The Consumer to Recycle (C2R): Buy, Use, Recycle, Repeat.

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Abstract

Promoting recycling behavior among consumers represents a major challenge in the context of the transition to a circular economy. This study examines the impact of three levers: digital marketing, behavioral triggers and real-time feedback systems, on citizens' commitment to recycling. A quantitative approach was adopted through a structured questionnaire administered online to a sample of 320 adult participants. Data were analyzed using descriptive, correlational and regression statistics. The results show that digital marketing, in particular content disseminated via social networks, exerts a significant influence on recycling behavior. Behavioral triggers such as gamification or reminders have a moderate effect, while real-time feedback systems appear to be the least effective. The study highlights the value of combining different levers to reinforce consumers' lasting involvement in recycling practices.

Keywords : Recycling Behavior, Digital Marketing, Behavioral Triggers, Real-Time Feedback, Sustainable Consumer Engagement

Introduction

In the context of escalating environmental concerns and the urgent need to transition toward circular economies, engaging consumers in sustainable practices such as recycling has become a pressing priority (Peattie & Peattie, 2009; Thøgersen, 2010). Although governments and environmental organizations have promoted large-scale recycling initiatives, consumer participation often remains fragmented and inconsistent. This persistent gap between environmental awareness and behavioral action has highlighted the limitations of traditional communication approaches and drawn attention to the need for more effective, behaviorally informed interventions (Nisa et al., 2019; Delmas & Burbano, 2011).

Digital marketing, especially through social media and influencer-led campaigns, has shown strong potential to influence consumer attitudes and behaviors across diverse domains, including sustainability (Kapitan & Silvera, 2016; Shaheen, 2025). Simultaneously, behavioral science has introduced mechanisms such as nudges, gamification, and reminders that can subtly guide individuals toward desired actions without restricting choice (Thaler & Sunstein, 2008; Byerly et al., 2018). Additionally, advances in data systems and supply chain transparency have made it possible to offer real-time feedback to consumers about the impact of their recycling activities, potentially reinforcing their behavior by linking action with visible outcomes (Weber et al., 2023; Fang et al., 2022).

While each of these elements, digital marketing, behavioral triggers, and feedback systems, has shown individual effectiveness, few studies have examined how they might function together in an integrated model.

This study seeks to address a significant gap in the literature by introducing and empirically evaluating the Consumer-to-Recycle (C2R) model. This model examines how three key levers, communication, motivation, and real-time feedback, can collectively shape and enhance consumer recycling behavior. The focus of this research is to investigate the mechanisms that effectively encourage recycling among digitally connected consumers. Specifically, it explores the influence of digital marketing strategies, behavioral triggers, and real-time feedback systems, three contemporary tools that have the potential to drive sustainable action. The primary aim is to assess both the individual and combined impact of these levers on recycling behavior, using quantitative analysis based on the responses of 320 participants to a structured questionnaire. The article is organized as follows: first, a literature review synthesizes prior research on digital marketing, behavioral nudges, and sustainability feedback mechanisms. This is followed by a detailed account of the study's methodology. The results section then presents

findings supported by statistical analysis. Finally, the discussion interprets these results in the context of existing literature, leading to a conclusion that outlines both the theoretical contributions and practical implications of the study.

Literature Review:

Influencer and digital marketing have evolved into powerful tools for promoting sustainability, particularly through emotionally engaging content and social influence. Social media platforms such as Instagram and YouTube allow marketers to leverage parasocial relationships, where followers feel personally connected to influencers who model sustainable behaviors *(Kotler and Keller, 2016)*. Research suggests that eco,marketing strategies work best when they emphasize authenticity, social values, and shared responsibility, rather than just product benefits *(Peattie and Peattie, 2009; Kapitan and Silvera, 2016)*. Trust and perceived integrity of influencers are especially important when promoting environmentally friendly actions or products, helping to reduce consumer skepticism toward greenwashing *(Delmas and Burbano, 2011)*. Furthermore, social influence plays a crucial role in reinforcing these messages. People are more likely to engage in pro,environmental behavior when they see their peers or admired figures doing so *(Grankvist and Biel, 2007)*. Campaigns that combine digital visibility with value,driven appeals can thus activate collective responsibility, fostering sustainable habits *(Thøgersen, 2010)*.

