasive knowledge, resulting in increased ad scepticism (possibly an outcome of decreased ad credibility as mentioned by Isaac and Grayson (2016)) and negative evaluations of algorithm-driven ads (Voorveld et al., 2023). Examining consumer responses to charitable giving ads, Baek et al. (2024) indeed found that placing an AI disclaimer decreases perceived ad credibility and results in less favourable attitudes towards ads. Especially for domains that require ethical values, emotional connection, and human experience (like society, environment, etc.), consumers may naturally be more distant and sceptical of AI-generated content. When sustainability messages—traditionally associated with ethical concern, care, and social responsibility—are disclosed as AI-generated, consumers may perceive a misalignment between the moral nature of the message and the instrumental logic of algorithmic production. This perceived incongruence can intensify green scepticism, as consumers may interpret AI use as a cost-driven or symbolic gesture rather than an expression of genuine environmental commitment (Magni et al., 2023; Baek et al., 2024).

Finally, ST explains that in cases of information asymmetry, one party attempts to reduce uncertainty by sending reliable information (“signals”) to the other party (Spence, 1974). BT, on the other hand, has been defined by Montecchi et al. (2024) as a brand’s voluntary disclosure of relevant information in a clear, accessible way. In the context of marketing and advertising, BT means that brands are honest in their communications, practices, and intentions, and ad

disclosures can be considered a concrete example of brands' transparency efforts, which may increase consumer attitudes (De Jans et al., 2018). According to Cambier and Poncin (2020), BT may indeed act as a signal in marketing communication. Brands that invest in the communication of transparent messages disclose information multilaterally to stakeholders to keep them informed and foster trust-based relationships (Schnackenberg et al., 2020). In the study of Semaan et al. (2018), consumers developed higher brand attitudes toward the disclosure of retouched photo advertisements due to their transparency. Yang and Battocchio (2020) also revealed that transparency in the focal brand's communication of production and cost would increase consumers' perceptions of the brand's transparency, and such positive effects were found to similarly impact consumers' attitude, trust, and behavioural intention toward the brand. As stated by Sansome et al. (2024), BT both reduces consumer scepticism and increases brand credibility. Examining AI disclosure as a way of brand transparency, Kirkby et al. (2023) found that AI disclosure is not perceived as less authentic than that disclosed as human-written and that no negative effect on brand voice authenticity and brand attitude results if an AI source is disclosed. Taking together with green scepticism, ST and BT perspectives suggest that green scepticism may not be inevitable under all circumstances. Transparent claims with clear and provable information, can strengthen the perception of environmental trust and accountability. According to ST, verifiable signals can demonstrate developers' genuine commitment to sustainability, while the BT approach maintains that such signalling can fuel the continuation of green awareness, increasing perceived sincerity. This configuration, under AI disclosure conditions, may have the potential to limit green scepticism through perception as a transparency file.

In this study, the theoretical framework has been consciously structured in a step-by-step manner. Firstly, PKM and AA are considered as two complementary frameworks to understand consumer responses to AI disclosure. According to PKM, an AI disclosure functions as a persuasion cue that makes the persuasive intent behind the advertisement visible, triggering green scepticism by causing consumers to question the brand's motivations. Regardless of whether AI is perceived as a strong or weak persuasive agent, PKM has the capacity to explain consumers' questioning of the intention behind the message and their development of scepticism, particularly in areas where normative expectations are high, such as sustainability. The AA literature, on the other hand, positions AI as a 'cold' and inhumane resource, especially in areas requiring ethical and emotional sensitivity, leading to a general distrust and distance towards AI-generated content. Therefore, in this study, the AI disclosure is seen as both a cognitive stimulus that activates persuasion knowledge and a reminder that activates negative biases specific to AI; these two processes may work together to increase green scepticism and reinforce negative evaluations of sustainability messages. Secondly, considering that the effects of AI disclosure may not always be negative empirically and may be perceived as a transparency signal in some contexts (Kirkby et al., 2023), the ST and BT literature have also been included to provide a complementary perspective to the theoretical framework of the study. This holistic approach aims to more comprehensively explain under what conditions and in what directions AI attribution shapes consumer responses in the context of sustainability messages. Therefore, the research model and the hypotheses of this study do not reveal valence of the effects and thus, are shown as follows:

