E-ISSN : 2549-3280 P-ISSN : 2549-5933
INTEGRATED JOURNAL OF BUSINESS AND ECONOMICS
Email: ijbe.feubb@gmail.com
http://ojs.ijbe-research.com/index.php/IJBE/index

THE GREEN–DIGITAL NEXUS IN HIGHER EDUCATION: DIGITAL READINESS AND RESPONSIBLE CONSUMPTION AS ANTECEDENTS OF GREEN BEHAVIOR

Arie Indra Gunawan[a], Rivan Sutrisno[a], Miftakul Huda[b]
[a]Politeknik Negeri Bandung, Indonesia, [b]Universitas Pelita Bangsa, Indonesia
arie.indra@polban.ac.id

Abstract

Universities are strategic settings for connecting the green and digital transitions, yet limited evidence explains how environmental orientations and digital capabilities jointly shape everyday campus practices. Drawing on the Theory of Planned Behavior, this study hypothesized that responsible consumption would shape attitude toward Green Office practices, whereas digital readiness would shape perceived behavioral control, and tested this differentiated structure against a competing model in which both antecedents could influence both appraisals. Data from a cross-sectional survey of 387 students, lecturers, administrative employees, and unit managers at an Indonesian public vocational higher education institution were analyzed using covariance-based structural equation modeling with 5,000 bootstrap resamples. The hypothesized differentiated model fit the data poorly, whereas the competing model fit substantially better. In the final model, digital readiness was strongly associated with attitude (β = .78) and, together with responsible consumption (β = .41), with perceived behavioral control (β = .42); responsible consumption was not associated with attitude once digital readiness was taken into account. Attitude and perceived behavioral control were both associated with intention, which was the most robust predictor of self-reported Green Office behavior. Environmental awareness was not significantly associated with intention. The findings indicate an interwoven rather than differentiated Green–Digital Nexus: digital readiness shapes both whether Green Office practices are valued and whether they appear feasible, while responsible consumption contributes mainly to their perceived feasibility.

Article Info

- ***Received*** *: 28 August 2026*
- ***Revised*** *: 10 November 2026*
- ***Published*** *: 17 November 2026*
- ***Pages*** *: 784-815*
- ***DOI*** *: 10.33019/ijbe.v10i4.1636*
- ***JEL*** *: D91, I23, M14, Q56*
- ***Keywords*** *: Twin Transition, Responsible Consumption, Digital Readiness, Perceived Behavioral Control, Green Behavior.*

This work is licensed under a Creative Commons Attribution 4.0 International License.

E-ISSN : 2549-3280 P-ISSN : 2549-5933
INTEGRATED JOURNAL OF BUSINESS AND ECONOMICS
Email: ijbe.feubb@gmail.com
http://ojs.ijbe-research.com/index.php/IJBE/index

1. Introduction

Universities are simultaneously pursuing green and digital transitions while operating as complex service organizations. The green transition requires reductions in material use, waste generation, and energy consumption, whereas the digital transition changes teaching, administrative, and service processes through electronic documents, learning platforms, automated services, and data-supported management. These agendas are increasingly framed as a *twin transition*: digitalization can support environmental sustainability, but only when technologies are intentionally designed and used to advance environmental objectives (Trevisan et al., 2024; Tabares et al., 2025). For universities, therefore, the twin transition is not merely a policy ambition or technological upgrade. It is an organizational transformation that must be incorporated into operational processes and the routine behavior of campus members. Its success is ultimately expressed through everyday decisions, whether users print documents, accept disposable packaging, sort waste correctly, use digital services, or leave equipment operating unnecessarily. Although individually small, these decisions collectively determine whether institutional commitments are translated into routine organizational practice.

The need for such transformation is becoming more urgent as global resource consumption and waste generation continue to rise. Municipal solid waste is projected to increase from 2.1 billion tonnes in 2023 to 3.8 billion tonnes by 2050, with the annual global economic burden potentially reaching USD 640.3 billion without substantial changes in production, consumption, and waste management (United Nations Environment Programme [UNEP], 2024). Universities are important sites for addressing this problem because they function simultaneously as educational institutions and operational systems. They educate future professionals while managing buildings, offices, laboratories, food services, procurement, administrative processes, and digital infrastructures. Reducing their environmental impacts is therefore also an organizational challenge involving resource efficiency, service-process design, and coordination across academic and administrative units. Sustainability is communicated not only through curricula and campaigns but also through the practices embedded in institutional operations. This perspective supports a whole-institution approach that integrates learning, governance, facilities, and organizational arrangements (Holst et al., 2024).

Research on campus sustainability nevertheless shows that institutional provision alone does not guarantee sustainable behavior. Campuses resemble small communities with diverse users and complex resource flows, yet remain sufficiently bounded for coordinated intervention and evaluation. This makes them suitable settings for Campus Living Labs, in which campus actors jointly develop and test solutions within the contexts where sustainability problems occur (Stuckrath et al., 2025). Evidence from university waste-sorting interventions illustrates the limitations of infrastructure-centered approaches. Facilities and co-created interventions can create opportunities for appropriate action, but implementation still depends on users' attitudes, perceived behavioral control, understanding, and behavior at the point of decision (Stuckrath et al., 2026). Similarly, green university initiatives and environmental education may strengthen environmental self-identity, attitudes, and perceived control, but their effects vary according to how users evaluate the

This work is licensed under a Creative Commons Attribution 4.0 International License.

E-ISSN : 2549-3280 P-ISSN : 2549-5933
INTEGRATED JOURNAL OF BUSINESS AND ECONOMICS
Email: ijbe.feubb@gmail.com
http://ojs.ijbe-research.com/index.php/IJBE/index

benefits and practicality of the behavior (Rūtelionė et al., 2026; Luo et al., 2025). Organizational sustainability therefore emerges from an interaction between institutional arrangements and individual evaluations rather than from information, policies, or infrastructure alone.

Digitalization introduces an additional organizational and behavioral condition. Electronic forms, assignments, correspondence, records, and approval systems can reduce paper use, simplify service delivery, and support more resource-efficient routines. Nevertheless, providing a digital platform does not mean that users are ready or willing to incorporate it into their activities. Digital systems may be ignored when they are perceived as difficult, inconvenient, unreliable, or incompatible with established processes. Organizations may also maintain parallel digital and paper-based procedures, thereby creating duplication rather than resource efficiency. Moreover, digital technologies are not inherently sustainable because efficiency gains may be offset by additional energy demand, duplicated processes, or rebound effects (Trevisan et al., 2024; Tabares et al., 2025). Their organizational and environmental value depends on how they are designed, governed, and adopted. The relevant issue is therefore not merely whether digital infrastructure is available, but whether organizational members possess the readiness and confidence to use it in ways that make sustainable practices easier to perform.

This issue reveals a separation between sustainability management and digital transformation in higher education. Green-campus studies generally focus on environmental education, institutional initiatives, infrastructure, or specific behaviors such as waste sorting. Digital-transformation studies more often examine teaching delivery, service efficiency, organizational capability, or technology adoption. Although sustainability and digitalization increasingly appear together in institutional strategies, they are still commonly analyzed as separate organizational domains (Trevisan et al., 2024). The twin-transition literature has called for their integration, but existing research remains concentrated at policy, industrial, and organizational levels (Tabares et al., 2025). Less is known about the individual-level mechanisms through which environmental responsibility and digital capability converge within everyday organizational behavior. This study refers to that behavioral convergence as the Green–Digital Nexus. The nexus does not imply that green and digital orientations are identical or that technology is automatically sustainable. Instead, it describes how they can operate through different but complementary mechanisms in supporting the same organizational behavior.

This study explains these mechanisms by proposing two complementary behavioral pathways. Responsible consumption reflects an individual's tendency to consider the environmental consequences of consumption and accept responsibility for resource use (Gunawan et al., 2025). It is expected to influence *attitude*, or the extent to which Green Office practices are evaluated as worthwhile and desirable. Digital readiness refers to an individual's propensity and confidence to use technology for accomplishing goals (Parasuraman, 2000). It is expected to influence *perceived behavioral control* (PBC), or the extent to which Green Office practices are considered manageable under actual organizational conditions. These relationships are examined through the Theory of Planned Behavior, which identifies attitude, PBC, and intention as central determinants of behavior

This work is licensed under a Creative Commons Attribution 4.0 International License.

(Ajzen, 1991). Within this framework, responsible consumption can make sustainable action *worth doing*, while digital readiness can make it *possible to do*. Because many Green Office practices are themselves digitally mediated, however, environmental and digital orientations may not map onto separate appraisals. The study therefore tests this differentiated structure against a competing, interwoven structure in which both antecedents may shape both appraisals. Environmental awareness is included as a general cognitive condition, but the model distinguishes awareness from the more proximal evaluative and capability-based mechanisms that support action.

The study investigates these relationships in an academic department of a public vocational higher education institution in West Java, Indonesia. The department provides a relevant organizational setting because students, lecturers, administrative personnel, and unit managers participate in recurring academic and service processes involving paper and tissue use, disposable packaging, waste disposal, electricity consumption, and digital administrative systems. These campus members are not merely recipients of sustainability policies or digital services; through their routine choices, they participate in implementing institutional transformation. The study therefore asks: How do responsible consumption and digital readiness operate through complementary behavioral pathways to shape Green Office behavior in higher education? To answer this question, the study develops and tests a model linking responsible consumption to attitude, digital readiness to PBC, and these two behavioral appraisals to intention and self-reported Green Office behavior, and compares this model with competing specifications in which the two antecedents are allowed to influence both appraisals.

This study offers three contributions. First, it provides an individual-level explanation of the Green–Digital Nexus by identifying the behavioral mechanisms through which environmental responsibility and digital capability are translated into organizational practice. This perspective complements research that primarily approaches the twin transition through policy, strategy, or organizational capability. Second, it extends belief-based elaborations of the Theory of Planned Behavior. The decomposed TPB (Taylor & Todd, 1995a, 1995b) and value-extended TPB models in pro-environmental research already show that attitude and PBC have identifiable antecedents, but they typically elaborate these antecedents within a single domain, either technological or environmental. The present study combines environmental and digital antecedents for one organizational behavior and explicitly tests whether they operate through differentiated or interwoven appraisals; the evidence favors the latter, with digital readiness shaping both the desirability and the feasibility of Green Office practices. Third, the study provides evidence from a vocational higher education institution in an emerging economy, a context that remains underrepresented in research dominated by conventional universities and single-behavior settings. By focusing on recurring organizational processes, the study clarifies how higher education institutions can align sustainability objectives, digital transformation, and user capability to support Green Office behavior.

This work is licensed under a Creative Commons Attribution 4.0 International License.

E-ISSN : 2549-3280 P-ISSN : 2549-5933
INTEGRATED JOURNAL OF BUSINESS AND ECONOMICS
Email: ijbe.feubb@gmail.com
http://ojs.ijbe-research.com/index.php/IJBE/index

2. Literature Review and Hypothesis Development

2.1. Green Office Behavior and the Green–Digital Nexus

Green Office behavior refers to recurring campus practices that reduce paper and disposable materials, improve waste separation, conserve electricity, and use digital alternatives for resource-intensive procedures. This definition is consistent with interdisciplinary conceptualizations of sustainable occupant behavior in offices, which encompass energy-, resource-, and waste-related practices performed within organizational settings (Li et al., 2026). Although universities may provide recycling facilities, energy-efficient equipment, digital platforms, and sustainability guidelines, their effectiveness depends on how users apply them. Thus, organizational sustainability requires both institutional support and individual action.