Recent research builds on this foundation by providing real,world evidence of how influencer,led digital campaigns directly impact sustainable choices. For instance, studies on green fashion marketing reveal that campaigns involving trusted influencers increase not just brand awareness but also the intent to purchase eco,friendly products *(Pakpahan et al., 2025)*. Emotional storytelling and personalized narratives enhance message effectiveness, making consumers feel that their small actions, like recycling or buying second,hand, contribute to a larger purpose *(Promma, 2025)*. In the tourism sector, digital green marketing has been shown to influence both the beliefs and recycling behavior of eco,travelers *(Sanjaya et al., 2024)*. Engagement metrics such as likes and shares are not just vanity numbers,they predict who will take sustainable action *(Chauhan and Singh, 2025)*. Furthermore, environmentally conscious digital communities help normalize green behaviors, as shown in research on mobile payment adoption and digital platform engagement *(Hilale and Chakor, 2024)*. These insights suggest that today's influencers are not just trendsetters, but potential sustainability educators who can inspire real behavioral change.

Behavioral nudges have proven to be powerful tools in shaping sustainable behavior by altering the environment in which decisions are made, rather than relying solely on conscious intent.

Nudging works by subtly guiding choices without restricting freedom, making it easier for individuals to make environmentally responsible decisions *(Thaler and Sunstein, 2008)*. Applied to sustainability, nudges such as reminders, defaults, or visual cues have been used to promote recycling, reduce plastic usage, and encourage sustainable consumption *(Schultz et al., 2018)*. A meta,analysis by Nisa et al. (2019) confirmed that behavioral interventions, particularly defaults and reminders, produced statistically significant improvements in environmental behaviors across various contexts. However, nudges must be contextually adapted,what works in energy conservation may not work in waste management *(Byerly et al., 2018)*. Overall, foundational work in behavioral economics has laid the groundwork for practical interventions in environmental campaigns.

Gamification, the use of game elements in non,game contexts, has gained popularity as a method to motivate eco,friendly actions. By rewarding users with points, badges, or progress bars, gamification taps into intrinsic motivation, competition, and enjoyment *(Hamari and Koivisto, 2015)*. Recent applications in sustainability contexts include recycling apps, carbon tracking games, and household energy,saving competitions *(Kazhamiakin et al., 2021)*. For example, Weber et al. (2023) found that gamified platforms promoting recycling behaviors significantly increased user engagement and follow,through in European cities. Gamification also fosters social comparison and personal investment in habits, leading to sustained behavior change rather than one,time actions *(Fang et al., 2022)*. However, researchers caution that poorly designed gamification can backfire if rewards feel superficial or manipulative *(Seaborn and Fels, 2020)*. Therefore, meaningful gamification tied to environmental outcomes is essential for long,term impact.

On the other hand, social norms, people's perceptions of what others do or approve of, are highly influential in promoting sustainable behavior. Descriptive norms (what people typically do) and injunctive norms (what people approve of) have both been used in sustainability messaging to shift behavior *(Cialdini et al., 2006)*. In recycling, water use, and energy saving, people tend to conform to what they believe their peers are doing *(Goldstein et al., 2008)*. These findings underscore the psychological power of social conformity in shaping eco,actions. Norm,based messages can even outperform factual or logical messages when well,targeted. However, the effectiveness depends on both the perceived closeness of the reference group and the credibility of the source *(Schultz et al., 2007)*. These studies form the backbone of many influencer,based sustainability campaigns that aim to make green behaviors socially desirable and visible.

Modern sustainability campaigns increasingly integrate nudging, gamification, and social norm cues into hybrid strategies. For example, digital platforms like JouleBug combine reminders (nudges), rewards (gamification), and peer rankings (social norms) to influence behavior. Research by *Sanjaya et al.* found that digital interventions combining feedback and norm,referencing increased recycling participation among eco,tourists *(Sanjaya et al., 2024)*. Similarly, *Hilbert and Bizer* showed that neighborhood,level comparisons in mobile apps (e.g., "Your street recycles more than 85% of others") significantly boosted eco,friendly habits *(Hilbert and Bizer, 2021)*. Influencer campaigns also integrate these strategies by making sustainability a visible and social activity that encourages competition and belonging *(Lee and Kim, 2022)*. This blend of strategies proves especially effective in maintaining long,term engagement in environmental action, especially among digital natives *(Fang et al., 2022; Weber et al., 2023)*.

Building upon prior insights into nudges and social norms, real,time feedback has emerged as a powerful behavioral reinforcement tool in sustainability efforts. Feedback gives users immediate, concrete information about the environmental impact of their actions, such as kilograms of waste avoided, energy saved, or emissions reduced. This closes the loop between behavior and consequence *(Fischer, 2008)*. Foundational studies show that individuals are more likely to repeat positive behaviors, such as recycling or conserving energy, when they receive real,time confirmation that their actions matter *(Abrahamse et al., 2007; Darby, 2006)*. In particular, digital feedback mechanisms like smart meters and personalized dashboards have been effective in translating abstract environmental goals into tangible and motivating outcomes *(Karlin et al., 2015)*.