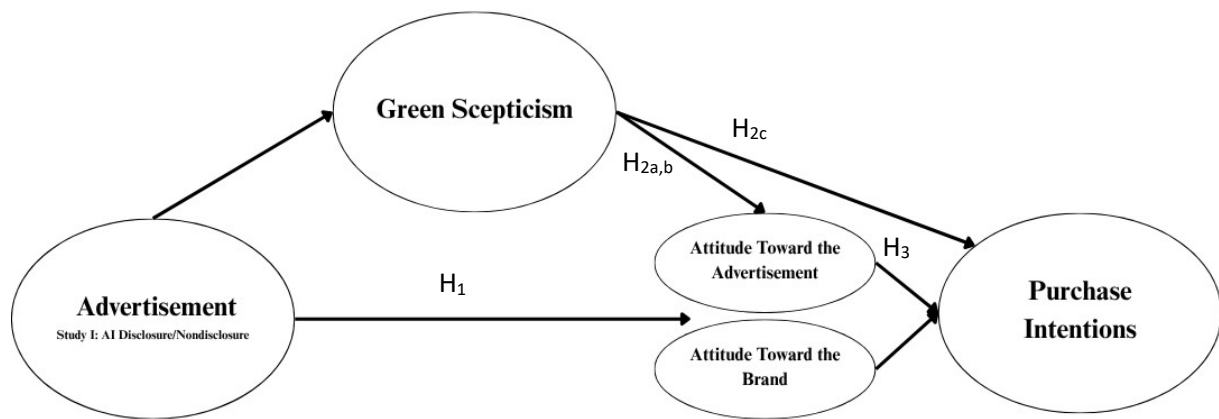


Figure 1. Research model

H₁: Participants exposed to the AI disclosure show significantly different levels of (a) attitude toward the ad, (b) attitude toward the brand, and (c) purchase intentions, compared to those exposed to the nondisclosure advertisement.

H₂: Green scepticism mediates the impact of AI disclosure on a) attitude toward the ad, b) attitude toward the brand and c) purchase intention.

H₃: a) Attitude toward the ad and b) attitude toward the brand significantly and positively affect purchase intention regardless of the disclosure type.

3. Methodology

This research adopted a Between-Subjects, Single-Factor Experimental Design with Mediation Analysis to measure the effect of AI disclosure used for sustainability messages on consumers' attitudes and purchase intentions and the mediating role of green scepticism. The overall methodology involved exposing participants to either an AI-disclosure/nondisclosure (Study I) and AI-disclosure/human-disclosure (Study II) sustainability-themed advertisement and measuring their attitudes, green scepticism, and purchase intentions. Data were collected from undergraduate students in exchange for course credits, and all analyses were conducted using SPSS 20.0 and PROCESS Macro. Independent samples t-test (for mean differences in AI and non-AI conditions), logistic regression analysis (for interaction with the purchase intentions) and simple mediation (model 4) analyses (for the mediating effects of green scepticism) were conducted to test the hypotheses. The study received ethics approval from Piri Reis University Ethics Committee of Social and Human Sciences with the approval number of 15.4.2025/14.

3.1. Study I

Based on the theoretical framework, Study I aimed to understand whether AI disclosure in a sustainability message would result in different attitude toward the ad, attitude toward the brand, and purchase intention compared to a non-AI disclosure message. Additionally, the mediating role of green scepticism is under investigation to see if it acts as a bridge between the aforementioned constructs.

As previously discussed, PKM and AA suggest that green scepticism is not merely an outcome of AI disclosure but may act as a central psychological mechanism through which AI disclosure shapes consumer responses to sustainability messages. While PKM explains how AI disclosure activates critical evaluation of persuasive intent, AA clarifies why such evaluations may result in scepticism in ethically charged domains. Accordingly, green scepticism is expected to mediate the relationship between AI disclosure and consumers' attitudinal and behavioural responses in sustainability communication. On the other hand, according to ST and BT perspectives green scepticism can be limited due to a company's transparent and sincere perceptions. Although literature provides support for the effect of AI disclosure on advertisement and brand attitude, as well as purchase intention, the direction of the effect and the mediating role of green scepticism appear to vary depending on different theoretical explanations.

3.1.1. Sample and the Procedure

Study I included a total of 81 university students who were randomly assigned to two groups. To mitigate potential time-of-day and day-of-week effects, participants were scheduled to attend sessions on different days, either before or after noon. In this context, participants were enrolled in the experiment during a total of four different time slots, divided into two separate days. Before the experiment, participants were given a brief in a manner that would not cause manipulation and then experimental questions were delivered to participants via QR code. Participants with electronic devices larger than a specified screen size (max 6.9 inches) were excluded from the experiment (to ensure equal exposure to the manipulation condition/messages). Additionally, participants who experienced technical difficulties during the experiment (disconnection, QR code not scanning, etc.) were excluded from the experiment. In total, 81 participants completed the experiment, however 15 participants were excluded due to improper answers to the control question, resulting in 66 participants being included in the analysis (28 Females, 38 Males, $M_{age} = 22.87$).