Because campus members occupy different roles, the concrete form of Green Office behavior differs across groups. For students, it mainly involves submitting assignments and forms electronically, limiting printing, avoiding disposable packaging, sorting waste, and switching off lights and equipment in classrooms and study spaces. For lecturers, it additionally involves paperless teaching materials, digital assessment and correspondence, and energy use in offices and classrooms. For administrative employees and unit managers, it includes electronic records, digital approvals and correspondence, and decisions about printing, consumables, and equipment use in service units. The construct therefore focuses on a common core of practices that all roles can perform (paper and digital documents, single-use materials, waste separation, and electricity use) while recognizing that the frequency of and discretion over these practices vary by role. This heterogeneity is acknowledged as a limitation of the study.

This perspective is consistent with the whole-institution approach, which embeds sustainability in university operations and everyday learning environments (Holst et al., 2024), and with the Campus Living Lab concept, which views universities as settings for developing and evaluating sustainability solutions with their users (Stuckrath et al., 2025). Stuckrath et al. (2026) showed that co-created waste-sorting interventions can improve organizational conditions, but behavioral outcomes still depend on users' knowledge, evaluations, and perceived control.

The present study applies an adapted Theory of Planned Behavior (TPB). TPB proposes that intention is the immediate antecedent of behavior, while attitude, subjective norm, and perceived behavioral control (PBC) influence intention; PBC may also affect behavior directly when it reflects actual opportunities and constraints (Ajzen, 1991; Greaves et al., 2013). Subjective norm was not included in the present model. This decision reflects the study's focus on the two appraisals that the Green–Digital Nexus is theorized to shape, namely desirability (attitude) and feasibility (PBC), rather than on the social pressure to perform Green Office practices; the questionnaire was designed around these appraisals and did not include a subjective-norm scale. Meta-analytic evidence also indicates that subjective norm is generally the weakest of the three TPB predictors of intention (Armitage & Conner, 2001). Nevertheless, in workplace and campus settings, expectations from colleagues, supervisors, and the institution can be significant predictors of pro-environmental intention

This work is licensed under a Creative Commons Attribution 4.0 International License.

E-ISSN : 2549-3280 P-ISSN : 2549-5933
INTEGRATED JOURNAL OF BUSINESS AND ECONOMICS
Email: ijbe.feubb@gmail.com
http://ojs.ijbe-research.com/index.php/IJBE/index

(Greaves et al., 2013), and their omission may inflate the estimated effects of attitude and PBC. This omission is therefore acknowledged as a limitation of the study.

The proposed model is related to, but distinct from, the decomposed TPB. Taylor and Todd (1995a, 1995b) decomposed attitude, subjective norm, and PBC into underlying belief structures; for example, PBC was decomposed into self-efficacy and facilitating conditions, and the approach was applied to both household waste reduction and information technology usage. Extended TPB models in pro-environmental research have similarly added value-based antecedents, such as environmental concern, to attitude (Purwianti et al., 2025). These models, however, usually elaborate beliefs within one domain, either the environmental or the technological. The present study combines an environmental orientation (responsible consumption) as an antecedent of attitude with a digital orientation (digital readiness) as an antecedent of PBC for a single organizational behavior in which environmental and digital practices are intertwined. Its contribution therefore does not lie in showing that TPB beliefs can be decomposed, which is well established, but in testing whether environmental and digital antecedents operate through differentiated appraisals when they jointly shape the same behavior.

The Green–Digital Nexus describes the convergence of these pathways. Environmental responsibility provides the direction and desirability of sustainable action, whereas digital capability supports its feasibility. The concept does not imply that green responsibility and digital readiness are identical or that digitalization is automatically sustainable. Instead, it emphasizes how they can complement one another in supporting Green Office behavior.

2.2. Environmental Awareness and Green Office Intention

Environmental awareness is the recognition of environmental problems and the understanding that everyday activities contribute to them. In a university context, it includes awareness of the environmental consequences of printing, disposable packaging, improper waste disposal, and unnecessary electricity use.

Awareness is important because users must first recognize the environmental relevance of a routine before they can intend to change it. However, awareness alone does not guarantee action. Environmental education influences behavior more effectively when it changes users' evaluations of the relevance, benefits, and practicality of sustainable practices (Blok et al., 2015; Luo et al., 2025). Similarly, green university initiatives often operate through attitude, environmental self-identity, and PBC rather than through awareness alone (Rūtelionė et al., 2026). Research also suggests that environmental concern generally requires more specific behavioral evaluations before it is translated into green intention (Purwianti et al., 2025; Salim & Yulia, 2025).

Accordingly, environmental awareness is treated as a distal cognitive condition that makes environmental consequences salient. From a TPB perspective, such a distal condition would be expected to operate largely through the more proximal appraisals of attitude and PBC. However, awareness may also motivate intention directly when users recognize that their routines have environmental consequences and feel a general obligation to reduce them. The hypothesized model therefore specifies a direct path from awareness to intention (H1), while

This work is licensed under a Creative Commons Attribution 4.0 International License.

E-ISSN : 2549-3280 P-ISSN : 2549-5933
INTEGRATED JOURNAL OF BUSINESS AND ECONOMICS
Email: ijbe.feubb@gmail.com
http://ojs.ijbe-research.com/index.php/IJBE/index

the alternative paths from awareness to attitude and PBC are examined in a competing model reported in the Results section.

H1: *Environmental awareness positively influences intention to engage in Green Office behavior.*

2.3. Responsible Consumption and Attitude toward Green Office Practices

Responsible consumption refers to a general orientation in which individuals consider the consequences of resource use, avoid unnecessary consumption, and accept responsibility for the waste generated by their choices (Gunawan et al., 2024, 2025). In this study, it is conceptualized as a broad orientation toward resource use that extends beyond the campus, rather than as the specific Green Office practices that constitute the outcome variable. This orientation is relevant to university operations because many environmental impacts result from individual decisions, such as printing instead of using digital documents, choosing disposable products, mixing recyclable waste, or using electricity unnecessarily.

In TPB, attitude reflects whether a behavior is evaluated favorably or unfavorably (Ajzen, 1991). Responsible consumption should shape this evaluation by providing the values through which Green Office practices are judged. Individuals who consider the environmental consequences of consumption are more likely to view paper reduction, waste separation, energy conservation, and the avoidance of disposable materials as beneficial and appropriate rather than inconvenient.

Responsible consumption therefore represents the **desirability** dimension of the Green–Digital Nexus. It translates general environmental responsibility into a favorable attitude toward specific organizational practices.

H2: *Responsible consumption positively influences attitude toward Green Office practices.*

2.4. Digital Readiness and Perceived Behavioral Control

Digital readiness refers to an individual's general propensity to embrace and use technology to accomplish goals (Parasuraman, 2000). It is conceptualized here as general technology readiness, that is, confidence in and comfort with digital systems, rather than as the perceived ability to perform specific environmental practices, which is captured by PBC. In higher education, it includes confidence in using digital platforms, willingness to replace manual procedures, and the ability to navigate electronic teaching, administrative, and service systems. It differs from the mere availability of digital infrastructure because users may continue printing or duplicating documents even when digital alternatives exist.

Digitalization can support sustainability by reducing material use, simplifying resource-efficient procedures, and improving access to information (Chounta et al., 2024). However, its benefits are not automatic. Poorly integrated systems may create inconvenience, duplication, or additional resource demands (Trevisan et al., 2024; Tabares et al., 2025). Digital transformation becomes meaningful when users can incorporate digital tools into their routines. Research on green information systems also shows that technology-related optimism, innovativeness, insecurity, and discomfort influence users' willingness to adopt environmentally oriented systems (Gopinathan et al., 2025).

This work is licensed under a Creative Commons Attribution 4.0 International License.

E-ISSN : 2549-3280 P-ISSN : 2549-5933
INTEGRATED JOURNAL OF BUSINESS AND ECONOMICS
Email: ijbe.feubb@gmail.com
http://ojs.ijbe-research.com/index.php/IJBE/index

Within TPB, these conditions are reflected in PBC, or the perceived ease or difficulty of performing a behavior (Ajzen, 1991). Digitally ready users are more likely to feel capable of submitting documents electronically, completing digital approvals, retrieving online records, and reducing paper use. Digital readiness therefore strengthens the perceived feasibility of Green Office practices and represents the **feasibility** dimension of the Green–Digital Nexus.

H3: *Digital readiness positively influences perceived behavioral control over Green Office practices.*

2.5. Attitude, Perceived Behavioral Control, and Intention

Attitude and PBC represent different behavioral appraisals. Attitude concerns whether a behavior is desirable, whereas PBC concerns whether it is feasible under existing conditions. Green Office intention should be strongest when users both value sustainable practices and believe they can perform them.

A favorable attitude increases willingness to invest effort in a behavior (Ajzen, 1991). In university settings, attitude has been found to influence waste-sorting intention and green behavioral intention (Rūtelionė et al., 2026; Stuckrath et al., 2026). It can also mediate the influence of environmental concern on green consumption intention (Purwianti et al., 2025). Therefore, users who evaluate Green Office practices positively should be more willing to engage in them.

H4: *Attitude toward Green Office practices positively influences intention to engage in Green Office behavior.*

PBC also influences intention because individuals are more likely to commit to actions they believe they can perform. Green Office practices may depend on access to facilities, digital competence, procedural flexibility, institutional requirements, and supporting infrastructure. Evidence from waste-sorting research shows that intention is stronger when users understand the system and have access to appropriate facilities (Zhang et al., 2019; Stuckrath et al., 2026). Thus, users who perceive greater control over Green Office practices should express stronger behavioral intention.

H5: *Perceived behavioral control positively influences intention to engage in Green Office behavior.*

2.6. Intention, Perceived Behavioral Control, and Green Office Behavior

Intention is the most immediate motivational predictor of behavior in TPB (Ajzen, 1991). It has been supported in studies of waste separation, green consumption, energy conservation, and green information-system use (Blok et al., 2015; Zhang et al., 2024). This relationship is particularly relevant to Green Office behavior because many practices are repeated and partly discretionary, such as choosing digital documents, separating waste, avoiding disposable materials, and switching off unused equipment.

Nevertheless, intention does not always result in action. The intention–behavior relationship may be weakened by limited facilities, institutional procedures, lack of time, or insufficient support (Zhang et al., 2019; Stuckrath et al., 2026). TPB addresses this issue by allowing

This work is licensed under a Creative Commons Attribution 4.0 International License.

E-ISSN : 2549-3280 P-ISSN : 2549-5933
INTEGRATED JOURNAL OF BUSINESS AND ECONOMICS
Email: ijbe.feubb@gmail.com
http://ojs.ijbe-research.com/index.php/IJBE/index

PBC to influence behavior directly. When perceived control reflects actual resources and opportunities, users who feel capable and face fewer barriers are more likely to act, even after intention is considered.