Building on this foundation, recent research has explored how personalized digital feedback can deepen environmental engagement, especially when integrated into consumer,facing apps or smart devices. Mobile applications now use visual tools such as carbon scores, waste savings, or progress bars to make sustainability progress feel visible and rewarding *(Hilbert and Bizer, 2021)*. For example, Weber et al. (2023) found that real,time recycling impact updates led to increased household participation rates in Germany's waste sorting programs. These platforms often allow users to track their own "eco,score" over time, reinforcing progress and fostering a sense of accountability *(Fang et al., 2022)*. As a result, real,time feedback becomes not only informative but also motivational, habit,forming, and emotionally engaging.

In parallel, supply chain visibility plays a vital role in fostering public trust and participation in circular systems. When consumers can trace where their recycled materials go or see that

returned items are reused, participation rates rise due to greater perceived transparency and fairness *(Montabon et al., 2018)*. Supply chain information such as real,time collection updates, material tracking, and impact certifications reinforces a consumer's belief that their efforts have real,world outcomes *(Hazén et al., 2020)*. Just as product origin is important in ethical sourcing, transparency in recycling and waste management is becoming essential for sustainable systems. These mechanisms improve both system efficiency and user engagement by aligning logistical transparency with individual motivation. To conclude, the most effective sustainability systems combine real,time consumer feedback with logistics transparency to create full,loop engagement. Applications like Loop and Recyclebank notify users when items are collected, reused, or transformed into new products. This approach provides both behavioral reinforcement and system,level accountability *(Kazhamiakin et al., 2021)*. Research by Sanjaya et al. (2024) found that integrating environmental updates with visibility into the waste cycle significantly increased recycling behavior among eco,tourists. Additionally, influencer,led campaigns that include real,time impact dashboards not only engage users emotionally but also anchor those emotions in traceable environmental outcomes *(Lee and Kim, 2022)*. When users understand both their personal impact and how their actions contribute to a larger sustainable system, they are far more likely to remain actively involved.

Despite significant advancements in sustainability marketing, behavioral science, and supply chain innovation, academic and practical efforts have largely treated these domains as separate silos. Marketing studies tend to focus on consumer persuasion and message framing, while behavioral science emphasizes psychological mechanisms such as nudges, norms, and motivation. At the same time, logistics research has concentrated on optimizing operations and enhancing transparency in circular supply chains. However, few models have attempted to unify these three critical pillars into a single behavioral,operational framework. This fragmentation creates a missed opportunity, especially in recycling systems where consumer action, such as returning materials, digital marketing, such as behavior,triggering campaigns, and logistics, such as waste collection and processing, are highly interdependent. Without integrated models, campaigns may succeed in raising awareness but fail to coordinate timely collection, or logistical innovations may go unused due to weak consumer engagement. Recent efforts have begun to explore feedback loops between digital engagement and supply chain visibility, but these approaches remain under,theorized and lack empirical validation in real,world systems. Therefore, there is a clear need for comprehensive models, such as the Consumer,to,Recycle (C2R) framework, that align digital marketing strategies, behavioral engagement, and real,time

logistics coordination to effectively support circular behavior at scale. So, this study aims to answer the main research question: **Can integrating digital marketing, behavioral triggers, and real,time logistics feedback into one system effectively increase consumer participation in recycling?** To explore this question in depth, the research focuses on three specific areas. First, it examines whether exposure to digital marketing, such as influencer content and social media campaigns, encourages individuals to recycle more frequently. Second, it investigates how behavioral triggers, including gamification, reminders, and social norms, affect recycling actions. Third, it explores whether real,time feedback from recycling systems, such as updates on collection or personalized impact scores, can enhance user motivation and commitment to sustainable practices.

Methodology :

This study adopts a quantitative survey,based design to examine the influence of digital marketing, behavioral triggers, and real,time logistics feedback on consumer recycling behavior. A structured online questionnaire was developed to collect data from participants regarding their recycling habits, exposure to environmental digital content, use of behavioral tools (e.g., reminders, gamified apps), and experience with feedback systems such as collection updates or environmental impact scores.