As a data collection instrument, two questionnaires were prepared, one with manipulation (AI disclosure) and one without manipulation (nondisclosure). The participants were first shown the advertisement of a fictitious brand, which was designed using Gpt-4o, featuring an environmentally sustainable message (Our products for a liveable nature are waiting for you) along with a display portraying a forest with a deer. Those in the AI disclosure condition viewed an online ad with a disclaimer that it was created by AI (DISCLAIMER: This image has been generated by artificial intelligence), while those not in the AI disclosure condition viewed the ad without any disclaimer (Baek et al., 2024) (Appendix A). They were then asked to answer questions measuring attitude towards the ad adapted from Ham et al., (2022) (e.g. Please rate your overall feelings about the advertisement you saw a moment ago as bad/good, negative/positive, unpleasant/pleasant), attitude towards the brand adapted from Spears and Singh (2004) (e.g. Please describe your overall feelings about the brand described in the ad you just read as bad/ good, negative/positive, unfavourable/favourable) and green scepticism adapted from Mohr et al. (1998) (e.g. It is doubtful/doubtless that this is an environmentally friendly brand's product, It is certain/uncertain that this product is less damaging for the environment). All items were measured with a 7-point Semantic Differential Scale. The items

were translated into Turkish, and back translation was assured by two bilingual researchers. Participants' purchase intention was measured with a binary question (Would you buy products of this brand? 0: No 1: Yes). Finally, the questionnaire ended with manipulation control questions (disclaimer type and sustainability content) and demographic questions.

3.1.2. Findings

Normality of the variables is achieved (Tabachnick et al., 2013) and the internal reliability of all measures is above the accepted limit (Nunnally, 1978) ($\alpha > .70$). In addition, the manipulation check as to whether participants were aware of the disclosure (AI/No.AI) and sustainability content in the ad was significant ($M_{AI} = 6.06$, $M_{No.AI} = 5.08$, $p < .05$; $M_{sustainability} = 4.4$, $p < .01$).

As displayed in Figure 2., the results of the t-test on whether the created advertisement differs significantly on attitude and purchase intention revealed that AI disclosure and nondisclosure ads differ significantly in terms of purchase intentions (PI) and attitude toward the brand (AtB), but not in terms of attitude toward the ad (AtA) ($PI(M_{AI} = .63$, $M_{No.AI} = .85$, $SD_{AI} = .492$, $SD_{No.AI} = .359$, $SE_{AI} = .087$, $SE_{No.AI} = .062$, $t = 2.138$, $p = .037$); $AtB(M_{AI} = 4.34$, $M_{No.AI} = 5.07$, $SD_{AI} = 1.271$, $SD_{No.AI} = 1.361$, $SE_{AI} = .224$, $SE_{No.AI} = .233$, $t = 2.256$, $p = .028$); $AtA(M_{AI} = 4.67$, $M_{No.AI} = 5.00$, $SD_{AI} = 1.326$, $SD_{No.AI} = 1.491$, $t = .955$, $SE_{AI} = .234$, $SE_{No.AI} = .255$, $p = .34$)). In short, those exposed to AI disclosure show significantly ($p < .05$) less purchase intention and negative attitude towards the brand than those exposed to nondisclosure. Thus, hypotheses H_{1b} and H_{1c} are supported while hypothesis H_{1a} cannot be supported.

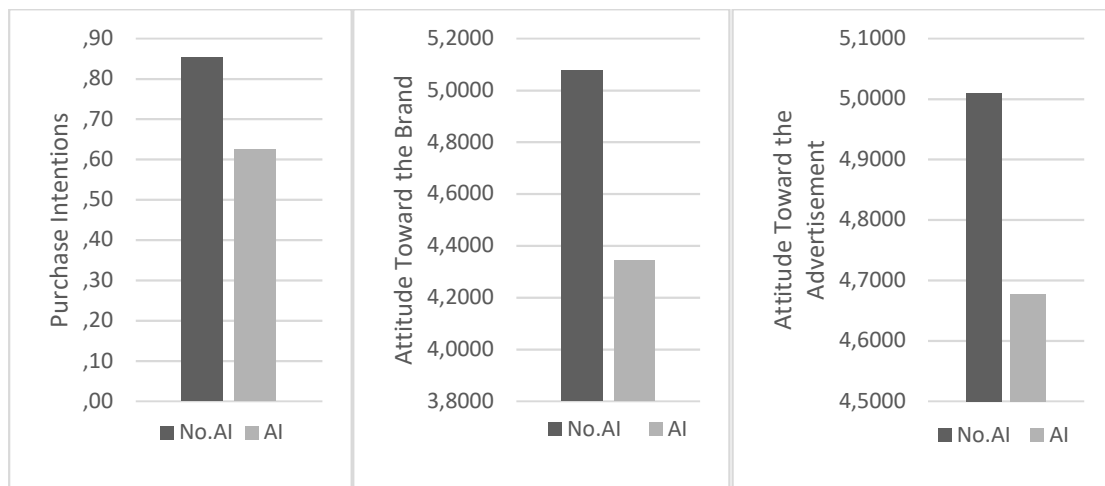


Figure 2. Results of “T-test” based on AI disclosure and nondisclosure

To assess the mediating role of green scepticism, PROCESS Macro Model 4 was used and test for direct/indirect effects with 5000 bootstrap samples and 95% confidence intervals (Hayes, 2022) were achieved. According to the results, there is a significant positive relationship between exposure to AI disclosure and green scepticism ($B = .968$, $\beta = .372$, $p < .01$). This effect varies between .364 and 1.572 at 95% confidence interval.