For Green Office behavior, PBC captures access to facilities, knowledge, digital competence, procedural discretion, and organizational support. The model therefore includes both a motivational route through intention and a practical route through PBC.

H6: *Perceived behavioral control positively influences Green Office behavior.*

H7: *Intention to engage in Green Office behavior positively influences Green Office behavior.*

2.7. Conceptual Framework

The proposed framework links environmental responsibility and digital capability through complementary behavioral mechanisms. Environmental awareness makes environmental consequences salient, while responsible consumption shapes the desirability of Green Office practices through attitude. Digital readiness strengthens their perceived feasibility through PBC. Attitude and PBC then influence intention, which predicts Green Office behavior. PBC also has a direct effect on behavior because practical control may determine whether intention can be enacted.

Responsible consumption and digital readiness are therefore treated as complementary rather than interchangeable antecedents. Responsible consumption provides the environmental direction of action, whereas digital readiness expands the means through which sustainable practices can be implemented. The Green–Digital Nexus is consequently represented by two pathways that converge on the same outcome: Green Office behavior. Such behavior is most likely when sustainable practices are perceived as both worth doing and possible to do.

Because the hypothesized model allows each antecedent to influence only one appraisal, the differentiated structure could be imposed by the specification rather than demonstrated by the data. The hypothesized model is therefore compared with a competing, interwoven model in which responsible consumption and digital readiness may both shape attitude and PBC. This alternative is theoretically plausible because many Green Office practices are digitally mediated: electronic submissions or paperless approvals may be evaluated favorably precisely by users who are comfortable with digital tools, while habitual resource-saving routines may increase confidence in performing related office practices. Further competing models add direct paths from both antecedents to intention and paths from environmental awareness to attitude and PBC. The differentiated-pathway interpretation is supported only if the cross-paths are weak or non-significant and do not materially improve model fit.

The proposed research framework is presented in Figure 1.

This work is licensed under a Creative Commons Attribution 4.0 International License.

E-ISSN : 2549-3280 P-ISSN : 2549-5933
INTEGRATED JOURNAL OF BUSINESS AND ECONOMICS
Email: ijbe.feubb@gmail.com
http://ojs.ijbe-research.com/index.php/IJBE/index

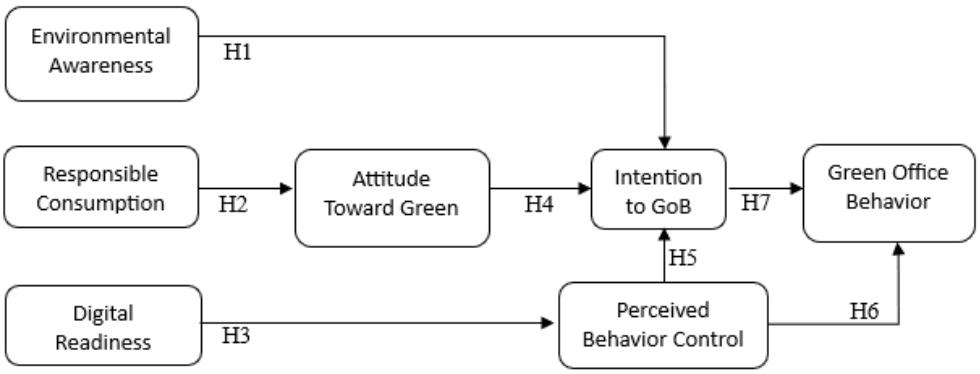


Figure 1. Conceptual Framework
Source: Developed by the authors

3. Research Methods

3.1. Research Design

This study used a quantitative, explanatory, cross-sectional survey design. The conceptual model combined the Theory of Planned Behavior (TPB) with responsible consumption and digital readiness to explain how the green and digital transitions connect at the level of individual campus practice. Environmental awareness, responsible consumption, and digital readiness were positioned as antecedent conditions, while attitude, perceived behavioral control (PBC), and intention represented the behavioral mechanisms associated with Green Office behavior.

Covariance-based structural equation modeling (CB-SEM) was selected because the study tested a theoretically specified latent-variable model. The analysis required simultaneous examination of construct measurement, global model fit, direct structural relationships, and specific indirect effects. This confirmatory purpose made CB-SEM appropriate for determining whether the proposed green–digital behavioral structure was consistent with the observed covariance matrix.

3.2. Study Context and Data Collection

The study was undertaken at a higher education institution in West Java, Indonesia. The institution has incorporated green and sustainable campus principles into its institutional development while expanding digital systems for teaching, academic communication, administration, and student services. At the time of data collection, the green and digital arrangements available to respondents included participation in the UI GreenMetric World University Rankings; waste-separation bins for organic, inorganic, and residual waste in buildings/units; energy-saving measures such as LED lighting, signage, air-conditioning schedules; an academic information system for course registration, grades, and student services; a learning management system used for teaching materials and assignment submission; and an electronic correspondence and approval system (e-office) for letters and administrative requests. However, some procedures, such as certain financial or archival documents still required printed documents or wet signatures. These arrangements define the

This work is licensed under a Creative Commons Attribution 4.0 International License.

E-ISSN : 2549-3280 P-ISSN : 2549-5933
INTEGRATED JOURNAL OF BUSINESS AND ECONOMICS
Email: ijbe.feubb@gmail.com
http://ojs.ijbe-research.com/index.php/IJBE/index

actual opportunities and constraints under which respondents' perceived behavioral control was formed. Academic and administrative activities involve repeated decisions concerning printed documents, electronic submissions, food and beverage packaging, waste disposal, lighting, air conditioning, and the use of other electrical equipment. Students, lecturers, administrative employees, and unit managers interact with these systems in different roles but share the same campus facilities and sustainability arrangements.

Eligible respondents were active members of the campus community who regularly participated in learning, teaching, administration, or unit management and had direct exposure to campus facilities or digital systems. Recruitment followed a role-inclusive purposive procedure; that is, the aim was to include every institutional role that participates in routine campus processes rather than to obtain a probability sample. Students were reached through class representatives and study-program messaging groups, whereas lecturers, administrative employees, and unit managers were reached through official institutional e-mail lists and unit coordinators. No quotas were applied; however, reminders were sent to staff groups to ensure that non-student roles were adequately represented. The online questionnaire was distributed between May and August 2026. Respondents were not required to have formal responsibilities for sustainability programs because the study concerned routine practices performed by ordinary campus users.

The questionnaire link was distributed through the channels described above to eligible campus members, and 412 responses were received. During screening, 25 responses were excluded because of incomplete answers, invariant response patterns, or duplicate submissions, leaving 387 valid responses. Table 1 presents the respondent profile. Students constituted the largest group (n = 329; 85.01%), followed by lecturers (n = 43; 11.11%), educational and administrative employees (n = 10; 2.58%), and unit managers (n = 5; 1.29%). This distribution reflects a higher education environment in which students constitute the largest user population, while lecturers, employees, and managers represent the groups responsible for teaching, service delivery, administration, and operational decisions. Because the results may nevertheless mainly reflect student behavior, this is discussed as a limitation.

Table 1. Respondent Profile (N = 387)

Characteristic	Category	n	%
Role	Students	329	85.01
	Lecturers	43	11.11
	Educational and administrative employees	10	2.58
	Unit managers	5	1.29
Gender	Male	168	43.41
	Female	219	56.59
Total		**387**	**100.00**

Source: Processed data (2026).

This work is licensed under a Creative Commons Attribution 4.0 International License.

E-ISSN : 2549-3280 P-ISSN : 2549-5933
INTEGRATED JOURNAL OF BUSINESS AND ECONOMICS
Email: ijbe.feubb@gmail.com
http://ojs.ijbe-research.com/index.php/IJBE/index

The final sample was adequate for estimating the proposed CB-SEM model. The number of observations exceeded commonly applied minimum recommendations for maximum-likelihood estimation and provided more than ten observations per indicator in the final measurement structure. Sample adequacy was considered in relation to model complexity, indicator quality, and the number of parameters to be estimated rather than through a single numerical rule (Hair et al., 2019; Kline, 2023).

Participation was voluntary and based on informed consent. The opening page explained the study's academic purpose, the types of Green Office practices being examined, the confidentiality of responses, and the respondent's right to discontinue participation. No personally identifying information was included in the analytical dataset. Several procedural remedies were applied to reduce common method bias (Podsakoff et al., 2003): responses were anonymous, and this was stated on the opening page; respondents were informed that there were no right or wrong answers; predictor constructs and the behavior section were presented in separate sections with distinct instructions; and items were worded concretely to reduce ambiguity. Questionnaires were screened for completeness, invariant response patterns, and clear indications of insufficient engagement before model estimation.

3.3. Measurement Development

The instrument measured seven reflective latent constructs: Environmental Awareness (EA), Responsible Consumption (RC), Digital Readiness (DR), Attitude toward Green Office practices (ATT), Perceived Behavioral Control (PBC), Intention (INT), and Green Office Behavior (GOB). The measures were adapted from established studies in environmental behavior, responsible consumption, technology readiness, TPB, and campus sustainability. Two items (EA4 and GOB6) were removed during measurement refinement because of their comparatively low loadings and to improve model fit; the final measurement model therefore comprised 28 indicators. Table 2 lists the retained items and their codes.

Instrument development proceeded in several stages. First, indicators were drawn from previous English-language scales and rewritten to refer specifically to campus activities. Second, the items were translated into Indonesian and independently back-translated into English by two bilingual lecturers or translators following Brislin's (1970) procedure; discrepancies between the original and back-translated versions were resolved by the research team. Third, three academics with expertise in sustainability/behavioral research assessed the items for relevance to students, lecturers, administrative employees, and managers. Finally, the questionnaire was pretested with 30 campus users outside the final analytical sample. The pretest was used to identify ambiguous wording and ensure that each item described an activity respondents could reasonably evaluate or perform; it led to minor wording changes in eight items. The Indonesian items used in the questionnaire are reported in Appendix A, and the English wording in Table 2 corresponds to the back-translated version.

All indicators used a five-point Likert response format ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Particular attention was given to distinguishing constructs that are related within the twin-transition framework but perform different theoretical functions. Environmental awareness captures recognition of environmental consequences, whereas

This work is licensed under a Creative Commons Attribution 4.0 International License.

E-ISSN : 2549-3280 P-ISSN : 2549-5933
INTEGRATED JOURNAL OF BUSINESS AND ECONOMICS
Email: ijbe.feubb@gmail.com
http://ojs.ijbe-research.com/index.php/IJBE/index

responsible consumption reflects a more internalized orientation toward resource use. Digital readiness represents confidence and willingness to use digital systems, whereas PBC concerns the perceived ability to perform Green Office practices under actual campus conditions. Green Office behavior was defined as repeated practices related to paper, digital documents, waste, single-use materials, and electricity use rather than general support for campus sustainability.

Despite these conceptual distinctions, some indicators share content across constructs. Two responsible-consumption items refer to concrete practices (RC1, paper use; RC3, single-use products) that resemble Green Office behavior items (GOB3 and GOB5), and two digital-readiness items overlap with other constructs: DR2 (preference for digital documents) resembles ATT3 and GOB3, and DR3 (using technology for environmentally friendly practices) is conceptually close to PBC. Such overlap can inflate inter-construct correlations and the explained variance of downstream constructs. To evaluate its consequences, a sensitivity analysis re-estimated the model after removing these four items, so that responsible consumption was represented by its more general resource-use items (RC2 and RC4) and digital readiness by its general technology-readiness items (DR1 and DR4), consistent with Parasuraman (2000).

