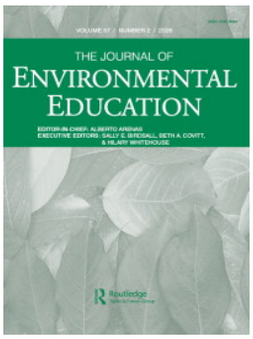

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RESEARCH ARTICLE

Disrupted sustainability? - Students' environmental practices from home to campus

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ABSTRACT

This study examines the disconnect between universities' sustainability initiatives and students' everyday environmental practices. Through qualitative interviews, we explore how environmental habits formed during youth are disrupted by barriers encountered in university settings. The transition from home to campus provides an important "window of opportunity" for promoting and reinforcing environmental habits, yet institutions often fail to support this critical period of behavioral adaptation. Participants reported inconsistent recycling systems, widespread single-use plastics in dining services, and limited support for sustainable living, leading many to discard prior sustainability practices. While some students maintained environmentally responsible behaviors through personal ethics or peer networks, most described a persistent gap between intention and action. This divide reveals habit discontinuity from home to campus. It also illustrates a misalignment between institutional sustainability goals and students' lived experiences, creating frictions that undermine universities' stated commitment to sustainability. We argue that fostering environmental practices requires supportive micro-level infrastructures that make sustainable choices accessible, convenient, and consistent with institutional values.

KEYWORDS

habit discontinuity; environmental behaviors; early-adulthood transitions; sustainable practices

Introduction

Established in 2006, the American College & University Presidents' Climate Commitment (ACUPCC) was a collective initiative by higher education institutions (HEI) to eliminate net greenhouse gas emissions from campus operations while focusing on sustainability perspectives in education and research. HEIs aimed to lead by example, empowering students and society to adopt similar practices. These efforts contributed to a portfolio of environmental behavior, defined as strategies and actions that minimize human impact on the environment, and helped shift sustainability from isolated programs to strategic priorities (Dyer & Dyer, 2017). With growing global interest in environmental issues, HEIs have expanded their commitment to greener campuses (Berchin et al., 2021) and measure sustainability performance using ranking systems (Horan & O'Regan, 2021). These rankings are public and available to students choosing where to pursue their studies.

Given universities' public commitment to environmental practices, HEI campuses offer an ideal context for studying students' micro-level environmental behaviors—individual actions that can either complement or disrupt institutional goals. As the largest cohort within universities, students' behaviors sit adjacent to macro- and meso-level initiatives. This research focuses on the acquisition, continuation, or ending of micro-level behaviors (e.g., reusing, reducing, recycling, sustainable consumption) on the campus of an ACUPCC-participating HEI, analyzing how prior habits from home and high school evolve

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in response to the college environment in context of habit continuity. Our approach provides a comprehensive view of students' experiences as they adjust to campus life, considering macro-level influences (e.g., curricular innovations, sustainability messaging) and meso-level factors (e.g., dorm infrastructure, waste systems, energy and water conservation) that interact with individual behaviors.

To understand whether environmental practices are strengthened or diminished as students transition from home to college life, we use a case study of students at a well-known private university ranked highly on environmental metrics. Given the visibility of this university's initiatives, we investigate whether its sustainability policies trickle down to students' daily activities. Rather than focusing on macro-level institutional changes, we examine individual environmental behaviors, on a campus committed to ACUPCC, to assess whether students' habits support or undercut the goals of top-ranked institutions.

We examine individual-level environmental practices and habits that students bring with them from their youth and how these features either persist or change as they transition to adulthood. University students represent a unique context in which an individual moves from living at home and attending high school, where they are often influenced by the role models of teachers and families, to a more independent lifestyle at university. This research thus adopts a dynamic, life-stage approach to examine students' environmental behaviors, considering their prior habits, knowledge and resources in this domain.