Table 1. Relationship between AI disclosure and green scepticism

	Unstandardized Coeff.		Standardized Coeff.	Sig.	95,0% CI for B	
	B	Std. Error	Beta		Lower Bound	Upper Bound
(Constant)	2,993	,211		,000	2,572	3,413
Disclosure	,968	,302	,372	,002	,364	1,572

PROCESS Model 4 also reveals that the relationship between AI disclosure ads and AtA, AtB and PI is mediated through green scepticism. That is, people's knowledge that sustainability-related ads created by AI increases their green scepticism, which negatively affects their PI, AtB and AtA. This is because the confidence intervals for this mediating effect are not equal to zero:

PI: Indirect effect (IE) = $-.87$, Standart Error (SE) = $.5548$,

Bootstrap Confidence Interval (BootCI) [-2.1993 , $-.2436$],

Direct effect (DE) = $-.5208$, SE = $.6838$,

Confidence Interval (CI) [-1.8610 , $.8194$]

AtB: IE = $-.3268$, SE = $.1884$, BootCI [$-.7992$, $-.0553$],

DE = $-.4059$, SE = $.3348$, CI [-1.0749 , $.2631$];

AtA: IE = $-.2960$, SE = $.1966$, BootCI [$-.7956$, $-.0201$],

DE = $-.0367$, SE = $.3646$, CI [$-.7653$, $.6919$]

Since a significant relationship between the independent variable and the mediator variable is not sought between the independent variable and the dependent variable when there is a significant relationship between the mediator variable and the dependent variable (Preacher and Hayes, 2008; Shrout and Bolger, 2002) the mediation effect are also revealed in PI, AtB and AtA. Thus, hypotheses H_{2a}, H_{2b} and H_{2c} are supported.

Figure 3. summarizes the indirect effects of AI disclosure on AtA, AtB and PI through green scepticism, along with the relevant coefficients and significance levels. The model shows that green scepticism acts as a significant mediating variable in all relationships.

Accordingly, all mediating effects are significant according to Sobel test results ($p_{PI} < .05$, $p_{AtB} < .05$, $p_{AtA} < .1$). As seen in Figure 4. below, the mediating effect of green scepticism between AI disclosure/nondisclosure ads and PI, AtA, AtB is revealed with 5000 Bootstrap and the lowest level (BootLLCI) and upper level (BootULCI) 95% CI (Hayes, 2022). In short, green scepticism has a mediating effect between the independent and dependent variables and it is revealed that the path from the independent variables to the dependent variable passes through green scepticism.