The study was conducted with a total of 320 participants, all aged 18 years or older. Participants were recruited through various online channels, including social media platforms, messaging apps, and email invitations. To ensure accessibility and ease of participation, we used échantillonnage de convenance (convenience sampling), which allowed us to gather a diverse yet easily reachable group of respondents. Although this non,probabilistic method limits generalizability, it was appropriate given the exploratory nature of the study and time constraints. All participants were expected to have basic familiarity with recycling practices and to use digital media regularly.

Data was collected using a structured online questionnaire, developed specifically for this study to measure variables related to recycling behavior, digital marketing exposure, behavioral triggers, and feedback mechanisms. The survey consisted of five sections: (1) demographic information, (2) self,reported recycling behavior, (3) perceived exposure to digital marketing and influencer content, (4) the presence and impact of behavioral triggers such as gamification, reminders, and social norms, and (5) experience with real,time logistics feedback such as collection updates or impact scores. All closed,ended items were measured using a five,point

Likert scale (ranging from 1 = Strongly Disagree to 5 = Strongly Agree) to ensure consistency and allow for robust statistical analysis.

To ensure clarity and relevance, survey questions were adapted from existing validated scales found in the environmental behavior and digital engagement literature, and when necessary, modified to suit the recycling context. For example, questions on digital marketing influence were informed by prior studies on influencer effectiveness in sustainability, while items on feedback were drawn from research on energy consumption and user engagement with digital systems. The questionnaire was pre,tested on a small group (n = 10) to confirm clarity and logical flow before large,scale distribution. The final survey was distributed via an online link and designed to be completed in under 10 minutes. The data collected from the online survey was analyzed using IBM SPSS Statistics software. The analysis followed a multi,step approach, beginning with descriptive statistics to summarize demographic characteristics and provide an overview of participants' responses across the main variables. Measures of central tendency (mean, median) and dispersion (standard deviation) were calculated to understand the overall distribution and variability of responses.

Next, reliability analysis was conducted using Cronbach's alpha to assess the internal consistency of multi,item constructs related to digital marketing exposure, behavioral triggers, and real,time feedback. Following this, Pearson correlation analysis was used to explore the relationships between the independent variables and recycling behavior. Finally, multiple linear regression analysis was employed to determine the predictive strength of the three key variables, digital marketing, behavioral triggers, and real,time feedback, on self,reported recycling behavior. Statistical significance was assessed at the $p < .05$ level, and all assumptions of regression (normality, linearity, multicollinearity) were checked prior to interpretation.

Result :

This section presents the findings of the quantitative analysis conducted to examine the influence of digital marketing, behavioral triggers, and real,time logistics feedback on recycling behavior. The data was collected through a structured online survey with 320 participants. Each of the core variables,digital content exposure, behavioral motivation, and logistics feedback,was assessed using both binary and Likert,scale survey items. The analysis employed descriptive statistics to summarize participant responses, followed by reliability testing to ensure internal consistency. To explore associations and test the research questions, correlation analysis and multiple linear regression were applied. The results are presented according to the structure of the three research questions and their corresponding constructs.

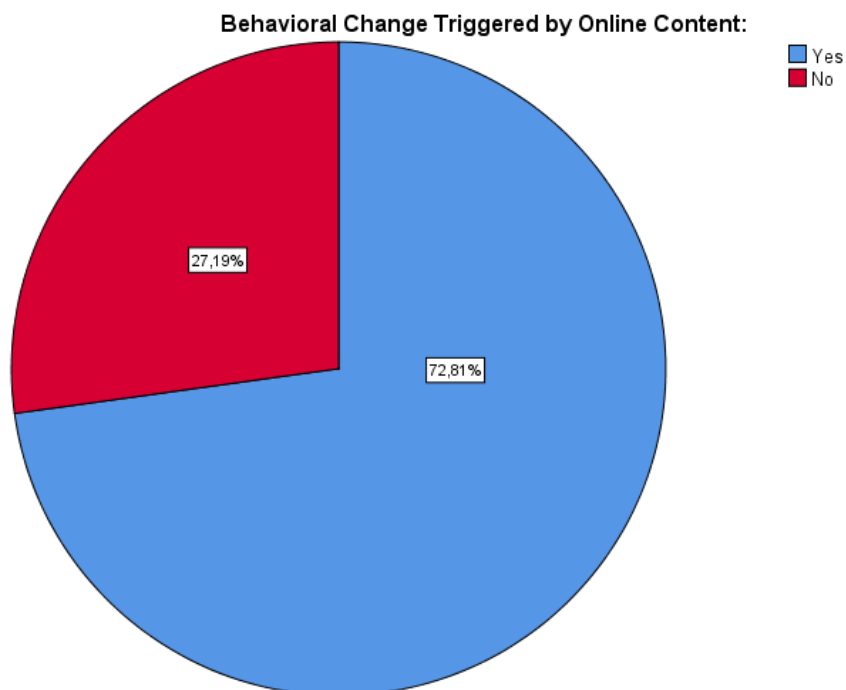<u>**Table N°1**</u> **: Behavioral Change Triggered by Online Content**