Table 2. Measurement Items and Principal Sources

Construct	Code	Measurement Item	Sources
Environmental Awareness (EA)	EA1	I am aware that everyday activities can affect the environment.	Luo et al. (2025); Rūtelionė et al. (2026)
	EA2	I understand that saving energy is important for the environment.	
	EA3	I am aware that excessive paper use has negative environmental effects.	
Responsible Consumption (RC)	RC1	I use paper only when it is genuinely necessary.	Gunawan et al. (2024, 2025)
	RC2	I try to reuse items that remain suitable for use.	
	RC3	I avoid single-use products when a reusable alternative is available.	
	RC4	I try to reduce unnecessary resource use on campus.	
Digital Readiness (DR)	DR1	I can use digital systems without substantial difficulty.	Parasuraman (2000); Trevisan et al. (2024); Chounta et al. (2024)
	DR2	I prefer digital documents to printed documents.	
	DR3	I am able to use technology for environmentally friendly practices.	
	DR4	I feel comfortable using digital applications in my daily activities.	
Attitude (ATT)	ATT1	Practicing environmentally responsible behavior is a good thing.	Ajzen (1991); Rūtelionė et al. (2026); Stuckrath et al. (2026)

This work is licensed under a Creative Commons Attribution 4.0 International License.

E-ISSN : 2549-3280 P-ISSN : 2549-5933
INTEGRATED JOURNAL OF BUSINESS AND ECONOMICS
Email: ijbe.feubb@gmail.com
http://ojs.ijbe-research.com/index.php/IJBE/index

Construct	Code	Measurement Item	Sources
	ATT2	Green Office practices provide benefits for the campus community.	
	ATT3	I value administrative activities that can be completed without paper.	
	ATT4	Green Office practices contribute to a more comfortable environment.	
Perceived Behavioral Control (PBC)	PBC1	I am capable of reducing paper use in my campus activities.	Ajzen (1991); Zhang et al. (2019); Stuckrath et al. (2026)
	PBC2	I am able to separate waste according to its category.	
	PBC3	I can reduce unnecessary electricity use while on campus.	
	PBC4	Implementing Green Office practices on campus is manageable for me.	
Intention (INT)	INT1	I intend to prioritize digital documents and reduce paper use.	Ajzen (1991); Luo et al. (2025); Rūtelionė et al. (2026); Stuckrath et al. (2026)
	INT2	I intend to reduce single-use plastics by choosing reusable alternatives.	
	INT3	I intend to separate and dispose of waste according to its category.	
	INT4	I intend to switch off electricity when it is no longer required.	
Green Office Behavior (GOB)	GOB1	I switch off lights when a room is not being used.	Zhang et al. (2019); Gunawan et al. (2025); Stuckrath et al. (2026)
	GOB2	I switch off air conditioners or electronic equipment after use.	
	GOB3	I use digital documents instead of printing whenever possible.	
	GOB4	I dispose of waste according to its category.	
	GOB5	I reduce my use of single-use plastics on campus.	

Note: Items were administered in Indonesian (Appendix A) on a five-point scale (1 = strongly disagree, 5 = strongly agree). EA4 and GOB6 were removed during measurement refinement.

3.4. Data Analysis Procedures

The data were analyzed using IBM SPSS Statistics and IBM SPSS Amos. HTMT ratios, bootstrapped contrasts and specific indirect effects, the Bollen–Stine bootstrap, and the competing and sensitivity models were estimated with the semopy package for Python (Igolkina & Meshcheryakov, 2020), which reproduced the AMOS maximum-likelihood estimates of the hypothesized model exactly. The analysis followed the two-step approach recommended by Anderson and Gerbing (1988): confirmatory factor analysis (CFA) was

This work is licensed under a Creative Commons Attribution 4.0 International License.

E-ISSN : 2549-3280 P-ISSN : 2549-5933
INTEGRATED JOURNAL OF BUSINESS AND ECONOMICS
Email: ijbe.feubb@gmail.com
http://ojs.ijbe-research.com/index.php/IJBE/index

first used to evaluate the measurement model, including factor loadings, construct reliability, convergent validity, discriminant validity, and global model fit, and the structural model was estimated only after the measurement model had been assessed. Error covariances added to the measurement model are reported together with their rationale, and fit is reported before and after modification.

Univariate skewness and kurtosis and Mardia's coefficient of multivariate kurtosis were examined before estimation. Univariate values within |3| for skewness and |10| for kurtosis were regarded as acceptable for maximum-likelihood (ML) estimation (Kline, 2023), whereas a critical ratio of Mardia's coefficient above 5 was regarded as indicating multivariate non-normality (Byrne, 2016). Because ML assumes multivariate normality, ML estimates were supplemented with the Bollen–Stine bootstrap (Bollen & Stine, 1992; 5,000 resamples) to obtain a model p-value robust to non-normality, and bias-corrected bootstrap confidence intervals were used to evaluate all indirect effects.

Composite reliability (CR) values of at least .70 were used as evidence of internal consistency. Convergent validity was assessed through standardized factor loadings and average variance extracted (AVE), with an AVE of approximately .50 used as the principal reference. Indicators with moderate loadings were retained when they contributed substantively to construct coverage and did not compromise overall reliability. Discriminant validity was evaluated using three complementary procedures: the Fornell–Larcker criterion (Fornell & Larcker, 1981); the heterotrait–monotrait ratio (HTMT) with bootstrapped 95% confidence intervals, using .85 as a conservative and .90 as a liberal threshold (Henseler et al., 2015); and a nested-model χ^2 difference test comparing the seven-factor model with a model in which responsible consumption and digital readiness were merged into a single factor (Anderson & Gerbing, 1988).

Model fit was assessed using the χ^2 statistic and its ratio to degrees of freedom (CMIN/DF), the comparative fit index (CFI), the Tucker–Lewis index (TLI), the root mean square error of approximation (RMSEA) with its 90% confidence interval and PCLOSE, the standardized root mean square residual (SRMR), and, for completeness, the goodness-of-fit index (GFI), adjusted goodness-of-fit index (AGFI), and parsimony indices. CMIN/DF values below 3 were treated as acceptable. Following Hu and Bentler (1999), CFI and TLI values of at least .90 were treated as acceptable and values of at least .95 as good, RMSEA values of .06 or lower as good and of .08 or lower as acceptable, and SRMR values of .08 or lower as acceptable. Fit indices were interpreted jointly because reliance on a single cut-off can produce an incomplete assessment of model adequacy (Hair et al., 2019; Kline, 2023). Measurement-model (CFA) fit and structural-model fit are reported separately.

The structural analysis estimated the seven hypothesized direct relationships and the explained variance in Attitude, PBC, Intention, and Green Office Behavior. Standardized and unstandardized coefficients, standard errors, critical ratios, and probability values were reported. Because of multivariate non-normality, the significance of all paths and indirect effects was also evaluated with bias-corrected (BC) 95% confidence intervals from 5,000 bootstrap resamples. Specific indirect effects were computed separately for each route from the bootstrapped standardized coefficients, and total indirect effects are reported in separate

This work is licensed under a Creative Commons Attribution 4.0 International License.

E-ISSN : 2549-3280 P-ISSN : 2549-5933
INTEGRATED JOURNAL OF BUSINESS AND ECONOMICS
Email: ijbe.feubb@gmail.com
http://ojs.ijbe-research.com/index.php/IJBE/index

rows. Because the study used cross-sectional data, all estimated paths were interpreted as theoretically specified associations rather than definitive causal effects.

To test whether the differentiated pathway structure was supported by the data rather than imposed by the model specification, the hypothesized model (M1) was compared with three alternatives. M2 added the cross-paths RC → PBC and DR → ATT; M3 additionally added direct paths from RC and DR to intention; and M4 added paths from EA to the proximal appraisals, consistent with the argument that awareness may operate through attitude and PBC. Nested models were compared using χ^2 difference tests, and all models were also compared using the Akaike information criterion (AIC) and the Bayesian information criterion (BIC), with lower values indicating a better balance between fit and parsimony. Sensitivity analyses re-estimated the models after removing overlapping items and error covariances without a clear wording-based rationale.

Differences between comparable effects were tested formally rather than inferred from their numerical similarity. Bootstrapped contrasts were computed for the differences between standardized coefficients, namely RC → ATT versus DR → PBC and ATT → INT versus PBC → INT in the hypothesized model, and DR → ATT versus RC → ATT in the competing model, and for the differences between the indirect effects of RC and DR on intention and on behavior. A difference was considered significant when its 95% BC confidence interval excluded zero. Contrasts of standardized coefficients were preferred to equality constraints on unstandardized coefficients, because the latter depend on the arbitrary scaling of each latent variable.

Because all constructs, including behavior, were obtained from a single self-reported survey at one point in time, common method variance was also assessed statistically. An unmeasured common latent factor (CLF) was added to the CFA with paths to all indicators constrained to be equal, and standardized loadings with and without the CLF were compared; differences above .20 were taken as an indication of substantial method bias (Podsakoff et al., 2003). Harman's single-factor test is reported for comparison, although it is a weak diagnostic.

4. Results and Discussion

4.1. Data Characteristics and Measurement Model

The analysis was based on 387 valid responses (Table 1). Indicator distributions were negatively skewed, indicating favorable environmental orientations and Green Office practices. Univariate skewness ranged from −2.309 to −0.125 and kurtosis from −0.676 to 8.088, within the thresholds of |3| and |10| recommended by Kline (2023); the most pronounced departures were observed for the responsible-consumption items (e.g., RC4: skewness = −2.309, kurtosis = 8.088), reflecting a ceiling effect. Mardia's coefficient of multivariate kurtosis was 312.909 (c.r. = 64.666), far above the critical ratio of 5, indicating substantial multivariate non-normality. Bollen–Stine bootstrap p-values are therefore reported alongside ML estimates, and all indirect effects are evaluated with bias-corrected bootstrap confidence intervals.

This work is licensed under a Creative Commons Attribution 4.0 International License.

E-ISSN : 2549-3280 P-ISSN : 2549-5933
INTEGRATED JOURNAL OF BUSINESS AND ECONOMICS
Email: ijbe.feubb@gmail.com
http://ojs.ijbe-research.com/index.php/IJBE/index

The initial seven-factor CFA without error covariances produced $\chi^2(329) = 785.76$, CMIN/DF = 2.39, CFI = .911, TLI = .897, RMSEA = .070 (90% CI [.063, .076]), and SRMR = .075 (Table 5, M0a). Modification indices suggested five error covariances: INT1–INT2 (r = .21; both refer to reducing material consumption, paper and single-use plastics, and use parallel intention wording), RC3–RC4 (r = .38; both refer to avoiding unnecessary use of products and resources), DR3–DR4 (r = .32; both refer to applying digital tools in everyday activities), GOB1–GOB3 (r = .19), and PBC2–PBC4 (r = −.35). The last two lack a clear wording-based rationale; because removing them changed the structural coefficients of the final model by less than .03 (Table 5, S3), they were retained for consistency with the original specification. The final CFA fit acceptably: $\chi^2(324) = 715.39$, CMIN/DF = 2.21, CFI = .923, TLI = .911, RMSEA = .065 (90% CI [.059, .071]), and SRMR = .065 (M0b; $\Delta\chi^2(5) = 70.37$, $p < .001$).

