

Digital Skills and Sustainable Consumption: The Roles of CSR Perception and Perceived Greenwashing

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Abstract: Although corporate social responsibility (CSR) and green marketing have been widely studied, limited attention has been given to the role of consumer digital capabilities in interpreting sustainability information. While prior research has extensively examined corporate communication strategies, limited attention has been paid to the role of consumer capabilities in interpreting CSR-related information.

This study investigates how digital skills influence purchase intention through CSR perception and perceived greenwashing. Survey data were collected from 392 valid respondents in Taiwan. The proposed hypotheses were tested using exploratory factor analysis (EFA) and multiple regression analysis.

The results indicate that digital skills positively influence CSR perception and negatively affect perceived greenwashing. CSR perception significantly enhances purchase intention, whereas perceived greenwashing reduces purchase intention. Furthermore, the findings support the mediating effects of CSR perception and perceived greenwashing in the relationship between digital skills and purchase intention.

By shifting the analytical focus from firm-centered communication strategies to consumer digital capabilities, this study contributes to the literature on sustainable marketing and consumer behavior. The findings suggest that improving digital literacy and enhancing

transparency in CSR communication are critical for fostering sustainable consumption in the digital age.

Keywords: Digital Skills; Corporate Social Responsibility; Greenwashing; Purchase Intention; Sustainable Marketing

1 Introduction

In recent years, digital transformation has fundamentally reshaped the way corporations communicate with consumers. Corporate social responsibility (CSR) information and sustainability claims are increasingly disseminated through digital platforms such as social media, corporate websites, and online marketplaces [4], [8]. While digital channels enhance transparency and accessibility, they also intensify information asymmetry and raise concerns regarding the credibility of corporate sustainability communication [5], [10].

Prior research on CSR and sustainable marketing has primarily focused on firm-driven disclosure strategies and their impact on corporate reputation and financial performance [5], [10]. However, relatively limited attention has been paid to the role of consumer capabilities in interpreting CSR-related information within digital environments. As consumers are increasingly exposed to complex sustainability claims, their ability to evaluate and verify such information may play a critical role in shaping their judgments and behavioral responses.

Drawing on information asymmetry theory [1] and consumer behavior perspectives, digital skills can be conceptualized as a cognitive capability that enables consumers to process and evaluate CSR information more effectively. Higher levels of digital competence may enhance consumers' ability to distinguish authentic CSR efforts from symbolic or misleading claims, thereby influencing perceived greenwashing and purchase intention.

Accordingly, this study investigates whether consumers with stronger digital skills evaluate CSR information differently and how such evaluations influence their purchase intention. Specifically, digital skills are proposed to enhance CSR perception while reducing perceived greenwashing, which subsequently affect purchase intention. Using survey data collected from 392 consumers, this study examines the mediating roles of CSR perception and perceived greenwashing in the relationship between digital skills and purchase intention.

By shifting the analytical focus from firm-centered CSR communication to consumer digital competence, this research contributes to sustainable marketing literature and provides empirical evidence on how digital capability influences sustainable consumption decisions in digital markets.

This study integrates information asymmetry theory with consumer cognitive capability perspectives to propose a dual-path mediation model in digitally mediated markets. By shifting the analytical focus from firm-driven CSR communication to consumer-side digital competence, this research extends sustainable marketing theory and provides a novel explanation of how digital capability shapes evaluative mechanisms and behavioral intention.

This study fills an important gap in sustainable marketing research by positioning digital competence as a cognitive antecedent of CSR evaluation rather than merely a contextual factor.

2 Literature Review and Hypotheses Development

2.1 Digital Skills and CSR Perception

Digital skills refer to an individual's ability to access, evaluate, and effectively utilize digital information [13]. Beyond technical operation, digital competence encompasses critical thinking, information verification, and the ability to assess online content credibility. In digital markets, CSR communication is frequently delivered through online channels, where corporate sustainability claims coexist with marketing narratives.

Consumers with higher digital skills may be better equipped to analyze CSR disclosures, verify sources, and interpret sustainability-related messages. Prior research suggests that individuals with stronger information-processing abilities are more capable of distinguishing substantive CSR engagement from superficial communication [2]. Consequently, higher digital competence may enhance the formation of positive CSR perception when corporate claims are perceived as authentic and credible.

Accordingly, this study proposes:

H1: Digital skills positively influence CSR perception.

2.2 Digital Skills and Perceived Greenwashing

Greenwashing refers to the practice of conveying misleading information regarding a firm's environmental performance [3]. In digitally mediated environments, consumers are increasingly exposed to sustainability-related claims that may exaggerate environmental achievements.