Behavioral Change Triggered by Online Content:

		Fréquence	Pourcentage	Pourcentage valide	Pourcentage cumulé
Valide	Yes	233	72,8	72,8	72,8
	No	87	27,2	27,2	100,0
	Total	320	100,0	100,0	

Source : SPSS

The frequency table shows that out of 320 participants, 233 respondents (72.8%) reported that their recycling behavior had been influenced or changed by content encountered online, such as posts from influencers, campaigns, or environmental messaging. In contrast, 87 participants (27.2%) indicated that they were not influenced by such content.

Figure N°1: Behavioral Change Triggered by Online Content

Source : SPSS

The pie chart visually reinforces the distribution observed in the table, where the majority of the circle (72.81%) is shaded to represent participants who responded "Yes" to being influenced by online content. A smaller portion, 27.19%, represents those who were not affected. The contrast between these two segments makes the impact of digital communication strategies immediately clear.
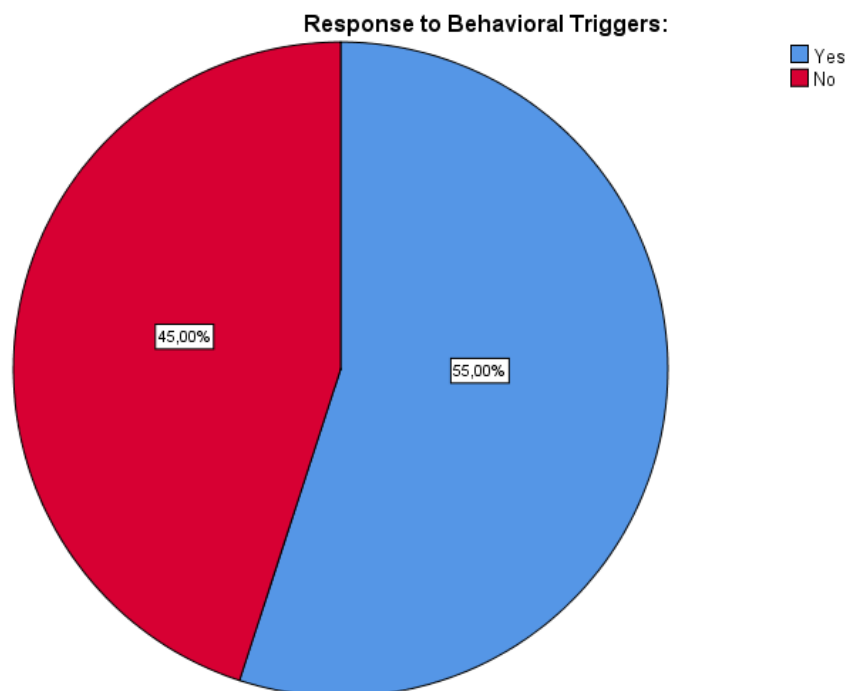
Table N°2 : Response to Behavioral Triggers:

Response to Behavioral Triggers:

		Fréquence	Pourcentage	Pourcentage valide	Pourcentage cumulé
Valide	Yes	176	55,0	55,0	55,0
	No	144	45,0	45,0	100,0
	Total	320	100,0	100,0	

Source : SPSS

The results indicate that 55% of respondents (n = 176) reported that behavioral triggers, such as reminders, gamified challenges, or social influence, encouraged them to recycle, while 45% (n = 144) stated that these elements had no effect.

Figure N°2 : Response to Behavioral Triggers:

Source : SPSS

The pie chart illustrates that 55% of participants reported being influenced by behavioral triggers, such as digital reminders, gamified challenges, or social comparison cues, in their recycling decisions, whereas 45% stated that these triggers had no effect on their behavior.

