The Mediating Role of Digital Detox Features Usage in the Relationship Between Student Motivation and Green Consumption Behavior

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Abstract. Excessive use of personal digital devices among university students raises concerns regarding environmentally responsible digital consumption. Built-in digital detox features provide system-level tools that support post-adoption digital behavior regulation in higher education contexts. This study examines the mediating role of digital detox feature use, operationalized as Actual System Use (ASU), in the relationship between student motivation and Green Consumption Behavior (GCB). Using a quantitative explanatory design, data were collected from 446 undergraduate students and analyzed using Hayes' PROCESS Macro Model 4 with 5,000 bootstrap samples. The results show that student motivation was significantly associated with ASU ($B = 0.759$, $p < 0.001$), and ASU was significantly associated with GCB when controlling for motivation ($B = 0.620$, $p < 0.001$). The direct effect of motivation on GCB remained significant ($B = 0.210$, $p < 0.001$), while the indirect effect through ASU was also significant ($B = 0.471$, 95% CI [0.344 - 0.601]), indicating partial mediation. In addition, students' preferences for campus-based digital detox programs showed that Digital Reset Challenge (64.6%) and 7-Day Digital Mindfulness (50.0%) were the most preferred programs. These findings highlight the role of post-adoption digital self-regulation tools in supporting more responsible digital consumption behavior in higher education contexts.

Keywords: Student motivation, Digital detox feature use, Green consumption behavior, Actual system use, Mediation analysis

1 Introduction

Digital devices have become deeply embedded in daily life, particularly among university students, as reflected in consistently high screen time and intensive digital activity [1]. Empirical evidence suggests that excessive and poorly regulated digital device use may reduce learning focus, impair well-being, and negatively affect mental health outcomes [2].

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Beyond individual consequences, the increasing intensity of digital activity also raises sustainability concerns because digital consumption contributes to higher energy use and an expanding digital carbon footprint [3]. These concerns are increasingly relevant for higher education institutions, where students' everyday digital practices represent an important domain for managing environmentally responsible digital consumption behavior.

One emerging response to technology overuse is digital detox, commonly defined as a voluntary and intentional, time-limited reduction in digital device use to restore focus and rebalance digital habits [4]. Rather than complete disconnection, contemporary digital detox practices are increasingly supported through built-in digital tools that allow users to monitor and regulate their digital usage patterns. From a technology management perspective, such post-adoption tools support self-regulation by enabling individuals to consciously manage their digital consumption behavior in everyday contexts.

Prior research on digital detox has primarily focused on motivational drivers, individual experiences, and conceptual discussions of technology overuse and intentional disengagement from digital technologies [5–7]. While these studies provide important insights into why individuals seek to regulate digital behavior, empirical research has not sufficiently examined how motivation is translated into sustainability-oriented outcomes through the actual use of digital detox features, operationalized as Actual System Use (ASU). Evidence from sustainability research further suggests that motivational factors tend to produce more tangible sustainability outcomes when they are enacted through concrete and repeated behaviors rather than remaining at the attitudinal level [8].

Drawing on Self-Determination Theory (SDT), intrinsically motivated individuals are more likely to voluntarily adopt behaviors aligned with personal values and long-term goals [9]. Green Consumption Behavior (GCB) has traditionally been examined in relation to environmentally responsible purchasing and product use [10]. This study contextually adapts GCB to digital consumption, which involves devices, applications, online services, data transmission, and associated electricity use. Accordingly, GCB refers to students' conscious efforts to reduce unnecessary digital activity, use digital self-regulation features, and adopt more energy-efficient device-use practices. The adapted items retained the sustainability-oriented meaning of the original construct and underwent content and language validation for the student digital-use context.

To conceptualize digital detox features as purposeful behavioral interventions rather than optional settings, this study also draws on the Behavior Change Support Systems (BCSS) perspective, which views information systems as tools designed to support voluntary behavior change without coercion [11].

Accordingly, this study investigates the direct effect of student motivation on GCB and the indirect effect operating through ASU of digital detox features among university students. By focusing on post-adoption technology use as a behavioral mechanism, this study contributes to technology management literature by explaining how digital tools can be managed to support green consumption behavior within higher education contexts.

Figure 1 presents the proposed simple mediation model, where a represents the effect of Motivation on ASU, b represents the effect of ASU on GCB, c′ represents the direct effect, and $a \times b$ represents the indirect effect.