This approach allows us to explore the interplay between individual agency and institutional influence, where students both reside and engage academically. By analyzing students' experiences at home, in high school, and on campus, we identify and highlight how different contexts shape the evolution of environmental behaviors over time. The move to university is not just a moment of behavioral disruption; it is a strategic inflection point where targeted interventions can foster lasting habits. This dual framing of student resources and knowledge in tandem with the behavioral disruption inflection point sets this study apart by emphasizing both the psychological underpinnings of behavior and the temporal opportunities for change.

This research focuses on students' environmental behaviors within higher education institutions (HEIs) that promotes sustainability, both in their curricula and campus infrastructures. It asks explicitly: Do students at HEIs actively engage in environmental behaviors? How do their prior habits influence their current actions, and is there a habit continuation or discontinuation of these behaviors once they become more independent? Furthermore, how do campus infrastructure and institutional policies encourage or inhibit these practices?

Literature review

Despite widespread institutional commitment to improving the environment, college students continue to report high levels of waste generation on campus (Buono, 2022; Fang, 2023; Vasquez, 2024). This seems counterintuitive, given that higher education institutions have made significant macro- and meso-level commitments to environmental practices, including curriculum offerings and institutional policies. Students in HEIs are also more likely to gain environmental knowledge over time (Balcerak & Woźniak, 2022; Michel & Zwickle, 2021), and individuals with more education tend to report greater environmentally-friendly behaviors (Kountouris & Remoundou, 2023; Meyer, 2015), while Generation Z, currently the largest HEI cohort, is noted for holding some of the strongest environmental values compared to previous generations (Mohr & Mohr, 2017; Sarode & Gandi, 2024). Research indicates that they are more likely to hold strong beliefs about sustainability and are increasingly exposed to social contexts that reinforce these values (Hidayat & Hidayat, 2020; Prayag et al., 2025), challenging persistent narratives of high waste across universities.

Unlike institutional policies that shape research agendas, building materials, and educational programs, micro-level behaviors depend on students' voluntary choices and daily habits, such as turning off lights, shortening showers, choosing sustainable meals, avoiding single-use packaging, recycling, and walking instead of driving. Yet, the lack of observed individual-level behaviors suggests that improved sustainability knowledge or strong values may not reliably predict action.

The gap between beliefs and behaviors is well-documented. Bamberg (2003) found that environmental attitudes and values do not necessarily result in consistent environmental actions. Specifically, they showed

that students who completed an environmental study course reported significantly higher environmental concern than peers who had not, but they showed no statistically significant differences in actual behaviors. Similarly, van Valkengoed and colleagues (2022) note that individuals who value environmental behaviors may not act accordingly due to psychological barriers, such as perceived inconvenience, high costs, or competing priorities. The greater the perceived personal cost of an action, the less likely individuals are to act in line with their values. These and other studies indicate that a wedge may exist between individuals' expressed beliefs and ultimate actions, bringing into question environmental beliefs' role as a primary influence on environmental behaviors (Janmaimool & Khajohnmanee, 2019).

Ajzen and Fishbein's (1980) classic Theory of Planned Behavior (TPB) offers one framework for understanding the discrepancy between environmental attitudes and actual behaviors. TPB posits that behavior is shaped by three key spheres of influence: (1) individual beliefs, (2) social norms, and (3) perceived behavioral control. When applied to students transitioning from home to university, TPB helps explain the (dis)connect between environmental preferences and reported behaviors that may emerge, particularly in relation to perceived behavioral control.

To deepen our theoretical framing, we draw on the Habit Discontinuity Hypothesis (HDH) proposed by Verplanken et al. (2008), who suggest that life transitions, such as starting university and leaving home for campus living, create windows for reshaping routines and disrupting daily habits. When students leave home for college, they experience a contextual shift that may temporarily weaken behaviors developed at home, offering opportunities for habit change. By integrating HDH with the Theory of Planned Behavior (TPB), we propose that the university transition demands specific resources and enabling interventions that support, or interrupt habits formed earlier.