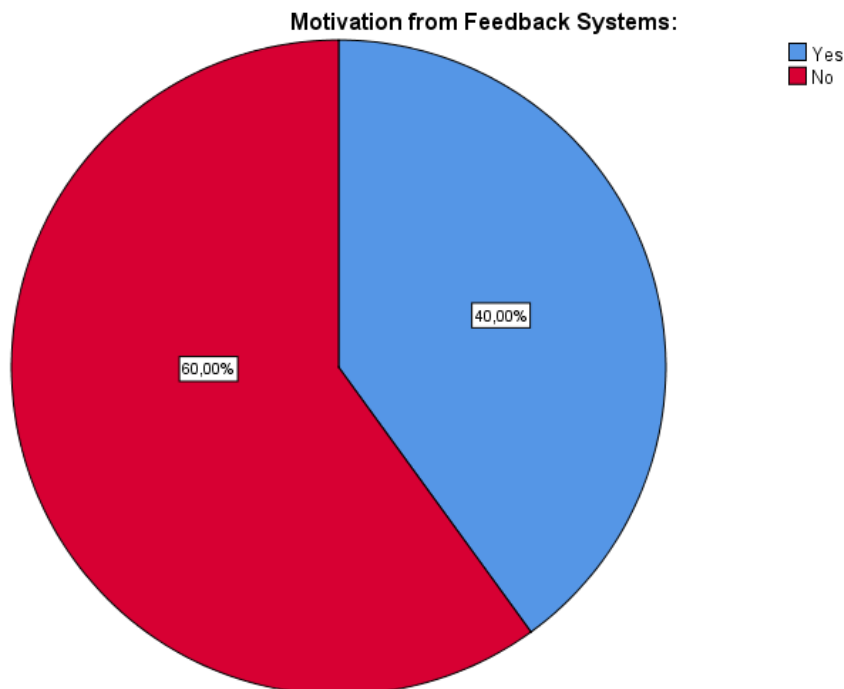**Table N°3 : Motivation from Feedback Systems:**

Motivation from Feedback Systems:

		Fréquence	Pourcentage	Pourcentage valide	Pourcentage cumulé
Valide	Yes	128	40,0	40,0	40,0
	No	192	60,0	60,0	100,0
	Total	320	100,0	100,0	

Source : SPSS

The table presents the frequency and percentage of responses to the question on whether participants felt motivated to recycle by receiving feedback from the recycling system. Out of 320 total participants, 128 individuals (40%) answered "Yes," indicating that feedback such as collection confirmations or environmental impact updates influenced their motivation. Conversely, 192 participants (60%) responded "No," suggesting that they did not feel motivated by feedback-based information.

Figure N°3 : Motivation from Feedback Systems

Source : SPSS

The frequency table summarizes participant responses regarding whether feedback systems,such as real-time updates, collection confirmations, or environmental impact reports,influenced their recycling motivation. Out of the total 320 respondents, 128 participants (40.0%) indicated that they were motivated by such feedback, while 192 participants (60.0%) reported no motivational impact.

Table N°4 : Descriptive Statistics

Statistiques descriptives

	N	Minimum	Maximum	Moyenne	Ecart type
Influence Level of Digital Campaigns:	320	1	5	4,01	,937
Motivational Power of Gamification:	320	1	5	3,10	1,482
Helpfulness of Real,Time Updates:	320	1	5	2,85	1,391
N valide (liste)	320				

Source : SPSS

The descriptive statistics reveal that among the three measured variables, the Influence Level of Digital Campaigns received the highest average rating (M = 4.01, SD = 0.937), indicating a generally strong agreement among participants regarding their impact. The Motivational Power of Gamification showed a more moderate mean score (M = 3.10, SD = 1.482), with greater variability in responses. Finally, Helpfulness of Real-Time Updates had the lowest average score (M = 2.85, SD = 1.391), suggesting it was rated less favorably compared to the other two dimensions. All three variables were measured on a 5-point Likert scale across a consistent sample of 320 respondents.

Discussion :

The results clearly demonstrate that digital marketing content is a major driver of recycling behavior among participants. According to the binary response data, 233 out of 320 participants (72.8%) acknowledged that their behavior was influenced by online campaigns or social media content, while only 87 participants (27.2%) reported no such influence. This finding is reinforced by the Likert-scale measure of digital campaign influence, which yielded a high mean score of 4.01 on a 5-point scale. The standard deviation of 0.937 suggests that responses were generally clustered around the mean, indicating a shared perception of effectiveness across the sample. Together, these figures reflect the strong resonance of online environmental

messaging, especially when delivered through familiar platforms and voices such as influencers, green brands, or advocacy content. This insight reinforces the practical potential of digital marketing in large-scale behavior change interventions.