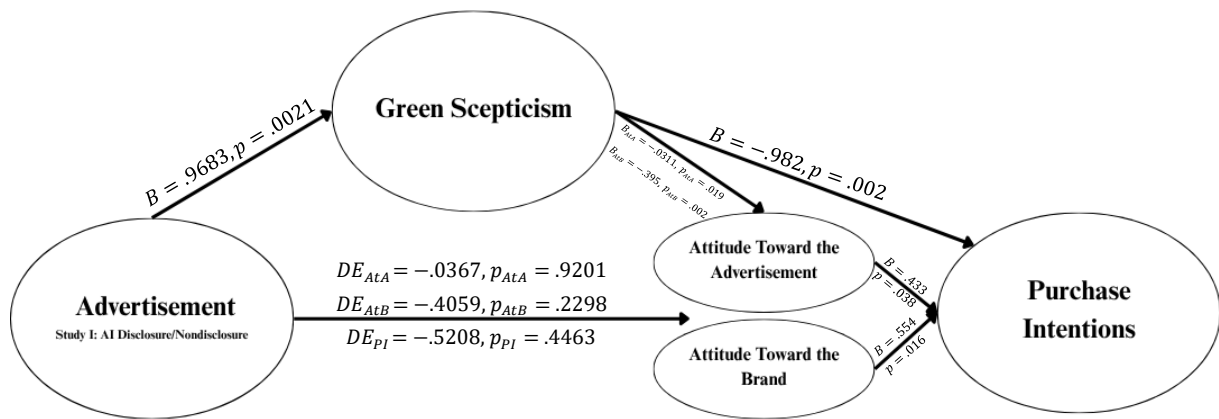


Figure 3. Research model of study 1: coefficients and p values

Finally, logistic regression analyses were conducted regarding the positive effect of attitude on purchase intentions. According to the results, it is revealed that there is a significant positive relationship between AtA and AtB and PI ($\text{Exp}(B)_{AtA} = 1.542, p < .05$; $\text{Exp}(B)_{AtB} = 1.741, p < .05$). It is revealed that this relationship varies between 1.025 and 2.321 in the 95% CI for the advertisement and between 1.11 and 2.731 in the 95% confidence interval for the brand. In short, as AtA and AtB increase, so does the intention to purchase. Thus, hypotheses H_{3a} and H_{3b} are supported.

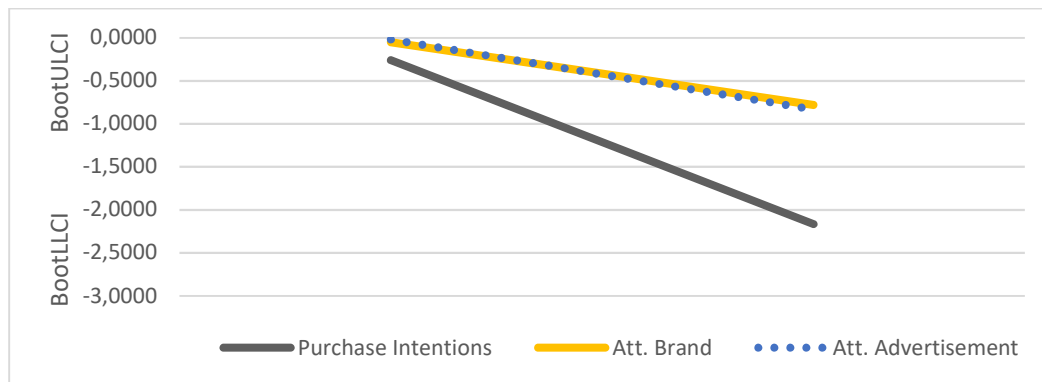


Figure 4. Mediation effects according to confidence intervals (study 1)

Table 2. Results of logistic regression

	B	S.E.	Sig.	Exp(B)	95% CI for Exp(B)	
					Lower	Upper
Attitude toward the Ad	,433	,208	,038	1,542	1,025	2,321
Constant	-,960	,982	,328	,383		
Attitude toward the Brand	,554	,230	,016	1,741	1,110	2,731
Constant	-1,439	1,038	,166	,237		

3.2. Study II

Study II was designed as an expanded replication of Study I to test the robustness of the findings and increase statistical power. This study was conducted specifically to reveal that the AI disclosure effect occurs through the mediating effect of green scepticism and to demonstrate causality robustly. In this context, unlike the first experiment, the messages were designed to be AI disclosure (DISCLAIMER: Generated by artificial intelligence) and Human disclosure (DISCLAIMER: Captured by a professional wildlife photographer) (Appendix B). The model for the conditions of the mediating effect is summarized in Figure 5.

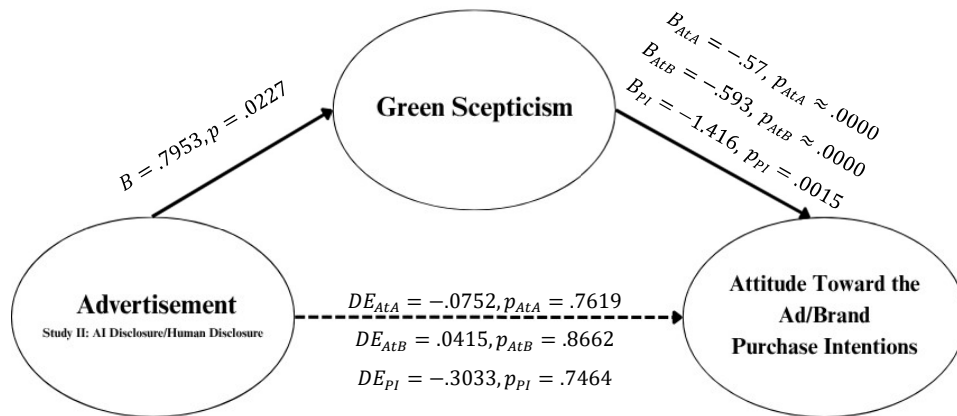


Figure 5. Research model of study II: coefficients and p values

3.2.1. Sample and the Procedure

Participants were randomly assigned to the AI disclosure and Human disclosure conditions, aiming to more clearly reveal the effect of AI disclosure. A total of 61 university students participated in Study II and were randomly assigned to two groups. Seven participants who did not provide an appropriate response to the control questions were excluded from the experiment, and analyses for Study II were conducted with 54 participants (29 Females, 25 Males, $M_{age} = 20.79$).