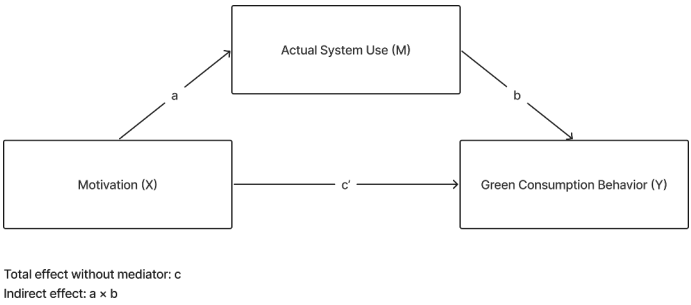


Fig. 1. Proposed simple mediation model and path notation

2 Related Work and Hypothesis Development

This study examines three main constructs: student motivation, Actual System Use (ASU) of digital detox features, and Green Consumption Behavior (GCB). Student motivation refers to the internal drive that encourages students to use digital detox features voluntarily and consistently. It is grounded in Self-Determination Theory (SDT), which explains that intrinsically motivated individuals are more likely to engage in behaviors aligned with personal values and long-term goals [9]. In this study, motivation is represented through four dimensions of the Intrinsic Motivation Inventory (IMI), namely interest/enjoyment, perceived competence, perceived choice, and value/usefulness [12].

Actual System Use (ASU) refers to the repeated and consistent use of built-in digital detox features in daily academic activities. In the context of this study, ASU includes the use of features such as screen time monitoring, do not disturb or focus mode, and app notification control. ASU is positioned as a post-adoption technology use construct that reflects the observable enactment of students' motivation in actual digital self-regulation practices [13, 14]. Prior technology acceptance studies also indicate that perceived ease of use and perceived usefulness can directly support actual system use, suggesting that users are more likely to enact system use when they perceive a technology as useful and manageable [15–17].

Green Consumption Behavior (GCB) refers to mindful, responsible, and sustainability-oriented digital consumption practices aimed at reducing unnecessary digital usage and digital energy consumption.

Based on these constructs, motivation is expected to positively influence GCB because students with stronger internal motivation are more likely to engage in responsible and mindful digital consumption patterns. Motivation is also expected to increase ASU because motivated students are more likely to repeatedly use digital detox features as part of their daily routines. Furthermore, ASU is expected to influence GCB because digital detox features provide system-supported cues and controls that can reduce unnecessary and less mindful digital activity. Therefore, ASU is proposed as the mechanism that translates student motivation into sustainability-oriented digital consumption behavior.

The hypotheses are formulated as follows. H1: Student motivation has a positive effect on GCB. H2: Student motivation has a positive effect on ASU of digital detox features. H3: ASU of digital detox features has a positive effect on GCB. H4: ASU of digital detox features mediates the relationship between student motivation and GCB.

3 Research Methodology

This study employed an explanatory quantitative research design to examine the direct and indirect relationships between student motivation, ASU of built-in digital detox features, and GCB. An explanatory approach was adopted to test theoretically grounded hypotheses and explain the relationships among variables through statistical analysis.

3.1 Population and Sample

The target population comprised active undergraduate students at a public university in Indonesia. Respondents were eligible to participate if they were active undergraduate students, regularly used digital devices in daily activities, and had experience using at least one built-in digital detox feature on their mobile devices, such as screen time monitoring, do not disturb or focus mode, or app notification control. A purposive sampling technique was applied to ensure that respondents met these criteria. After data collection and screening, 446 valid responses were retained for further analysis.

3.2 Data Collection and Measurement

Data were collected through an online questionnaire distributed voluntarily to eligible respondents. All measurement items were assessed using a five-point Likert scale ranging from strongly disagree (1) to strongly agree (5).

To reduce potential common method bias, participation was anonymous and voluntary, respondents were informed that there were no correct or incorrect answers, and items for different constructs were organized in separate sections. Nevertheless, the cross-sectional self-report design does not completely eliminate common method bias.

The constructs were operationalized as composite observed scores. Because the mediation model used OLS regression through Hayes' PROCESS Macro rather than CFA or SEM, instrument quality was assessed using content validity, item–construct correlations, and Cronbach's Alpha.