All indicators loaded significantly on their respective constructs ($p < .001$), with standardized loadings from .541 to .875 (Table 3). Composite reliability ranged from .777 to .884, and AVE ranged from .545 to .656, exceeding .50 for every construct, which indicates adequate internal consistency and convergent validity.

Table 3. Measurement Model Results (Final CFA)

Construct	Items	Loading	CR	AVE	√AVE
Environmental Awareness	EA1–EA3	.541–.836	.777	.545	.738
Responsible Consumption	RC1–RC4	.711–.820	.843	.573	.757
Digital Readiness	DR1–DR4	.736–.763	.839	.566	.752
Attitude	ATT1–ATT4	.607–.875	.874	.638	.799
Perceived Behavioral Control	PBC1–PBC4	.734–.872	.884	.656	.810
Intention	INT1–INT4	.716–.832	.853	.592	.770
Green Office Behavior	GOB1–GOB5	.680–.843	.865	.563	.751

Note: Standardized loadings from the final CFA (M0b); all significant at p < .001. CR = composite reliability; AVE = average variance extracted.

This work is licensed under a Creative Commons Attribution 4.0 International License.

E-ISSN : 2549-3280 P-ISSN : 2549-5933
INTEGRATED JOURNAL OF BUSINESS AND ECONOMICS
Email: ijbe.feubb@gmail.com
http://ojs.ijbe-research.com/index.php/IJBE/index

Table 4. Discriminant Validity: Latent Correlations, √AVE, and HTMT

Construct	EA	RC	DR	ATT	PBC	INT	GOB
EA	**.738**	.644	.536	.407	.534	.528	.580
RC	.667	**.757**	.520	.527	.651	.486	.647
DR	.496	.557	**.752**	.761	.542	.647	.671
ATT	.370	.511	.776	**.799**	.728	.787	.807
PBC	.496	.632	.558	.700	**.810**	.806	.840
INT	.457	.488	.669	.767	.785	**.770**	.821
GOB	.546	.641	.674	.790	.830	.823	**.751**

Note: Diagonal (bold) = square root of AVE; below the diagonal = latent correlations from the final CFA; above the diagonal = HTMT ratios. All HTMT 95% bootstrap CIs exclude 1 (RC–DR: [.422, .613]; highest pair PBC–GOB: [.774, .903]).

Table 4 reports the latent correlations from the final CFA, the square roots of AVE, and the HTMT ratios. The correlation between Responsible Consumption and Digital Readiness was r = .557, below the square root of AVE of both constructs (.757 and .752), and their HTMT ratio was .520 (95% CI [.422, .613]). A six-factor model in which RC and DR were merged fit significantly worse than the seven-factor model ($\Delta\chi^2(6) = 179.95$, $p < .001$; Table 5, M0c). RC and DR are therefore distinct constructs. The higher RC–DR correlation of .824 obtained in the hypothesized structural model was inflated because each antecedent was allowed to influence only one appraisal (see the competing models below). The Fornell–Larcker criterion was not satisfied for five pairs of conceptually adjacent constructs (DR–ATT, ATT–GOB, PBC–INT, PBC–GOB, and INT–GOB). However, all HTMT ratios were below .85 (highest: PBC–GOB = .840, 95% CI [.774, .903]), and no confidence interval included 1, which supports discriminant validity according to the HTMT criterion (Henseler et al., 2015). The proximity of the downstream TPB constructs is nevertheless acknowledged as a limitation.

Regarding common method variance, the first unrotated factor in Harman's test accounted for 43.8% of the total variance, below the 50% threshold. The common latent factor test, however, indicated substantial shared variance: the average standardized loading on the common latent factor was .54, and adding it reduced the substantive loadings by more than .20 for 11 of the 28 indicators, most strongly for the responsible-consumption items RC2–RC4 (by up to .69). Because a common latent factor can also absorb substantive variance shared by highly related constructs, this test does not establish the magnitude of method bias, but common method variance cannot be ruled out and may have inflated the associations among constructs. This is acknowledged as a key limitation.

4.2. Structural Model

The hypothesized structural model (M1) produced $\chi^2(335) = 934.49$, CMIN/DF = 2.79, RMSEA = .079 (90% CI [.073, .085]; PCLOSE < .001), SRMR = .097, CFI = .883, TLI = .868, GFI = .802, and AGFI = .760 (Table 5), and the Bollen–Stine bootstrap p-value was below .001. CMIN/DF and RMSEA were within acceptable ranges, but SRMR exceeded .08

This work is licensed under a Creative Commons Attribution 4.0 International License.

E-ISSN : 2549-3280 P-ISSN : 2549-5933
INTEGRATED JOURNAL OF BUSINESS AND ECONOMICS
Email: ijbe.feubb@gmail.com
http://ojs.ijbe-research.com/index.php/IJBE/index

and CFI, TLI, and GFI were below .90 (Hu & Bentler, 1999). The fit of M1 was therefore inadequate and clearly worse than that of the measurement model (M0b), indicating that the structural restrictions of the hypothesized model were not consistent with the data. The competing models reported below identify the main source of this misfit.

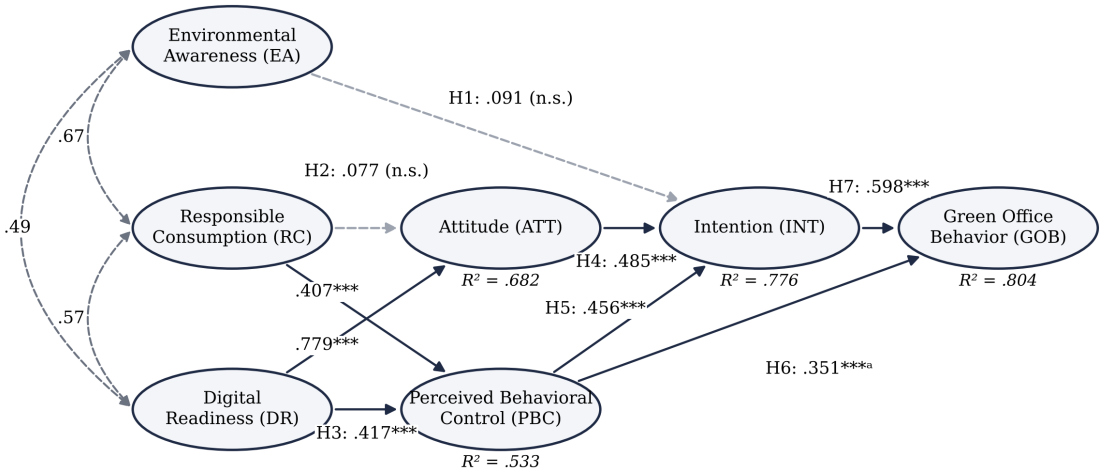
Table 5. Fit of the Measurement, Hypothesized, Competing, and Sensitivity Models

Model	χ^2 (df)	CMIN/DF	CFI	TLI	RMSEA [90% CI]	SRMR	AIC / BIC	$\Delta\chi^2$ (Δdf)
M0a. CFA, no error covariances	785.76 (329)	2.39	.911	.897	.070 [.063, .076]	.075	939.8 / 1221.5	–
M0b. CFA, five error covariances (final)	715.39 (324)	2.21	.923	.911	.065 [.059, .071]	.065	879.4 / 1179.5	70.37 (5) vs M0a
M0c. CFA, RC and DR merged	895.34 (330)	2.71	.889	.873	.077 [.071, .084]	.068	1047.3 / 1325.5	179.95 (6) vs M0b
M1. Hypothesized model	934.49 (335)	2.79	.883	.868	.079 [.073, .085]	.097	1076.5 / 1336.3	–
M2. M1 + RC → PBC, DR → ATT (final)	790.55 (333)	2.37	.910	.898	.069 [.063, .076]	.073	936.6 / 1203.7	143.93 (2) vs M1
M3. M2 + RC → INT, DR → INT	786.95 (331)	2.38	.911	.898	.069 [.063, .076]	.074	937.0 / 1211.4	3.60 (2) vs M2
M4. M1 + EA → PBC	920.02 (334)	2.75	.885	.870	.078 [.072, .084]	.097	1064.0 / 1327.5	14.47 (1) vs M1
S1. M2 without RC1, RC3, DR2, DR3	510.90 (237)	2.16	.934	.923	.064 [.056, .071]	.055	636.9 / 867.4	Not nested
S2. M2 without ATT3	737.28 (307)	2.40	.909	.897	.070 [.064, .076]	.074	879.3 / 1139.1	Not nested
S3. M2 without GOB1–GOB3 and PBC2–PBC4 covariances	814.20 (335)	2.43	.906	.894	.071 [.065, .077]	.075	956.2 / 1216.0	23.65 (2) vs M2

Note: N = 387. All $\Delta\chi^2$ values are significant at $p < .001$ except M3 vs M2 ($p = .165$). GFI/AGFI/PGFI/PNFI: M1 = .802/.760/.662/.735; M2 = .835/.798/.684/.754. Bollen–Stine bootstrap p (5,000 resamples) for M1 < .001. A model adding EA → ATT produced an improper solution and is not shown.

This work is licensed under a Creative Commons Attribution 4.0 International License.

E-ISSN : 2549-3280 P-ISSN : 2549-5933
INTEGRATED JOURNAL OF BUSINESS AND ECONOMICS
Email: ijbe.feubb@gmail.com
http://ojs.ijbe-research.com/index.php/IJBE/index



Standardized estimates of the final model (M2). *** p < .001; n.s. = not significant (grey dashed). [a] Bootstrap 95% BC CI includes zero.
Paths without a hypothesis label (DR → ATT, RC → PBC) were added in the competing model. Dashed curves = correlations among exogenous constructs.

Figure 2. Standardized Estimates of the Final Model (M2)
Source: Processed data (2026)

In the hypothesized model (Table 6), all seven hypothesized relationships were positive and significant according to normal-theory standard errors. Responsible Consumption was associated with Attitude (β = .696, $p < .001$), and Digital Readiness with PBC (β = .684, $p < .001$); the bootstrapped difference between these coefficients was .012 (95% BC CI [−.193, .182]). Attitude (β = .490) and PBC (β = .488) were associated with Intention to a similar degree (difference = .001, 95% BC CI [−.345, .324]). Intention (β = .644) and PBC (β = .307) were associated with Green Office Behavior, and Environmental Awareness had a small association with Intention (β = .118, $p = .031$).

The bootstrap results, which are more appropriate given the multivariate non-normality, qualified two of these relationships: the 95% BC CI included zero for EA → INT ([−.009, .233]) and for PBC → GOB ([−.569, .583]). The instability of PBC → GOB reflects the high correlation between Intention and PBC (r = .785) as joint predictors of Green Office Behavior; in 14% of the bootstrap samples, the PBC → GOB coefficient was negative, and in 10%, the INT → GOB coefficient exceeded 1.