3.2.2. Findings

Normality tests were also performed in Study II (Tabachnick et al., 2013), and the internal reliability of all measurements exceeded the accepted limit (Nunnally, 1978) ($\alpha > .70$). As in Study I, tests were conducted for direct/indirect effects using 5000 Bootstrap samples and a 95% confidence interval to evaluate the mediating role of green scepticism. According to the results, there is a significant positive relationship between exposure to AI disclosure and green scepticism ($B = .795, \beta = .31, p = .0227$). This effect varies between .1158 and 1.4749 at a 95% confidence interval. Also there is a significant negative relationship between green scepticism and AtA, AtB, and PI ($B_{AtA} = -.57, \beta_{AtA} = -.657, p_{AtA} \approx .00$; $B_{AtB} = -.593, \beta_{AtB} = -.675, p_{AtB} \approx .00$; $B_{PI} = -1.416, Exp(B)_{PI} = .243, p_{PI} = .001$). The direct effect of AI/Human disclosure conditions on AtA, AtB, and PI was not statistically significant at the .05 level ($p > .05$). As mentioned in the first study, since no meaningful relationship is sought between the independent variable and the dependent variable in the mediation effect

(Preacher and Hayes, 2008; Shrout and Bolger, 2002), it is revealed that the necessary conditions for mediation measurements are established with these findings. Figure 6. shows the results of the mediating effect.

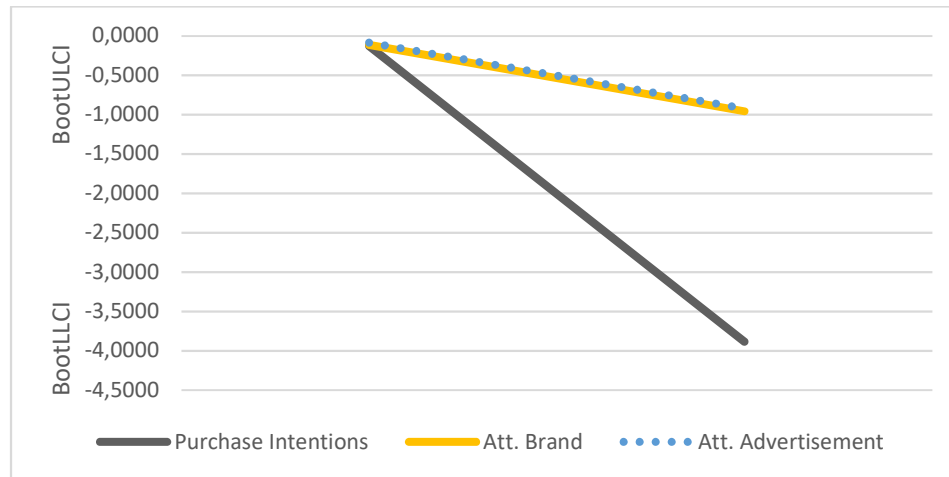


Figure 6. Mediation effects according to confidence intervals (study II)

Study II also presents findings that reinforce the results, indicating that the relationship between AtA, AtB, and PI is mediated by green scepticism through AI disclosure in advertisements. According to the findings, participants who knew that sustainability-related advertisements were created by AI increased their green scepticism compared to participants who knew they were created by humans, and this negatively affected their AtA, AtB, and PI ($PI: IE = -1.1138, SE = 1.2859, BootCI[-3.8844, -.1251], DE = -.3033, SE = .9377, CI[-2.1412, 1.5346]$); $AtA: (IE = -.4459, SE = .21, BootCI [-.9222, -.0841], DE = -.0752, SE = .2468, CI[-.5707, .4203])$; $AtB: (IE = -.4756, SE = .2134, BootCI[-.7994, -.0694], DE = .0415, SE = .2449, CI[-.4502, .5332])$). Furthermore, according to the Sobel test results, these mediating effects are significant ($p_{PI} < .1, p_{AtB} < .05, p_{AtA} < .05$). Thus, it is demonstrated that the mediating effect presented in the H_{2a} , H_{2b} , and H_{2c} hypotheses is directly attributable to AI disclosure.

4. Discussion

This study is one of the rare studies that examines the impact of AI disclosure on consumer responses from the perspectives of the Persuasion Knowledge Model (Friestad and Wright, 1994), Algorithm Aversion (Dietvorst et al., 2015), and the interplay between Signalling Theory (Spence, 1974) and Brand Transparency and can be considered to be the first within the context of environmental sustainability.