Motivation was measured using 24 retained items covering interest/enjoyment, perceived competence, perceived choice, and value/usefulness, adapted from the Intrinsic Motivation Inventory [12]. ASU was measured using seven items reflecting repeated and consistent use of digital detox features [13, 14], while GCB was measured using four items adapted to sustainability-oriented digital consumption [10]. Examples of the adapted GCB items were "I consciously activate digital detox features while studying to prevent unnecessary device use" and "I consider environmental impacts when choosing to use digital detox features as part of my efforts to reduce digital energy consumption."

3.3 Data Analysis Technique

Data analysis was conducted using descriptive statistics and correlation analysis to describe respondent characteristics and examine relationships among variables. Hypothesis testing was performed using Hayes' PROCESS Macro for SPSS (Model 4) [18] to examine the mediating role of ASU in the relationship between student motivation and GCB. Ordinary Least Squares (OLS) regression was applied, and indirect effects were tested using a bootstrapping procedure with 5,000 resamples and a 95% confidence interval. An indirect effect was considered statistically significant when its bootstrap confidence interval did not include zero.

Common method bias was additionally assessed using Harman's single-factor test with all 35 retained items. A dominant common factor was considered unlikely when the first unrotated component explained less than 50% of the variance.

4 Results

4.1 Respondent Profile and Digital Detox Feature Use

A total of 446 valid responses were included in the final analysis after data screening and outlier removal. All respondents were active undergraduate students at a public university in Indonesia who regularly used digital devices and had experience using at least one built-in digital detox feature. The respondent profile reflects undergraduate students who regularly use digital devices for academic and non-academic activities. The respondent profile is summarized in Table 1, while the distribution of digital detox feature usage and preferred campus programs is presented in Table 2.

Table 1. Respondent Profile

Category	Item	n	%
Gender	Male	146	32.7
	Female	300	67.3
Field of Study	Science and technology	144	32.3
	Social sciences and humanities	302	67.7
Age	< 18 years	6	1.3
	18 – 20 years	160	35.9
	21 – 23 years	261	58.5
	≥ 24 years	19	4.3
Cohort	2020 and earlier	107	24.0
	2021	81	18.2
	2022	144	32.3
	2023	66	14.8
	2024	18	4.0
	2025	30	6.7

Table 2. Digital Detox Feature Usage and Preferred Campus Program

Category	Item	n	%
Most frequently used feature	App notifications control	128	28.7
	Do not disturb/focus mode	161	36.1
	Screen time monitoring	155	34.8
	Other	2	0.4
Preferred campus program	Digital Reset Challenge	288	64.6
	7-Day Digital Mindfulness	223	50.0
	Neither	1	0.2

Note: Respondents could select more than one program; therefore, cumulative percentages may exceed 100%. A total of 66 respondents (14.8%) selected both programs.

4.2 Measurement Screening

The instrument underwent expert-based content and language validation, item validity testing, and internal consistency assessment. Two experts in research methodology and sustainable information systems evaluated the instrument, producing an average Aiken's V of 0.80. Item validity was assessed using Spearman item–construct correlations, with $\rho \geq 0.30$ and $p < 0.05$ as the acceptance criteria. All retained items met these criteria, except

one Perceived Choice item, which was removed because of its negative correlation. Cronbach's Alpha values are presented in Table 3.

Table 3. Instrument Validity and Reliability Assessment

Construct	Retained Items	Item-correlation Criterion	Cronbach's Alpha
Motivation	24	$\rho \geq 0.30$; $p < 0.05$	0.680
ASU	7	$\rho \geq 0.30$; $p < 0.05$	0.813
GCB	4	$\rho \geq 0.30$; $p < 0.05$	0.608

Harman's single-factor test was conducted using all 35 retained items. The first unrotated component explained 31.004% of the total variance, below the 50% criterion, suggesting that no single factor dominated the measurement. Nevertheless, common method bias cannot be completely excluded.

4.3 Mediation Analysis

To test the proposed mediation mechanism, Hayes' PROCESS Macro for SPSS (Model 4) was applied using OLS estimation with 5,000 bootstrap samples [18]. Preliminary analysis using Spearman correlation indicated positive and significant associations between Motivation and ASU ($\rho = 0.217$, $p < 0.001$), Motivation and GCB ($\rho = 0.254$, $p < 0.001$), and ASU and GCB ($\rho = 0.591$, $p < 0.001$). The regression results of the mediation model are presented in Table 4.