In the hypothesized model, the predictors explained 48.4% of the variance in Attitude, 46.7% in PBC, 77.5% in Intention, and 79.7% in Green Office Behavior; in the final model (M2), the corresponding values were 68.2%, 53.3%, 77.6%, and 80.4%. These values are high and should be interpreted cautiously, because intention and behavior were self-reported in the same survey, some indicators share content with predictor constructs, and common method variance could not be ruled out; all of these conditions can inflate shared variance.

This work is licensed under a Creative Commons Attribution 4.0 International License.

E-ISSN : 2549-3280 P-ISSN : 2549-5933
INTEGRATED JOURNAL OF BUSINESS AND ECONOMICS
Email: ijbe.feubb@gmail.com
http://ojs.ijbe-research.com/index.php/IJBE/index

Table 6. Structural Estimates of the Hypothesized (M1) and Final (M2) Models

Hyp.	Path	M1 β (p)	M2 B (SE)	M2 β	M2 p	M2 95% BC CI	Decision
H1	EA → INT	.118 (.031)	.078 (.046)	.091	.089	[−.026, .206]	Not supported
H2	RC → ATT	.696 (< .001)	.106 (.091)	.077	.244	[−.266, .360]	Not supported
H3	DR → PBC	.684 (< .001)	.276 (.049)	.417	< .001	[.113, .718]	Supported
H4	ATT → INT	.490 (< .001)	.313 (.040)	.485	< .001	[.339, .638]	Supported
H5	PBC → INT	.488 (< .001)	.493 (.073)	.456	< .001	[.272, .650]	Supported
H6	PBC → GOB	.307 (< .001)	.430 (.100)	.351	< .001	[−.387, .599]	Partially supported
H7	INT → GOB	.644 (< .001)	.677 (.105)	.598	< .001	[.326, 1.228]	Supported
–	DR → ATT	–	.866 (.089)	.779	< .001	[.535, 1.069]	Added path
–	RC → PBC	–	.336 (.062)	.407	< .001	[.061, .733]	Added path

Note: Decisions refer to the final model (M2). p values are based on normal-theory standard errors; BC CIs are from 5,000 bootstrap resamples. H6 is significant under normal theory, but its bootstrap CI includes zero. Standardized bootstrap bounds above 1 reflect collinearity between predictors in some resamples.

4.3. Competing Models and Sensitivity Analysis

Table 5 compares the hypothesized model with the competing specifications. Adding the cross-paths RC → PBC and DR → ATT (M2) improved fit substantially ($\Delta\chi^2(2) = 143.93$, $p < .001$; $\Delta AIC = -139.9$; $\Delta BIC = -132.6$), yielding $\chi^2(333) = 790.55$, CMIN/DF = 2.37, CFI = .910, TLI = .898, RMSEA = .069 (90% CI [.063, .076]), and SRMR = .073. In M2, Digital Readiness was strongly associated with Attitude (β = .779, $p < .001$), Responsible Consumption was associated with PBC (β = .407, $p < .001$), and Digital Readiness remained associated with PBC (β = .417, $p < .001$). In contrast, the hypothesized RC → ATT path became small and non-significant (β = .077, $p = .244$; 95% BC CI [−.266, .360]), and the difference between the DR → ATT and RC → ATT coefficients was significant (.703, 95% BC CI [.181, 1.328]). The RC–DR correlation also fell from .824 in M1 to .572 in M2, close to its value in the measurement model (.557), confirming that the high correlation in M1 compensated for the omitted cross-paths. The differentiated-pathway structure was therefore not supported. Adding direct paths from RC and DR to Intention (M3) did not improve fit further ($\Delta\chi^2(2) = 3.60$, $p = .165$; BIC favored M2), and neither direct path was significant (RC → INT β = −.138, $p = .098$; DR → INT β = .122, $p = .277$). M2 was therefore retained as the final model (Figure 2).

Regarding Environmental Awareness, adding EA → PBC to the hypothesized model (M4) improved fit ($\Delta\chi^2(1) = 14.47$, $p < .001$; β = .283, $p < .001$), and the direct EA → INT path became non-significant (β = .099, $p = .101$). Adding EA → ATT produced an improper solution with suppression effects (RC → ATT β > 1 and EA → ATT β < 0), owing to the high correlation between EA and RC, and was therefore not interpreted. In the final model, the direct EA → INT path was also non-significant (β = .091, $p = .089$). These results suggest that awareness relates to intention, if at all, through perceived control rather than directly.

Three sensitivity analyses supported the robustness of this pattern. First, removing the four overlapping items (RC1, RC3, DR2, and DR3) from the hypothesized model produced an

This work is licensed under a Creative Commons Attribution 4.0 International License.

E-ISSN : 2549-3280 P-ISSN : 2549-5933
INTEGRATED JOURNAL OF BUSINESS AND ECONOMICS
Email: ijbe.feubb@gmail.com
http://ojs.ijbe-research.com/index.php/IJBE/index

inadmissible solution (RC–DR correlation = 1.12), whereas the corresponding cross-path model fit well (S1: CFI = .934, TLI = .923, RMSEA = .064, SRMR = .055; RC–DR r = .585) and again showed Digital Readiness as the dominant predictor of Attitude, although with a standardized coefficient slightly above 1 and a small negative RC → ATT coefficient, indicating suppression between the two-item RC and DR measures. Second, removing ATT3, the attitude item closest in content to DR2, did not change the conclusions (S2: DR → ATT $\beta = .768$, $p < .001$; RC → ATT $\beta = .074$, $p = .291$; RC → PBC $\beta = .416$, $p < .001$). Third, removing the error covariances GOB1–GOB3 and PBC2–PBC4 changed the M2 path coefficients by less than .03 (S3). The association between Digital Readiness and Attitude is therefore not an artifact of overlapping item content.

4.4. Indirect Effects and Response to the Research Question

Table 7 reports the standardized indirect effects in the final model. Digital Readiness was related to Intention through both Attitude (.378, 95% BC CI [.230, .588]) and PBC (.190, [.050, .381]), yielding a total indirect effect of .568 ([.308, .834]). Responsible Consumption was related to Intention through PBC (.186, [.037, .357]) but not through Attitude (.037, [−.113, .182]), and its total indirect effect on Intention was not significant (.223, [−.088, .496]). The contrast between the total indirect effects of DR and RC on Intention was, however, also not significant (.346, [−.185, .898]), so the larger effect of Digital Readiness should not be overstated.

For Green Office Behavior, the total indirect effect of Digital Readiness was .486 ([.225, .746]), whereas that of Responsible Consumption was .276 and did not reach significance ([−.017, .560]); again, the contrast between them was not significant (.210, [−.323, .759]). Attitude (.290, [.127, .491]) and PBC (.273, [.131, .910]) were both related to behavior through Intention, whereas the indirect effect of Environmental Awareness was not significant (.055, [−.012, .178]). For comparison, in the hypothesized model, the indirect effects of RC through Attitude (.341, [.210, .515]) and of DR through PBC (.334, [.212, .486]) on Intention were of almost identical size (contrast = .007, [−.223, .270]).

This work is licensed under a Creative Commons Attribution 4.0 International License.

E-ISSN : 2549-3280 P-ISSN : 2549-5933
INTEGRATED JOURNAL OF BUSINESS AND ECONOMICS
Email: ijbe.feubb@gmail.com
http://ojs.ijbe-research.com/index.php/IJBE/index

Table 7. Standardized Indirect Effects in the Final Model (M2)

Indirect Relationship	Effect	95% BC Lower	95% BC Upper	Result
RC → ATT → INT	.037	−.113	.182	Not significant
RC → PBC → INT	.186	.037	.357	Significant
RC → INT, total indirect	.223	−.088	.496	Not significant
DR → ATT → INT	.378	.230	.588	Significant
DR → PBC → INT	.190	.050	.381	Significant
DR → INT, total indirect	.568	.308	.834	Significant
Contrast: DR − RC, total indirect on INT	.346	−.185	.898	Not significant
RC → GOB, total indirect	.276	−.017	.560	Not significant
DR → GOB, total indirect	.486	.225	.746	Significant
Contrast: DR − RC, total indirect on GOB	.210	−.323	.759	Not significant
ATT → INT → GOB	.290	.127	.491	Significant
PBC → INT → GOB	.273	.131	.910	Significant
EA → INT → GOB	.055	−.012	.178	Not significant

Note: Standardized effects with bias-corrected (BC) confidence intervals from 5,000 bootstrap resamples. Total indirect effects on GOB include the routes through PBC → GOB. Wide upper bounds for effects involving INT → GOB reflect collinearity between INT and PBC.

Overall, the findings answer the research question, but not in the hypothesized form. Responsible Consumption and Digital Readiness are distinct but related antecedents that connect the green and digital transitions through interwoven rather than separate pathways: Digital Readiness was associated with both Attitude and PBC, whereas Responsible Consumption was associated mainly with PBC. Both appraisals contributed to Intention, which was the most robust predictor of Green Office Behavior.

4.5. Discussion

The central finding of this study is that the green and digital transitions are connected through the everyday appraisals of campus users, but in a more integrated way than hypothesized. Responsible consumption and digital readiness were distinct constructs (r = .557 in the measurement model), yet they did not map onto separate appraisals. Contrary to H2, digital readiness rather than responsible consumption was the main correlate of attitude toward Green Office practices, and both antecedents contributed to perceived behavioral control. The hypothesized differentiated model fit poorly, and its high RC–DR correlation (.824) proved to be a by-product of restricting each antecedent to a single appraisal. The Green–Digital Nexus is therefore better described as interwoven: digital capability shapes both whether Green Office practices are valued and whether they appear feasible, while environmental responsibility contributes primarily to the sense that such practices are manageable. At the organizational level, this nexus represents the behavioral

This work is licensed under a Creative Commons Attribution 4.0 International License.

E-ISSN : 2549-3280 P-ISSN : 2549-5933
INTEGRATED JOURNAL OF BUSINESS AND ECONOMICS
Email: ijbe.feubb@gmail.com
http://ojs.ijbe-research.com/index.php/IJBE/index

microfoundations through which sustainability strategies and digital transformation become embedded in institutional routines (Tabares et al., 2025; Trevisan et al., 2024).

Why would digital readiness shape attitude? A plausible explanation lies in the nature of Green Office practices on a digitally transforming campus. Many of these practices, such as submitting documents electronically, completing approvals online, or replacing printed materials, are digital practices whose environmental benefit is realized through technology use. Users who are comfortable with digital systems are therefore more likely to experience these practices as convenient and beneficial and to evaluate them favorably, whereas users with lower digital readiness may associate them with effort and uncertainty. This pattern is consistent with the decomposed TPB, in which attitude rests partly on technology-related beliefs such as perceived ease of use and compatibility (Taylor & Todd, 1995b), and with research on green information systems showing that technology-readiness dimensions such as optimism and discomfort shape users' responses to environmentally oriented systems (Gopinathan et al., 2025). In digitally mediated sustainability behavior, the evaluative and capability-based components of the TPB may therefore share a common technological antecedent.