Firstly, the findings reveal that the hypothesis proposed in H_1 is partially supported by the results of Study I, as H_{1b} and H_{1c} are supported, while there was no support for H_{1a} . In other words, it has been found that people exhibit differing attitude and purchase intention depending on whether AI is disclosed or not in advertisements. More specifically, when AI disclosure is used in advertisements, individuals exert less favourable attitude toward the brand and intention

to purchase than those with nondisclosure, while attitude toward the advertisement does not change with respect to disclosure.

Considering H_2 , the mediating effect of green scepticism was tested first in Study I, where AI vs. non-disclosure was manipulated and it was found that green scepticism acts as a mediator. H_2 was tested again in Study II to see the mere effect of green scepticism and to determine whether the mediation effect occurs directly through AI disclosure, taking human-disclosure as a manipulation this time. The findings of the second study support the first study and reveal that green scepticism has resulted by AI disclosure, which in turn affects attitude toward the ad, attitude toward the brand and purchase intention negatively. In other words, in both studies AI disclosure in the advertisement caused higher green scepticism, leading to lower attitude toward the ad, attitude toward the brand and purchase intention than that of the nondisclosure and human disclosure manipulations.

When the results of H_2 in both studies are evaluated together, it becomes clearer why the AI disclosure had significant (Study I) and insignificant (Study II) direct effect on consumer attitudes and purchase intention. The results show that, as foreseen by PKM and AA, green scepticism acts as a bridge between AI disclosure and consumer responses. In other words, AI disclosure may not always directly cause consumers to develop negative attitudes and purchase intention but first increases green scepticism and demonstrates its effects on attitudes and purchase intention through this mediating mechanism. This contradiction in the results of AI disclosure's direct effect in two studies may stem from the fact that, AI disclosure may not always influence consumer responses through a single linear mechanism, but through different psychological processes. Firstly, within the context of PKM, AI disclosure may function as a cue that reveals the persuasive intent, leading consumers to question the motivations behind the message, where these questioning triggers other mechanisms (in that case, green scepticism), regardless of whether the persuasive capacity of AI is perceived as strong or weak. Secondly, AA perspective positions AI as a resource lacking a human touch in areas requiring ethical and emotional sensitivity, and this can weaken the persuasive power of AI-generated messages. Therefore, rather than creating a strong negative attitude in some consumers, the AI disclosure may play a role in limiting or neutralizing the impact of the message. On the other hand, these results also show that, ST & BT frameworks may not be useful to explain the effect of AI disclosure on consumers for sustainability messaging, since AI disclosure was not found as a positively influencing mechanism and green scepticism is inevitable. In other words, AI disclosure does not seem to function as a positive transparency signal in the context of sustainability communication. The contribution of the study in theory is further delineated in the theoretical implications section.

Although the central goal of this study is not to understand if positive attitudes translate into positive purchase intention, which had been evidenced in numerous studies (e.g. MacKenzie et al., 1986; Spears and Singh, 2004; Ganesan et al., 2016; Shuaib, 2023), the final hypothesis in Study I, H_3 , aimed to test whether attitude toward the ad (H_{3a}) and the brand (H_{3b}) result in purchase intention. The findings also support H_3 by suggesting that positive attitudes—when successfully elicited—translate into stronger purchase intentions, as also evidenced by MacKenzie et al. (1986).

4.1.Theoretical Implications

The fact that green scepticism acts as a mediator variable in both studies and in all relationships supports the central role of this concept in AI disclosed communication within the framework of Persuasion Knowledge Model. When sustainability domain is examined, the findings of this study suggest that AI disclosure on sustainability messages may activate consumers' persuasion knowledge systems by serving as a cognitive stimulus that makes the persuasive intent behind the advertisement apparent to consumers. In support of H₂, this aligns with research suggesting that scepticism functions as a cognitive resistance mechanism when consumers perceive persuasive intent (Mohr et al., 1998) and that scepticism weakens the message's persuasiveness, diminishes emotional engagement, and undermines brand trust (Albayrak et al., 2013). AI disclosure may indeed work as an agent or cue that triggers persuasion knowledge; as such, when consumers recognize AI disclosure, they engage their persuasive knowledge by questioning why the brand uses AI. Especially with content based on environmental sustainability, consumers tend to question the brand's sincere intentions, which can increase scepticism. In other words, when AI disclosure is presented, consumers may question the authenticity of the sustainability claims, thereby heightening green scepticism, which in turn dampens their attitude toward the ad, attitude toward the brand and purchase intention. As stated in the study of Brüns and Meißner, (2024), adoption of generative AI can indeed result in diminished brand authenticity.

The findings of Study II additionally show that people may avoid trusting algorithms and support the findings of the previous studies (Longoni et al., 2020; Magni et al., 2023; Messer, 2024; Van Esch et al., 2019), where it was found that individuals do not want AI to replace human providers. This is also in line with the predictions of the Algorithm Aversion literature: AI-based content can be perceived as cold, mechanical, or unemotional due to its lack of human emotion and empathic tone (e.g. Huang and Rust, 2022; Mahmud et al., 2022). Therefore, the AI disclosure may trigger green scepticism by increasing consumers' perception of a mismatch between environmental discourse and algorithmic production.