Table 4. Regression Results of the Mediation Model

Model	Path	B	p	95% CI	R^2	Adjusted R^2
ASU as outcome	$X \rightarrow M$	0.759	< 0.001	[0.616 - 0.902]	0.1977	0.1959
GCB as outcome	$M \rightarrow Y$ (controlling X)	0.620	< 0.001	[0.556 - 0.685]	0.5504	0.5484
GCB as outcome	$X \rightarrow Y$ (direct)	0.210	0.0002	[0.100 - 0.320]	0.5504	0.5484

Motivation significantly predicted ASU ($B = 0.759$, $p < 0.001$), explaining 19.77% of its variance. In the second model, ASU significantly predicted GCB while controlling for Motivation ($B = 0.620$, $p < 0.001$), and Motivation remained significant ($B = 0.210$, $p = 0.0002$). The model explained 55.04% of the variance in GCB. The total, direct, and indirect effects are summarized in Table 5.

Table 5. Direct, Indirect, and Total Effects

Effect	B	p	95% CI
Total effect (c)	0.680	< 0.001	[0.548 - 0.813]
Direct effect (c')	0.210	0.0002	[0.100 - 0.320]
Indirect effect ($a \times b$)	0.471	-	[0.344 - 0.601]

Note: The significance of the indirect effect was determined from the bootstrap confidence interval.

The indirect effect of Motivation on GCB through ASU was significant (B = 0.471, 95% CI [0.344, 0.601]) and larger than the direct effect (B = 0.210, p = 0.0002). This indicates that ASU plays a substantial role in translating student motivation into sustainability-oriented digital consumption behavior.

5 Discussion

Student motivation positively predicted ASU, indicating that motivated students were more likely to use self-regulation features such as focus mode and screen-time monitoring. ASU also positively predicted GCB, suggesting that repeated feature use was associated with more mindful and sustainability-oriented digital consumption [5, 7]. From a technology management perspective, digital detox features function as system-supported mechanisms that structure daily technology use and reduce unnecessary digital activity.

ASU partially mediated the relationship between motivation and GCB, indicating that motivation contributes to sustainable digital behavior both directly and through continued use of digital self-regulation tools. This highlights post-adoption technology use as a mechanism that translates psychological motivation into observable sustainability-oriented behavior.

The Digital Reset Challenge encourages students to reduce unnecessary device use within a specified period, whereas the 7-Day Digital Mindfulness program promotes daily reflection and self-regulation practices. Students' preference for these programs indicates their potential suitability as structured campus-based digital well-being initiatives [19, 20].

The lower internal consistency of GCB (α = 0.608) warrants caution and suggests that the adapted scale requires further refinement and validation across independent samples.

6 Conclusion

This study demonstrates that student motivation is positively associated with GCB both directly and indirectly through ASU of digital detox features. The significant indirect effect is consistent with partial mediation, highlighting post-adoption feature use as a statistical pathway linking motivation with more responsible digital consumption.

Practically, universities may support structured and time-bounded initiatives such as the Digital Reset Challenge and the 7-Day Digital Mindfulness program. However, the findings are limited by the cross-sectional self-reported design and the use of a single-university sample that was predominantly female (67.3%). The estimated mediation paths should therefore be interpreted as statistical associations rather than definitive evidence of temporal or causal relationships. Institutional, cultural, regional, and demographic characteristics may also restrict generalizability. Although Harman's single-factor test showed that the first component accounted for 31.004% of the total variance, common method and social desirability bias cannot be completely excluded. Future studies should employ longitudinal and multi-institutional designs, further validate the adapted GCB scale, and incorporate objective screen-time records or feature-activation logs.

Disclosure of Interests. The authors have no competing interests to declare that are relevant to the content of this article.