Responsible consumption, in turn, was associated with perceived behavioral control rather than with attitude. Because the responsible-consumption items largely describe existing resource-saving routines, such as using paper only when necessary and reusing items, this result suggests that individuals who already practice such routines feel more capable of performing similar practices on campus. This is consistent with Ajzen's (1991) argument that perceived behavioral control reflects past experience as well as anticipated obstacles. Responsible consumption may thus contribute to the Green–Digital Nexus less as a source of evaluative motivation than as accumulated practical competence. Its total indirect effect on intention was not significant, however, and its difference from the effect of digital readiness was also not significant, so the relative importance of the two antecedents should not be overstated. The finding complements Stuckrath et al. (2026), who demonstrate that campus interventions create opportunities for sustainable practice but still depend on users' evaluations and perceived capacity, and Rūtelionė et al. (2026) and Luo et al. (2025), whose findings indicate that institutional initiatives and environmental education operate through more proximal psychological evaluations.

The translation of intention into behavior was robust: intention had the strongest association with Green Office behavior ($\beta = .598$ in the final model), confirming that deliberate commitment remains central to sustained campus practice. The direct association between perceived behavioral control and behavior ($\beta = .351$) was significant under normal-theory estimation but not robust in the bootstrap analysis, because intention and perceived behavioral control were highly correlated and competed as predictors of behavior. The evidence therefore supports a route from perceived control to behavior through intention more clearly than an additional direct implementation route. Digital systems may nonetheless make sustainable routines easier to enact, provided that their design, accessibility, and use genuinely replace resource-intensive procedures rather than duplicate them (Trevisan et al., 2024). Campus technologies may also influence participation by making particular practices more visible, accessible, and normalized (Zeb et al., 2026). The difference from Gopinathan

This work is licensed under a Creative Commons Attribution 4.0 International License.

et al. (2025), who found that perceived behavioral control did not predict Green Information System intention, may indicate that control becomes more consequential when sustainability involves interconnected digital and physical routines rather than the adoption of a single system.

A further finding is the limited conversion of general environmental awareness into intention. Environmental awareness had only a small direct association with intention in the hypothesized model (β = .118), which was not robust in the bootstrap analysis and was not significant in the final model (β = .091); its indirect effect on Green Office behavior was also not significant. A competing model suggested that awareness may relate to intention mainly through perceived behavioral control. Awareness is therefore a relevant starting point, but it is insufficient as an organizational intervention when sustainable alternatives remain inconvenient, unclear, or difficult to perform. For managers, this finding questions the effectiveness of relying primarily on seminars, posters, or general environmental campaigns. Such activities can communicate institutional values, but their behavioral value depends on whether they are reinforced by clear procedures, accessible facilities, usable digital services, and immediate operational support. This does not diminish the importance of environmental education. Instead, education becomes more meaningful when it strengthens favorable evaluations and is integrated with systems that allow users to act on what they know, consistent with the heterogeneous educational effects reported by Luo et al. (2025).

The Green–Digital Nexus consequently carries a direct organizational implication: sustainability management and digital transformation should not be governed as separate portfolios. Green objectives need to be embedded in the design of administrative, academic, and service processes, while digital initiatives should be evaluated partly by their contribution to resource reduction. Examples include end-to-end paperless procedures, electronic submission as the default option, transparent feedback on resource use, and digital guidance connected to waste and energy infrastructure. Campus Living Lab approaches can support this alignment by involving users in identifying barriers and redesigning the routines through which policy becomes practice (Stuckrath et al., 2025). More broadly, the findings support a whole-institution approach in which governance, learning, information technology, facilities, and daily operations reinforce one another (Holst et al., 2024). The twin transition becomes organizationally meaningful when sustainability is perceived as worth pursuing and institutional arrangements make it realistically possible to perform.

4.6. Implications and Significance of the Findings

Theoretically, this study offers a behavioral explanation of how the green and digital transitions become connected within an organization. Twin-transition research commonly treats sustainability and digitalization as strategic priorities or organizational capabilities. The present findings identify the individual-level appraisals through which these strategies enter daily practice and show that, contrary to a simple division of labor between environmental values and digital skills, digital readiness informs both the perceived desirability and the perceived feasibility of Green Office practices, whereas responsible consumption contributes mainly to perceived feasibility. This refines belief-based elaborations of the TPB: consistent with the decomposed TPB, in which technology-related

This work is licensed under a Creative Commons Attribution 4.0 International License.

beliefs underlie both attitudinal and control components (Taylor & Todd, 1995b), the results suggest that in digitally mediated sustainability behavior, a single digital antecedent can shape several TPB components at once. The Green–Digital Nexus therefore refers to the interweaving of related but distinct environmental and digital orientations, rather than to separate or interchangeable pathways.

Managerially, the results suggest that strengthening users' digital readiness may be one of the most effective levers for Green Office behavior, because it is associated with both favorable evaluations and perceived control. Training, user-friendly paperless procedures, accessible platforms, and timely user support can make Green Office practices both more attractive and more manageable. Responsible-consumption habits, in turn, appear to build confidence in performing related practices, which suggests that campaigns should translate environmental values into concrete, repeatable routines rather than relying on appeals alone. Awareness-building remains valuable, but its limited conversion into behavior indicates that information alone is unlikely to sustain change. Conversely, digitalization should not be promoted solely as an efficiency initiative. Managers should specify how each digital process is expected to reduce paper, duplicated work, energy use, disposable materials, or administrative waste. This connection makes the environmental purpose of digital change visible and allows users to understand how routine choices contribute to institutional objectives.

At the organizational level, implementation requires coordination among sustainability units, information-technology teams, academic departments, administrative managers, facility managers, and campus users. Joint targets can connect the adoption of digital services with measurable reductions in material and energy use. Process reviews should also identify whether digital procedures fully replace manual routines or merely add another administrative layer. Campus Living Labs provide a practical mechanism for testing integrated interventions, identifying user difficulties, and refining systems before institution-wide implementation. Such participation is also important for preventing digital exclusion and ensuring that changes remain accessible to users with different levels of competence.

More broadly, the findings caution against both environmental idealism and technological determinism. Sustainable organizational transformation cannot rely solely on ecological commitment, but a process does not automatically become green merely because it is digital. Meaningful transformation occurs when organizational values, user capability, managerial coordination, and enabling infrastructure reinforce one another. The significance of the Green–Digital Nexus lies in this organizational understanding: on a digitally transforming campus, digital capability shapes whether sustainable practices are valued and feasible, while environmental responsibility and institutional support provide the routines through which they become sustained practice.

5. Conclusion and Suggestion

5.1. Conclusion

This study examined how the green and digital transitions become connected through the behavioral processes underlying Green Office behavior in higher education. The

This work is licensed under a Creative Commons Attribution 4.0 International License.

E-ISSN : 2549-3280 P-ISSN : 2549-5933
INTEGRATED JOURNAL OF BUSINESS AND ECONOMICS
Email: ijbe.feubb@gmail.com
http://ojs.ijbe-research.com/index.php/IJBE/index

hypothesized differentiated structure, in which responsible consumption shapes attitude and digital readiness shapes perceived behavioral control, was not supported: it fit the data poorly, and a competing model showed that digital readiness was associated with both attitude and perceived behavioral control, whereas responsible consumption was associated mainly with perceived behavioral control. The findings therefore support an interwoven Green–Digital Nexus in which digital capability makes Green Office practices appear both worthwhile and feasible, and environmental responsibility contributes primarily to their perceived feasibility.

Intention was the most robust predictor of Green Office behavior, and both attitude and perceived behavioral control contributed to intention. The additional direct association between perceived behavioral control and behavior was not robust, so its implementation role should be interpreted cautiously. Environmental awareness was not significantly associated with intention in the final model, suggesting that awareness alone is insufficient unless users also value the relevant practices, perceive themselves as capable of performing them, and encounter institutional arrangements that support their implementation.

These findings extend the twin-transition perspective from strategic and organizational agendas to the behavioral processes through which those agendas enter everyday campus operations. They also indicate that universities should coordinate sustainability management and digital transformation within the same institutional architecture. Environmental communication, paperless procedures, digital services, waste-management systems, energy-conservation practices, and user support should be designed as mutually reinforcing components rather than separate initiatives. The Green–Digital Nexus becomes organizationally meaningful when environmental responsibility provides a clear direction for change and institutional and digital capabilities make that direction realistically achievable.

5.2. Limitations and Future Research

Several limitations delimit these conclusions. First, the evidence was obtained from 387 respondents at one vocational higher education institution, and students formed the largest respondent group. Because role information could not be incorporated into the structural analysis, differences between students, lecturers, administrative employees, and unit managers could not be tested, and the findings should be generalized cautiously. Second, all constructs, including behavior, were measured through a single self-reported survey at one point in time. This design does not establish temporal causality, may inflate the intention–behavior association and the high explained variance, and is vulnerable to common method variance; the common latent factor test indicated substantial shared variance, particularly for the responsible-consumption items. Self-reported Green Office behavior may also not correspond to actual reductions in paper, waste, or energy consumption. Third, the final model was identified through comparison with competing specifications after the hypothesized model fit poorly; although the competing paths were theoretically motivated and robust across sensitivity analyses, they require confirmation in independent samples. Fourth, subjective norm was not included; because colleagues, supervisors, and institutional expectations can shape workplace pro-environmental behavior (Greaves et al., 2013), its omission may have inflated the estimated effects of attitude and PBC. Fifth, several responsible-consumption and digital-readiness items shared content with Green Office

This work is licensed under a Creative Commons Attribution 4.0 International License.

practices, the Fornell–Larcker criterion was not met for some adjacent TPB constructs, and the direct association between PBC and behavior was not robust to bootstrapping. Future studies should measure responsible consumption as a general orientation and digital readiness with the full Technology Readiness Index (Parasuraman, 2000), and should model Green Office behavior at the level of specific practices.

Future studies should test the model across multiple campuses, institutional types, and cultural settings, compare student and staff groups, and include subjective norm alongside the proposed antecedents. Longitudinal, time-lagged, or experimental designs could clarify how changes in responsible consumption, digital readiness, and organizational support are related to Green Office behavior over time. Linking survey responses, at least for a subsample, to objective records such as printing logs, electronic submission data, waste audits, or unit-level electricity consumption would connect the proposed behavioral mechanisms with measurable environmental outcomes and reduce reliance on self-reports. Such evidence would provide a stronger basis for understanding how universities can transform parallel green and digital ambitions into integrated and sustained institutional practice.

Acknowledgement

This research was funded under the Green Campus Research Scheme 2026.

Conflict of Interest Statement

On behalf of all authors, the corresponding author states that there is no conflict of interest.

References

1. Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, *50*(2), 179–211. https://doi.org/10.1016/0749-5978(91)90020-T
2. Anderson, J. C., & Gerbing, D. W. (1988). Structural equation modeling in practice: A review and recommended two-step approach. *Psychological Bulletin*, *103*(3), 411–423. https://doi.org/10.1037/0033-2909.103.3.411
3. Armitage, C. J., & Conner, M. (2001). Efficacy of the theory of planned behaviour: A meta-analytic review. *British Journal of Social Psychology*, *40*(4), 471–499. https://doi.org/10.1348/014466601164939
4. Blok, V., Wesselink, R., Studynka, O., & Kemp, R. (2015). Encouraging sustainability in the workplace: A survey on the pro-environmental behaviour of university employees. *Journal of Cleaner Production*, *106*, 55–67. https://doi.org/10.1016/j.jclepro.2014.07.063
5. Bollen, K. A., & Stine, R. A. (1992). Bootstrapping goodness-of-fit measures in structural equation models. *Sociological Methods & Research*, *21*(2), 205–229. https://doi.org/10.1177/0049124192021002004
6. Brislin, R. W. (1970). Back-translation for cross-cultural research. *Journal of Cross-Cultural Psychology*, *1*(3), 185–216. https://doi.org/10.1177/135910457000100301

This work is licensed under a Creative Commons Attribution 4.0 International License.