From an information asymmetry perspective [1], firms often possess more information about their actual environmental performance than consumers. Digital skills may reduce this asymmetry by enabling consumers to critically evaluate online CSR claims, compare information across sources, and identify inconsistencies. Consumers with stronger digital skills may therefore be less susceptible to misleading communication and more capable of detecting symbolic CSR activities. Thus, digital competence is expected to reduce perceived greenwashing.

H2: Digital skills negatively influence perceived greenwashing.

2.3 CSR Perception and Purchase Intention

CSR perception reflects consumers' overall evaluation of a firm's social and environmental responsibility. Prior studies have demonstrated that positive CSR perception enhances corporate reputation, trust, and consumer loyalty [10], [5]. According to consumer behavior theory, favorable evaluations of corporate responsibility may increase consumers' willingness to support firms through purchasing behavior.

When consumers perceive CSR initiatives as authentic and aligned with societal values, they are more likely to form positive attitudes toward the company, which in turn strengthens purchase intention.

Therefore:

H3: CSR perception positively influences purchase intention.

2.4 Perceived Greenwashing and Purchase Intention

In contrast, perceived greenwashing may undermine corporate credibility and erode consumer trust. When consumers believe that environmental claims are exaggerated or deceptive, negative evaluations may arise, leading to skepticism and resistance toward the brand [11].

From a behavioral perspective, perceived deception reduces trust and decreases purchase intention. Consumers who suspect greenwashing are less likely to reward firms with purchasing behavior.

Accordingly:

H4: Perceived greenwashing negatively influences purchase intention.

2.5 The Mediating Roles of CSR Perception and Perceived Greenwashing

Based on the above arguments, digital skills may influence purchase intention indirectly through their effects on CSR perception and perceived greenwashing. By enhancing consumers' ability to interpret CSR communication, digital competence shapes evaluative judgments, which subsequently determine behavioral intention.

Therefore, this study further proposes:

H5a: CSR perception mediates the relationship between digital skills and purchase intention.

H5b: Perceived greenwashing mediates the relationship between digital skills and purchase intention.

The conceptual framework of this study is presented in Figure 1.

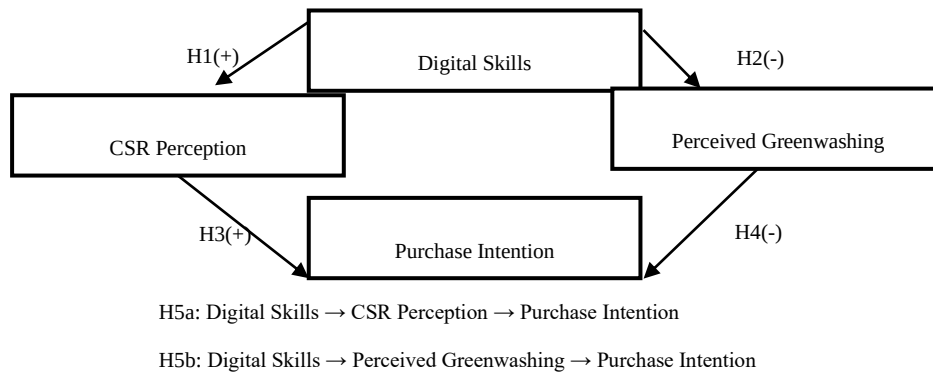


Figure 1
Conceptual Framework

3 Research Methodology

3.1 Research Design and Sample

This study adopted a structured survey design to examine the proposed relationships among digital skills, CSR perception, perceived greenwashing, and purchase intention. Data were collected through an online questionnaire distributed to consumers in Taiwan. Participation was voluntary and anonymous.

A total of 412 responses were received. After eliminating incomplete or invalid responses, 392 valid questionnaires were retained for analysis. The sample included

respondents from diverse demographic backgrounds in terms of gender and age, providing sufficient variability for empirical testing.

3.2 Measurement of Variables

All constructs were measured using previously validated scales adapted from established studies:

Digital Skills (12 items, Cronbach's $\alpha = 0.942$): Adapted from [13], [6]. Items measured respondents' ability to access, evaluate, and critically assess online information. Representative items include "I can verify the credibility of online sources" and "I can effectively compare information across different websites to identify inconsistencies." This scale captures both technical and critical thinking competencies necessary for navigating digital environments.