References

1. Prasetya, H., Rahmawati, A., Andira, A.P., Suparmi, S.: Association Between Screen Time, Vitamin A Consumption Behavior, and Computer Vision Syndrome in Preclinical Medical Students. Majalah Kedokteran Bandung. 56, 29–34 (2024). https://doi.org/10.15395/mkb.v56.3346.
2. Santos, R.M.S., Ventura, S. de A., Nogueira, Y.J. de A., Mendes, C.G., Paula, J.J. de, Miranda, D.M., Romano-Silva, M.A.: The Associations Between Screen Time and Mental Health in Adults: A Systematic Review. J. Technol. Behav. Sci. 9, 825–845 (2024). https://doi.org/10.1007/s41347-024-00398-7.
3. Seeliger, R., Lasak, M., Guclu, G., Arbanowski, S., Steglich, S.: Towards Green Video: Energy-Saving Potentials in Streaming. In: Proceedings - 2024 IEEE Cyber Science and Technology Congress, CyberSciTech 2024. pp. 548–553. Institute of Electrical and Electronics Engineers Inc. (2024). https://doi.org/10.1109/CyberSciTech64112.2024.00098.
4. Radtke, T., Apel, T., Schenkel, K., Keller, J., von Lindern, E.: Digital detox: An effective solution in the smartphone era? A systematic literature review. Mob. Media Commun. 10, 190–215 (2022). https://doi.org/10.1177/20501579211028647.
5. Marx, J., Braun, L.-M., Mirbabaie, M.: Motivators of Knowledge Workers to Conduct Digital Detox. In: ICIS 2022 Proceedings (2022).
6. Marx, J., Mirbabaie, M., Turel, O.: Digital detox: A theoretical framework and future research directions for Information Systems. Information and Management. 62, (2025). https://doi.org/10.1016/j.im.2024.104068.
7. Anderson, K.C., Wallach, K.A., Grimes, M.: The anti-consumption journey: Unplugging for improved well-being. Journal of Consumer Behaviour. 23, 3152–3174 (2024). https://doi.org/10.1002/cb.2390.

8. Gantasala, V.P., Gantasala, S.B., La, T.: Influence of motivation on achieving energy sustainability: mediating effects of decision-making. Environ. Syst. Decis. 42, 626–636 (2022). https://doi.org/10.1007/s10669-022-09844-4.
9. Ryan, R.M., Deci, E.L.: Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. American Psychologist. 55, 68–78 (2000).
10. Iqbal, A., Saraswati, E., T, S., Tojibussabirin, M.: Green consumption behaviour in Indonesia: exploring the role of government support. Cogent Soc. Sci. 10, (2024). https://doi.org/10.1080/23311886.2024.2439546.
11. Oinas-Kukkonen, H.: Behavior change support systems: A research model and agenda. In: Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics). pp. 4–14 (2010). https://doi.org/10.1007/978-3-642-13226-1_3.
12. Deci, E.L., Ryan, R.M.: Intrinsic Motivation Inventory (IMI), https://selfdeterminationtheory.org/intrinsic-motivation-inventory/, last accessed 2026/06/21.
13. Al-Nuaimi, M.N., Al Sawafi, O.S., Malik, S.I., Al-Emran, M., Selim, Y.F.: Evaluating the actual use of learning management systems during the COVID-19 pandemic: An integrated theoretical model. Interactive Learning Environments. 31, 6905–6930 (2023). https://doi.org/10.1080/10494820.2022.2055577.
14. Wang, M., Ramasamy, S.S., Dawod, A.Y., Yu, X.: Development and TAM-Based Validation of a User Experience Scale for Actual System Use in Online Courses. Educ. Sci. (Basel). 15, 855 (2025). https://doi.org/10.3390/educsci15070855.
15. Salinding, S.G., Hasyim, Kusumapradja, R.: Acceptance Model of Hospital Information Management System: Case of Study in Indonesia. European Journal of Business and Management Research. 5, (2020). https://doi.org/10.24018/ejbmr.2020.5.5.505.
16. Alkhawaja, M.I., Halim, M.S.A., Abumandil, M.S.S., Al-Adwan, A.S.: System Quality and Student's Acceptance of the E-learning System: The Serial Mediation of Perceived Usefulness and Intention to Use. Contemp. Educ. Technol. 14, (2022). https://doi.org/10.30935/CEDTECH/11525.
17. Davis, F.D., Bagozzi, R.P., Warshaw, P.R.: User Acceptance of Computer Technology: A Comparison of Two Theoretical Models. Manage. Sci. 35, 982–1003 (1989). https://doi.org/10.1287/mnsc.35.8.982.
18. Hayes, A.F.: Introduction to Mediation, Moderation, and Conditional Process Analysis: A Regression-Based Approach. The Guilford Press, New York (2018).
19. Upendra, S., Kaur, J.: Break From Digital Screen Using Digital Detox Program in Nursing Students. Nurs. Health Sci. 26, (2024). https://doi.org/10.1111/nhs.13157.
20. Safarkhani, M., Örnek, M.A.: The meaning of green campus in UI GreenMetric World University Rankings perspective. A/Z ITU Journal of the Faculty of Architecture. 19, 315–334 (2022). https://doi.org/10.5505/itujfa.2022.22566.

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