7. Byrne, B. M. (2016). *Structural equation modeling with AMOS: Basic concepts, applications, and programming* (3rd ed.). Routledge.
8. Chounta, I.-A., Ortega-Arranz, A., Daskalaki, S., Dimitriadis, Y., & Avouris, N. (2024). Toward a data-informed framework for the assessment of digital readiness of higher education institutions. *International Journal of Educational Technology in Higher Education*, *21*, Article 59. https://doi.org/10.1186/s41239-024-00491-0
9. Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, *18*(1), 39–50. https://doi.org/10.1177/002224378101800104
10. Gopinathan, S., Veeraya, S., Raman, M., & Jambulingam, M. (2025). Role of behavioral intention in implementation of green information systems among Malaysians. *Discover Sustainability*, *6*, Article 139. https://doi.org/10.1007/s43621-025-00873-y
11. Greaves, M., Zibarras, L. D., & Stride, C. (2013). Using the theory of planned behavior to explore environmental behavioral intentions in the workplace. *Journal of Environmental Psychology*, *34*, 109–120. https://doi.org/10.1016/j.jenvp.2013.02.003
12. Gunawan, A. I., Monoarfa, H., Gaffar, V., Suhartanto, D., & Amalia, F. A. (2024). Reviving household behavior toward waste: Driven factors of responsible consumption. *Journal of the Knowledge Economy*, *16*(3), 13643–13666. https://doi.org/10.1007/s13132-024-02424-8
13. Gunawan, A. I., Hurriyati, R., Wibowo, L. A., & Monoarfa, H. (2025). Consumers in responsible consumption: What leads to sustainable behavior? *Urbanization, Sustainability and Society*, *2*(1), 257–281. https://doi.org/10.1108/USS-09-2024-0056
14. Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2019). *Multivariate data analysis* (8th ed.). Cengage.
15. Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science*, *43*(1), 115–135. https://doi.org/10.1007/s11747-014-0403-8
16. Holst, J., Grund, J., & Brock, A. (2024). Whole institution approach: Measurable and highly effective in empowering learners and educators for sustainability. *Sustainability Science*, *19*(4), 1359–1376. https://doi.org/10.1007/s11625-024-01506-5
17. Hu, L.-T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, *6*(1), 1–55. https://doi.org/10.1080/10705519909540118
18. Igolkina, A. A., & Meshcheryakov, G. (2020). semopy: A Python package for structural equation modeling. *Structural Equation Modeling: A Multidisciplinary Journal*, *27*(6), 952–963. https://doi.org/10.1080/10705511.2019.1704289
19. Kline, R. B. (2023). *Principles and practice of structural equation modeling* (5th ed.). Guilford Press.
20. Li, H., Appel-Meulenbroek, R., Arentze, T. A., & Hoes, P.-J. (2026). Conceptualizing sustainable occupant behaviour in offices from an interdisciplinary point of view: A

This work is licensed under a Creative Commons Attribution 4.0 International License.

systematic review. *Energy and Built Environment*, *7*(1), 66–81. https://doi.org/10.1016/j.enbenv.2024.08.004

21. Luo, L., Yang, Q., Qiao, D., Cao, Y., Ding, J., Ma, H., & Wei, J. (2025). How does environmental education affect college students' waste sorting behavior: A heterogeneity analysis based on educational background. *Journal of Environmental Management*, *389*, Article 126064. https://doi.org/10.1016/j.jenvman.2025.126064
22. Parasuraman, A. (2000). Technology Readiness Index (TRI): A multiple-item scale to measure readiness to embrace new technologies. *Journal of Service Research*, *2*(4), 307–320. https://doi.org/10.1177/109467050024001
23. Podsakoff, P. M., MacKenzie, S. B., Lee, J.-Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, *88*(5), 879–903. https://doi.org/10.1037/0021-9010.88.5.879
24. Purwianti, L., Ariyanto, H. H., Winata, K., & Changbo, L. (2025). Reinforcing green consumption intentions: Attitudes as a mediator and the role of environmental concerns, lifestyles, social media, and subjective norms. *IJBE (Integrated Journal of Business and Economics)*, *9*(4), 681–699. https://doi.org/10.33019/ijbe.v9i4.1275
25. Rūtelionė, A., Bhutto, M. Y., & Miceikienė, A. (2026). Green university initiatives and environmental self-identity: Waste sorting in Baltic higher education. *International Journal of Sustainability in Higher Education*, *27*(3), 752–770. https://doi.org/10.1108/IJSHE-02-2024-0133
26. Salim, L., & Yulia, V. (2025). Determinants of household intention to reduce food waste in the Jabodetabek region. *IJBE (Integrated Journal of Business and Economics)*, *9*(4), 594–611. https://doi.org/10.33019/ijbe.v9i4.1183
27. Stuckrath, C., Rosales-Carreón, J., & Worrell, E. (2025). Conceptualisation of Campus Living Labs for the sustainability transition: An integrative literature review. *Environmental Development*, *54*, Article 101143. https://doi.org/10.1016/j.envdev.2025.101143
28. Stuckrath, C., Chappin, M. M. H., & Worrell, E. (2026). Engaging campusians for sustainability: A Campus Living Lab experiment on waste sorting behaviour in university offices. *Cleaner Waste Systems*, *14*, Article 100533. https://doi.org/10.1016/j.clwas.2026.100533
29. Tabares, S., Parida, V., & Chirumalla, K. (2025). Twin transition in industrial organizations: Conceptualization, implementation framework, and research agenda. *Technological Forecasting and Social Change*, *213*, Article 123995. https://doi.org/10.1016/j.techfore.2025.123995
30. Taylor, S., & Todd, P. (1995a). Understanding household garbage reduction behavior: A test of an integrated model. *Journal of Public Policy & Marketing*, *14*(2), 192–204. https://doi.org/10.1177/074391569501400202
31. Taylor, S., & Todd, P. A. (1995b). Understanding information technology usage: A test of competing models. *Information Systems Research*, *6*(2), 144–176. https://doi.org/10.1287/isre.6.2.144

This work is licensed under a Creative Commons Attribution 4.0 International License.

32. Trevisan, L. V., Eustachio, J. H. P. P., Dias, B. G., Leal Filho, W., & Pedrozo, E. Á. (2024). Digital transformation towards sustainability in higher education: State-of-the-art and future research insights. *Environment, Development and Sustainability*, *26*(2), 2789–2810. https://doi.org/10.1007/s10668-022-02874-7
33. United Nations Environment Programme. (2024). *Global waste management outlook 2024: Beyond an age of waste—Turning rubbish into a resource*. United Nations Environment Programme. https://www.unep.org/resources/global-waste-management-outlook-2024
34. Zeb, I., Khan, A., & Song, Y. (2026). Universities as living lab: International students' perspectives on digital environmental governance—A qualitative case study. *International Journal of Sustainability in Higher Education*. Advance online publication. https://doi.org/10.1108/IJSHE-01-2026-0123
35. Zhang, B., Lai, K.-H., Wang, B., & Wang, Z. (2019). From intention to action: How do personal attitudes, facilities accessibility, and government stimulus matter for household waste sorting? *Journal of Environmental Management*, *233*, 447–458. https://doi.org/10.1016/j.jenvman.2018.12.059
36. Zhang, Y., Fu, B., Maani, S., & Wen, L. (2024). Employee energy-saving behaviors: Review of theories, influencing factors, and interventions. *Renewable and Sustainable Energy Reviews*, *203*, Article 114766. https://doi.org/10.1016/j.rser.2024.114766

Appendix A. Indonesian Questionnaire Items

Table A1. Indonesian Questionnaire Items

Code	Indonesian Item Administered
EA1	Saya menyadari bahwa aktivitas sehari-hari dapat memengaruhi lingkungan.
EA2	Saya memahami bahwa menghemat energi penting bagi lingkungan.
EA3	Saya menyadari bahwa penggunaan kertas secara berlebihan berdampak negatif terhadap lingkungan.
RC1	Saya menggunakan kertas hanya ketika benar-benar diperlukan.
RC2	Saya berusaha menggunakan kembali barang yang masih layak pakai.
RC3	Saya menghindari produk sekali pakai apabila tersedia alternatif yang dapat digunakan ulang.
RC4	Saya berusaha mengurangi penggunaan sumber daya yang tidak perlu di kampus.
DR1	Saya dapat menggunakan sistem digital tanpa kesulitan yang berarti.
DR2	Saya lebih menyukai dokumen digital daripada dokumen cetak.
DR3	Saya mampu memanfaatkan teknologi untuk praktik ramah lingkungan.
DR4	Saya merasa nyaman menggunakan aplikasi digital dalam aktivitas sehari-hari.
ATT1	Berperilaku bertanggung jawab terhadap lingkungan merupakan hal yang baik.
ATT2	Praktik Green memberikan manfaat bagi warga kampus.
ATT3	Saya menghargai kegiatan administrasi yang dapat diselesaikan tanpa kertas.
ATT4	Praktik Green berkontribusi pada lingkungan kampus yang lebih nyaman.

This work is licensed under a Creative Commons Attribution 4.0 International License.

E-ISSN : 2549-3280 P-ISSN : 2549-5933
INTEGRATED JOURNAL OF BUSINESS AND ECONOMICS
Email: ijbe.feubb@gmail.com
http://ojs.ijbe-research.com/index.php/IJBE/index

Code	Indonesian Item Administered
PBC1	Saya mampu mengurangi penggunaan kertas dalam aktivitas saya di kampus.
PBC2	Saya mampu memilah sampah sesuai dengan kategorinya.
PBC3	Saya dapat mengurangi penggunaan listrik yang tidak perlu selama berada di kampus.
PBC4	Menerapkan praktik Green di kampus merupakan hal yang dapat saya lakukan.
INT1	Saya berniat mengutamakan dokumen digital dan mengurangi penggunaan kertas.
INT2	Saya berniat mengurangi plastik sekali pakai dengan memilih alternatif yang dapat digunakan ulang.
INT3	Saya berniat memilah dan membuang sampah sesuai dengan kategorinya.
INT4	Saya berniat mematikan listrik ketika sudah tidak diperlukan.
GOB1	Saya mematikan lampu ketika ruangan tidak digunakan.
GOB2	Saya mematikan AC atau peralatan elektronik setelah digunakan.
GOB3	Saya menggunakan dokumen digital alih-alih mencetak apabila memungkinkan.
GOB4	Saya membuang sampah sesuai dengan kategorinya.
GOB5	Saya mengurangi penggunaan plastik sekali pakai di kampus.

Source: Research questionnaire (2026).

This work is licensed under a Creative Commons Attribution 4.0 International License.