CSR Perception (8 items, Cronbach's $\alpha = 0.845$): Adapted from [9], [12]. Items reflected consumers' overall evaluation of a firm's social and environmental responsibility. Representative items include "This company genuinely cares about environmental issues" and "I believe this company's CSR efforts are authentic and substantive." These items measure the extent to which consumers perceive CSR initiatives as sincere and impactful.

Perceived Greenwashing (12 items, Cronbach's $\alpha = 0.922$): Adapted from [11]. Items captured the extent to which respondents believed environmental claims were exaggerated or misleading. Representative items include "This company exaggerates its environmental achievements" and "I think this company's environmental claims are not fully supported by evidence." This scale assesses consumer skepticism regarding the authenticity of corporate sustainability communication.

Purchase Intention (8 items, Cronbach's $\alpha = 0.899$): Adapted from [7]. Items indicated respondents' likelihood of purchasing from a socially responsible company. Representative items include "I am willing to purchase from this company" and "I plan to buy products from this company in the near future." These items measure behavioral intention based on consumers' evaluations of corporate responsibility.

All items were measured on a five-point Likert scale (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree). The multi-item scales with high reliability coefficients (all $\alpha > 0.84$) provide robust measurement of consumer perceptions and behavioral intentions in the context of digital CSR communication.

3.3 Analytical Strategy

Data analysis was conducted using SPSS. Exploratory factor analysis (EFA) was first performed to assess construct validity. Reliability was evaluated using Cronbach's alpha coefficients. All constructs demonstrated satisfactory internal consistency, with alpha values exceeding the recommended threshold of 0.70.

Multiple regression analysis was then employed to test the hypothesized relationships among variables. The mediating effects of CSR perception and perceived greenwashing were examined using regression-based mediation analysis. Statistical significance was evaluated at conventional levels.

To assess potential common method bias, Harman's single-factor test was conducted, and no single factor accounted for the majority of variance.

4 Results

4.1 Descriptive Statistics and Reliability

Descriptive statistics and reliability results are presented in Table 1. All constructs demonstrated satisfactory internal consistency, with Cronbach's alpha coefficients exceeding the recommended threshold of 0.70. The results indicate that the measurement scales exhibit adequate reliability for subsequent analysis.

Exploratory factor analysis further confirmed the validity of the constructs, as all items loaded significantly on their respective factors. These results provide support for the adequacy of the measurement model.

Construct	Number of Items	Cronbach's α
Digital Skills	12	0.942
CSR Perception	8	0.845
Perceived Greenwashing	12	0.922
Purchase Intention	8	0.899

Table 1 (Reliability Table)

4.2 Hypotheses Testing

Multiple regression analysis was conducted to test the proposed hypotheses. The results are reported in Table 2.

As shown in Model 1, digital skills exert a significant negative effect on perceived greenwashing ($\beta = -.342$, $p < .01$), supporting H2. In addition, digital skills demonstrate a positive association with CSR perception, which provides support for H1.

Model 3 indicates that digital skills positively influence purchase intention ($\beta = .174$, $p < .01$), while CSR perception demonstrates a strong positive effect on purchase intention ($\beta = .682$, $p < .01$), supporting H3. In Model 4, perceived greenwashing shows a significant negative effect on purchase intention ($\beta = -.176$, $p < .01$), supporting H4. The explanatory power of the full model increases to $R^2 = .622$, suggesting that the proposed framework provides substantial explanatory capacity. The model explains 62.2% of the variance in purchase intention, indicating strong explanatory power in the context of consumer behavioral research.

Regression Results	Model 1	Model 2	Model 3	Model 4
Variables	(PG)	(PG)	(PI)	(PI)
Digital Skills (DS)	-.342**		.174**	.132**
CSR Perception (CSR)		-.347**	.682**	.638**
Perceived Greenwashing (PG)				-.176**
R ²	.117	.120	.596	.622
Adjusted R ²	.115	.118	.594	.619
F-value	51.662**	53.352**	286.993**	212.788**

Table 2 (Regression Results)

4.3 Mediation Analysis

The mediating effects were examined using a regression-based mediation approach following the procedures suggested by Baron and Kenny (1986). Specifically, the analysis assessed: (1) the effect of digital skills on the mediators (CSR perception and perceived greenwashing), (2) the direct effect of digital skills on purchase intention, and (3) the effects of the mediators on purchase intention while controlling for digital skills.

This stepwise procedure allows for the identification of indirect effects through changes in coefficient magnitude and statistical significance. In addition, the increase in explanatory power (R^2) across models was used to further evaluate the presence of mediation effects.