Students often arrive with environmental beliefs shaped by family, educators, and peers, with role models like parents and teachers playing formative roles (Greenspan et al., 2022; Grønhøj & Thøgersen, 2017; Marrese et al., 2024). For example, Schelly et al. (2012) show that high school energy initiatives foster sustainable behavior, while Liang et al. (2022) found that teachers influence students' waste habits. These influences continue at university, where faculty and administrators shape behavior through visible support and messaging (Akhtar et al., 2022), and peer modeling from friends and roommates can reinforce or diminish habits. Wang et al. (2021) found that neighborhood observation and copying peers drive adult environmental behavior, suggesting similar dynamics operate in campus communities.

Perceived behavioral control, as defined by TPB, refers to the perceived ease or difficulty of performing behaviors (Ajzen & Fishbein, 1980). In the context of sustainability, TPB includes whether students feel they have the time, money, and capability to act in environmentally responsible ways. The perceived lack of resources is a critical factor exacerbating the gap between environmental beliefs and actual behaviors. Correia et al. (2021) find that students' access to resources strongly correlated with their sustainable actions. Handy et al. (2021) note that younger generations often report a decline in sustainable practices due to the effort and inconvenience involved. Perrault and Clark (2018) reported that 30.8% of students viewed sustainable practices as a hassle, with inconvenience and financial cost cited as top barriers.

Meyer (2015) notes that financial strain can discourage even environmentally motivated individuals from engaging in costly environmental behaviors. This may include direct costs (e.g., buying green products) and opportunity costs (e.g., time required to recycle or compost). Greenspan and colleagues (2022) found that younger individuals cited financial constraints as a reason for abandoning sustainability practices that older generations practiced. Kollmuss and Agyeman (2002) examined a range of theoretical frameworks to explain the gap between knowledge and environmental behaviors among undergraduates at a US liberal arts university. Their findings validate internal factors such as awareness and attitudes, and macro-level factors such as institutional and societal contexts. They also emphasized that behavioral control factors must be included, particularly economic factors such as the costs and benefits of engaging in environmental behaviors.

In contrast to the studies above, some scholars have found that students in environmentally focused majors, courses, or extracurriculars are more likely to engage in sustainable practices (Chuvieco et al., 2018; Meyer, 2016; Pizmony-Levy, 2018), with Meyer (2016) noting increased engagement over time, even outside specific majors. However, the literature remains unclear on whether environmental behaviors begin, end, or are simply sustained during university, as none of these studies measure students' behaviors

or exposure prior to college. For instance, Asmuni et al. (2012) found that Malaysian students from rural backgrounds were more likely to recycle and conserve water, suggesting early contexts may be influential. This gap highlights the need for focused inquiry into whether students bring preexisting environmental habits to university that are reinforced rather than initiated by campus experiences.

Questions remain: Do environmental behaviors originate in the university setting, or are they shaped beforehand? Are students more likely to engage in sustainable practices upon arrival, or does behavior stagnate or decline? These unresolved questions form the basis of this exploratory study. By integrating two theoretical frameworks, TPB with the HDH, this article highlights the transformative potential of transitional life stages.

Focused on a single university campus, this study aims to investigate whether and how individual-level environmental behaviors on campus are shaped, what contextual factors influence students' environmental behaviors, and whether these behaviors undergo a change after students leave their homes and live independently while attending a university.

Materials and methods

Context

This study was conducted at University X, a U.S.-based institution with a strong public commitment to addressing climate change and advancing sustainability on campus. According to its official website, the university hosts 23 institutes, centers, and offices dedicated to engaging students and faculty in addressing environmental challenges. In 2023, University X was ranked highly in the World University Rankings for Sustainability. The campus additionally hosts a range of meso- and macro-level initiatives designed to reduce its carbon footprint and actively encourage student participation. The university integrates environmental education across disciplines through a comprehensive sustainability-focused curriculum. It provides green buildings, sustainability messaging, and student opportunities for immersive learning experiences to engage with community-based environmental initiatives. Given University X's demonstrated leadership in sustainability stewardship, its student body provides an ideal population for examining how living and working in such a campus environment shapes individual environmental behaviors.