On the other hand, the signalling theory, which suggests that brand transparency can be achieved through AI disclosure and positive signals can be developed about the brand, does not seem to be supportive of the findings. Or, instead of being perceived as a positive signal as a brand's transparency effort, AI disclosure may create a perception in consumers that AI lacks a human touch or may be perceived as a negative signal due to consumers' negative attitudes towards AI. This is consistent with the evidence that consumers often attribute lower warmth and human touch to AI-produced content (Mende et al. 2019), which can undermine the intended positive signalling effects. The results of this study may also point to a bidirectional signalling effect with respect to signalling theory: While AI disclosure appears to provide a positive information signal as a sign of transparency, consumers may also interpret this disclosure as diminishing the brand's emotional intimacy. Thus, while a disclosure may begin as a signal of transparency, it may not translate into a signal of trust. This can vary, particularly depending on the brand's previous sustainability performance or the consumers' overall level of trust in the technology. Considering this, the findings present similar results with studies

showing that human-generated advertisements reduce negative reactions and increase trust compared to AI-generated advertisements (Waytz et al., 2014), indicating that it can improve attitudes towards both the advertisement and the brand.

4.2. Practical Implications

In addition to its theoretical contributions, the results of the study offer important implications for marketing professionals as well. Companies should be cautious about using AI, especially in value-oriented themes such as sustainability, and should strategically evaluate the decision of whether to disclose AI usage. It should be kept in mind that AI disclosure, even if presented for transparency purposes, may create scepticism in the eyes of consumers. Since the perceived sincerity of advertising content is a determinant of consumer trust, it may be beneficial to emphasize human touch, especially in messages that include environmental sensitivity. Therefore, it is suggested that when promoting the use of AI in advertising content, companies should consider simultaneously emphasizing "environmental intent" and "human touch." The message language should focus on establishing an emotional connection, not just informational. The use of AI in sustainability campaigns should be reinforced with human-centred visuals or heartfelt narratives that support the brand's environmental efforts.

4.3. Limitations and Suggestions for Future Research

The study has some limitations that should be examined in future research. First, since the sample consisted solely of university students, the generalizability of the findings to broader consumer groups is limited and relatively small sample size further constrains the statistical power of the analyses, potentially limiting the detection of existing effects. These limitations call for replication with larger and more diverse samples in future research. Second, the research design focused on sustainability-themed advertisements without considering different product categories. In this regard, AI disclosure effects may differ in advertising contexts for different product categories, necessitating the measurement of the AI disclosure effect across different types of advertisements (e.g., hedonic/utilitarian, rational/emotional, abstract/concrete) and different product categories (e.g. hedonic/utilitarian, low/high involvement, convenience/specialty products). Third, the experimental manipulation presented in this study is textual, thus, future research may adopt different methodological approaches by varying manipulation formats. For instance, audio AI disclosure may also influence consumer attitudes. In addition, field studies examining the effect of AI disclosure on consumer attitudes or purchase intentions would be worthy of investigation with higher external validity. Finally, the current study did not consider cultural and demographic differences, which may vary consumers' responses to AI disclosure and should be addressed in future research.

Although not a limitation, this study found that AI disclosure in ads results in higher green scepticism but did not examine why it is so. Future studies may design qualitative research to develop a deeper understanding of whether consumers perceive AI disclosure as a cost-cutting mechanism, a communication without genuine care, or a way of greenwashing without substantial effort. Also, studies can be conducted that include the conditions from both experiments (AI disclosure vs. no disclosure vs. human disclosure) together in order to more robustly reveal causality and the source of the effect. Moreover, the power of the experiment

can be increased by focusing on fewer dependent variables or by changing the positions of the dependent variables according to the experimental groups. In addition, the influence of some moderators can be examined related to the finding that AI disclosure may not directly affect the dependent variables (purchase intention, attitude toward advertising, attitude toward the brand) in all cases. For instance, the moderating effect of brand transparency may be examined in future research. This is because the current study has addressed transparency from the perspective of messaging. However, examining the relevant moderating effect by addressing brand transparency from the perspectives of “policy” and “evidence” (Montecchi et. al., 2024) may provide important insights into the emergence of a direct effect.

Data Sets and Analyses Accessibility

The dataset and all extended analyses of the current study are available on the public OSF platform (<https://osf.io/549ax>).

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Appendix A. AI Disclosure vs. Nondisclosure Advertisements (Study I)



Appendix B. AI Disclosure vs. Human Disclosure Advertisements (Study II)