Although structural equation modeling (SEM) and bootstrapping techniques are widely recommended for mediation analysis, the present study adopts a regression-based approach to maintain consistency with prior CSR and consumer behavior research and to ensure interpretability of results within an exploratory empirical framework.

The mediation analysis results indicate that digital skills significantly influence purchase intention in the baseline model. However, when CSR perception and perceived greenwashing are introduced simultaneously, the direct effect of digital skills decreases in magnitude while both mediators remain statistically significant.

This pattern is consistent with partial mediation. Specifically, CSR perception serves as a positive mediating mechanism that enhances purchase intention, whereas perceived greenwashing functions as a negative mediating mechanism that suppresses purchase intention.

Furthermore, the increase in explanatory power from Model 3 ($R^2 = 0.596$) to Model 4 ($R^2 = 0.622$) provides additional support for the mediating roles of CSR perception and perceived greenwashing. These findings collectively suggest that digital skills influence purchase intention primarily through evaluative cognitive mechanisms.

Therefore, H5a and H5b are supported.

5 Discussion

The findings provide empirical evidence that digital skills function as a cognitive resource that shapes CSR evaluation under information asymmetry. In digitally mediated markets, consumers are exposed to extensive sustainability claims with varying degrees of credibility. Digital competence enables consumers to differentiate substantive CSR engagement from symbolic communication, thereby influencing both positive evaluations and skepticism simultaneously. This dual-path mechanism highlights the critical role of consumer capability in determining whether CSR communication translates into behavioral intention. Importantly, the findings reveal a dual-path mediation mechanism in which digital skills simultaneously enhance positive CSR evaluations and reduce skepticism toward greenwashing. This dual mechanism highlights that digital competence not only facilitates information processing but also shapes both trust-building and skepticism-reducing processes in consumer decision-making.

Second, CSR perception was found to exert a strong positive influence on purchase intention. This finding is consistent with prior research indicating that consumers are more likely to support firms perceived as socially responsible. When CSR initiatives are viewed as authentic and substantive, they strengthen positive evaluations and encourage behavioral support.

Conversely, perceived greenwashing negatively affects purchase intention. This result highlights the potential risks associated with exaggerated or misleading sustainability communication. When consumers suspect symbolic or insincere CSR efforts, their trust declines, leading to lower purchase intention.

Importantly, the mediation analysis reveals that digital skills influence purchase intention indirectly through both CSR perception and perceived greenwashing. This finding extends existing CSR literature by emphasizing the importance of consumer capabilities rather than focusing solely on firm-driven communication strategies. In digital markets characterized by abundant information and competing claims, consumer digital competence plays a critical role in determining whether CSR communication generates trust or skepticism.

Conclusion and Implications

This study investigates how digital skills shape sustainable consumption decisions through their effects on CSR perception and perceived greenwashing. Using survey data from 392 respondents, the findings demonstrate that digital competence enhances CSR perception, reduces perceived greenwashing, and indirectly influences purchase intention through these evaluative mechanisms.

Theoretical Implications

The present study contributes to CSR and sustainable marketing literature in several ways. First, it shifts the analytical focus from firm-centered CSR communication to consumer digital capability. While prior research has largely emphasized corporate disclosure strategies, this study highlights the importance of consumer-side information-processing ability in shaping CSR evaluations.

Second, the findings extend information asymmetry theory to digitally mediated markets. The results suggest that digital skills may reduce information asymmetry by enabling consumers to critically assess sustainability claims, thereby influencing trust and behavioral intention. This perspective enriches the understanding of how digital competence interacts with CSR communication outcomes.

Managerial Implications

From a managerial perspective, the results suggest that firms must recognize the increasing sophistication of digitally skilled consumers. As consumers become more capable of verifying and cross-checking CSR claims, superficial or symbolic sustainability communication may backfire. Therefore, companies should prioritize transparency, consistency, and verifiable evidence in their CSR strategies.

Moreover, firms should align digital communication strategies with substantive CSR practices to strengthen credibility. In digital environments characterized by rapid information diffusion, authentic CSR engagement becomes essential for sustaining consumer trust and encouraging purchase behavior.

Limitations and Future Research

Despite its contributions, this study has several limitations. First, the data were collected from a single national context, which may limit generalizability. Future research may examine cross-cultural differences in digital competence and CSR evaluation. Second, the study employed a cross-sectional survey design; longitudinal research could further explore causal relationships. Additionally, future studies may adopt advanced mediation techniques, such as bootstrapping procedures, to further validate the robustness of the findings.

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