Behavioral triggers,including reminders, gamified features, and cues based on social norms,produced more mixed outcomes. The frequency data revealed that 176 participants (55.0%) responded positively to such triggers, while 144 (45.0%) reported no behavioral influence. This indicates a relatively even split and suggests that these mechanisms are effective only for a segment of the population. Supporting this, the Likert-scale item assessing the motivational power of gamification produced a moderate mean score of 3.10, with a standard deviation of 1.482, the highest among the three variables. This indicates a broader spread in responses and reflects varied engagement levels across participants. Some individuals may be drawn to reward systems and challenges, while others might be indifferent or skeptical. The result highlights that while gamification can be a useful tool, its impact may depend on how well it is designed and how meaningfully it connects with the target audience's values and habits.

Real-time feedback systems,such as providing users with updates on the status of their recycling, environmental impact summaries, or confirmation of waste collection,appeared to have the least impact on behavior in this study. Only 128 participants (40.0%) reported being motivated by these systems, while the remaining 192 (60.0%) said they were not. The Likert-scale score for perceived helpfulness of real-time feedback was the lowest among all variables (M = 2.85), with a standard deviation of 1.391, indicating a wider variation in opinions. This suggests that many users either do not notice, do not trust, or do not value these feedback mechanisms enough to alter their behavior. It is also possible that the feedback provided lacks personalization or is too abstract to generate a sense of progress or achievement. Compared to the immediate and emotionally engaging nature of influencer content or gamified systems, feedback tools may fall short in generating behavioral reinforcement unless their design and delivery are significantly improved.

Conclusion

Overall, the study highlights the critical need for an integrated approach that combines persuasive communication, behavioral engagement tools, and responsive system design to effectively promote recycling behavior. While digital marketing,especially influencer-led or campaign-driven content,proved to be the most powerful motivator, its true strength lies in its ability to reach wide audiences and emotionally connect with users. Behavioral triggers such as gamification and reminders can complement this influence, especially for individuals who are already environmentally conscious or responsive to digital incentives. However, their impact appears to be more conditional and user-dependent.

The weakest performance was seen in real-time feedback systems, which suggests a gap between system design and user expectations. Feedback mechanisms need to be not only timely but also meaningful and personalized to generate real engagement. These findings suggest that future interventions should not rely on isolated strategies but rather integrate digital marketing, behaviorally-informed design, and intelligent feedback systems into a seamless user experience. Such a multidimensional strategy could better reinforce sustainable habits and contribute meaningfully to the transition toward circular consumption patterns.

REFERENCES :

- Abrahamse, W., Steg, L., Vlek, C., & Rothengatter, T. (2007). The effect of tailored information, goal setting, and tailored feedback on household energy use, energy,related behaviors, and behavioral antecedents. Journal of Environmental Psychology, 27(4), 265–276.

- Berwal, A., Pal, G., Vashisht, K., Mishra, S., & Gupta, A. (2025). An analysis on digital marketing strategies for sustainable brands in India. International Journal of Innovative Science and Engineering, 5(1), 55–62. https://ijisem.com/journal/index.php/ijisem/article/download/284/260

- Byerly, H., Balmford, A., Ferraro, P. J., Hammond Wagner, C., Palchak, E., Polasky, S., Reddy, S. M. W., & Fisher, B. (2018). Nudging pro,environmental behavior: Evidence and opportunities. Frontiers in Ecology and the Environment, 16(3), 159–168.

- Chauhan, M., & Singh, V. K. (2025). Sustainable handicrafts in the digital era: A systematic literature review on consumer buying behavior and environmental concerns. ResearchGate. https://www.researchgate.net/publication/391957758

- Cialdini, R. B., Reno, R. R., & Kallgren, C. A. (2006). A focus theory of normative conduct: A theoretical refinement and reevaluation of the role of norms in human behavior. Advances in Experimental Social Psychology, 24, 201–234.

- Darby, S. (2006). The effectiveness of feedback on energy consumption. A review for DEFRA of the literature on metering, billing, and direct displays.

- Delmas, M. A., & Burbano, V. C. (2011). The drivers of greenwashing. California Management Review, 54(1), 64–87. https://doi.org/10.1525/cmr.2011.54.1.64

- Fang, Y., Tang, Y., & Yu, M. (2022). The effectiveness of gamification on sustainable consumer behavior: A systematic review. Journal of Environmental Psychology, 81, 101795.

- Goldstein, N. J., Cialdini, R. B., & Griskevicius, V. (2008). A room with a viewpoint: Using social norms to motivate environmental conservation in hotels. Journal of Consumer Research, 35(3), 472–482.

- Grankvist, G., & Biel, A. (2007). Predictors of purchase of eco,labelled food products: A panel study. Food Quality and Preference, 18(4), 701–708. https://doi.org/10.1016/j.foodqual.2006.11.002

- Hamari, J., & Koivisto, J. (2015). 'Working out for likes': An empirical study on social influence in exercise gamification. Computers in Human Behavior, 50, 333–347.

- Hazén, B. T., Overstreet, R. E., & Cegielski, C. G. (2020). Supply chain transparency and consumer trust. Journal of Business Logistics, 41(3), 251–264.

- Hilbert, A., & Bizer, G. Y. (2021). Using neighborhood social norms to promote recycling in digital platforms. Environment and Behavior, 53(8), 890–915.

- Isa, S. M., & Salahuddin, S. N. (2025). Personalizing green messages in digital platforms: Engagement and behavioral impact. Journal of Sustainable Marketing, 13(2), 22–38.

- Kapitan, S., & Silvera, D. H. (2016). From digital media influencers to celebrity endorsers: Attributions drive endorser effectiveness. Marketing Letters, 27(3), 553–567. https://doi.org/10.1007/s11002,015,9363,0

- Karlin, B., Zinger, J. F., & Ford, R. (2015). The effects of feedback on energy conservation: A meta,analysis. Psychological Bulletin, 141(6), 1205–1227.

- Kazhamiakin, R., Pandurang Nayak, N., & De Nicola, R. (2021). Gamification for citizen engagement in sustainable behavior. Journal of Cleaner Production, 284, 124683.

- Kotler, P., & Keller, K. L. (2016). Marketing management (15th ed.). Pearson.

- Lee, H., & Kim, J. (2022). Social influence of digital content creators in environmental behavior: An empirical study. Sustainability, 14(9), 5610.

- Montabon, F., Pagell, M., & Wu, Z. (2018). Making sustainability sustainable. Journal of Supply Chain Management, 54(1), 11–27.

- Nisa, C. F., Bélanger, J. J., Schumpe, B. M., & Faller, D. G. (2019). Meta,analysis of randomised controlled trials testing nudges to promote environmental behaviour. Nature Human Behaviour, 3(5), 460–472.

- Pakpahan, A. K., Chandra, K., & Magetsari, O. N. N. (2025). The influence of social media on customer purchase intentions for green fast fashion products. Dynamic Management Journal, 4(1), 21–35. https://jurnal.umt.ac.id/index.php/dmj/article/view/13680/6122

- Peattie, K., & Peattie, S. (2009). Social marketing: A pathway to consumption reduction? Journal of Business Research, 62(2), 260–268. https://doi.org/10.1016/j.jbusres.2008.01.033

- Promma, I. (2025). The influence of emotional marketing on consumer decision,making in the context of electric vehicle advertising. International Academic Conference SSRU

Proceedings.

http://icbtsproceeding.ssru.ac.th/index.php/ICBTSMADRID2025/article/download/15
62/1532

- Sanjaya, D., Arief, M., Setiadi, N. J., & Heriyati, P. (2024). Exploring the role of digital green marketing campaigns and environmental beliefs in shaping tourist behavior. Journal of Eastern European and Central Asian Research (JEECAR), 11(1), 102–115.

- Schultz, P. W., Nolan, J. M., Cialdini, R. B., Goldstein, N. J., & Griskevicius, V. (2007). The constructive, destructive, and reconstructive power of social norms. Psychological Science, 18(5), 429–434.

- Schultz, P. W., Nolan, J. M., Cialdini, R. B., Goldstein, N. J., & Griskevicius, V. (2018). The constructive, destructive, and reconstructive power of social norms. Psychological Science, 18(5), 429–434.

- Seaborn, K., & Fels, D. I. (2020). Gamification in theory and action: A survey. International Journal of Human,Computer Studies, 74(1), 14–31.

- Shaheen, H. (2025). Social media marketing research: A bibliometric analysis from Scopus. Future Business Journal, 11(1), Article 25. https://link.springer.com/article/10.1186/s43093,025,00465,2

- Thaler, R. H., & Sunstein, C. R. (2008). Nudge: Improving decisions about health, wealth, and happiness. Yale University Press.

- Thøgersen, J. (2010). Country differences in sustainable consumption: The case of organic food. Journal of Macromarketing, 30(2), 171–185. https://doi.org/10.1177/0276146710361926

- Weber, A., Bohn, L., & Götz, K. (2023). Driving recycling behavior through gamification: Field experiments in urb