Data collection

Qualitative data were collected from group interviews of 40 participants, following standard interviewing procedures (Fetterman, 2019). A total of six focus groups were run until data saturation was reached; three groups were composed of on-campus housing residents (23 people total) and three groups of off-campus housing residents (17 people total). Most on-campus housing residents were sophomores (with two first-years). Ten juniors and seven seniors comprised the off-campus groups. Each focus group contained five to eight participants, allowing each participant sufficient time to share their perspective. Participants were 75% female and 25% male, consisted of both American and international students, and covered a wide range of areas of study, including humanities, science, and business fields.

This study was conducted at a medium-sized university in the northeastern United States, where students are required to live in on-campus residences and use university dining plans for their first two years, after which many move to off-campus housing and discontinue the meal plan. This feature allowed us to observe changes in environmental behaviors between the structured on-campus period and later, more independent living off campus, and to explore the forces behind these shifts. For an overview of the sustainability infrastructures for on-and off-campus contexts, please see Table 1 in the Appendix.

Interviews, conducted both in person and online to accommodate attendee restrictions, lasted 60–75 min and were arranged by student research assistants using campus flyers; in-person participants were offered pizza. Using a semi-structured format, respondents answered open-ended questions about their environmental behaviors at home, in high school, and on campus, as well as the influence of family, schools, and living contexts. These questions focused on behavioral changes during the transition from high school to university and the factors influencing those changes.

Interviews were recorded and transcribed verbatim. Consistent with the grounded theory framework underpinning this qualitative study, data were analyzed using the methods of analytic induction and constant comparative analysis (Glaser & Strauss, 1967; Goetz & LeCompte, 1984) to identify emergent themes and recurring patterns within the interview transcripts (Fetterman, 2019). Two authors independently reviewed the transcripts, systematically coding the data to capture commonalities and variations across participant responses. Subsequently, they engaged in discussions to refine and reconcile the emergent codes, with particular attention to the identification of themes related to the research questions.

The data were organized into broad thematic categories to provide conceptual depth to the findings focused on campus-related environmental behaviors. These thematic categories were refined iteratively until all contradictions and variations were accounted for, enhancing the dependability and consistency of the findings. Once the thematic categories were finalized and the transcripts were coded, the two authors collaborated on data analysis, isolating commonly recurring themes from the transcript data in each category. Key quotes were then selected to demonstrate these findings.

Results

The results that emerged from the analysis provide a framework for understanding students' sustainable practices within an institutional environment. They offer insight into how students' sustainability practices are likely to change or continue as they adapt and respond to independent living and the influence of their living conditions during their time as university students.

Materials: infrastructures that enable and constrain sustainable action

When participants moved from high school to higher education, they found university recycling infrastructure varied greatly by housing. Some had organized, clearly labeled systems, while others faced poorly maintained setups. Challenges included transporting recycling long distances, dealing with overflowing or mixed bins, and a lack of composting options, which often discouraged consistent, sustainable behavior.

> Last year […] there was a trash chute on each floor, but the recycling wasn't […] So you had to go outside and actually put the recycling out. So I had to let a bunch of recycling accumulate. But I could also see how that might incentivize people to not recycle as much because it's more of a hassle. (On-Campus Resident 2, Focus Group 1, Female)

> I lived in the quad, and they only give you a recycle bin. And I wasn't going out and buying a trash can for myself. So I just used that as my trash can and didn't separate out recycling from trash. (On-Campus Resident 5, Focus Group 2, Male)

Interviewees often criticized university cafes and markets for promoting single-use plastics. With mandatory meal plans and busy schedules, students relied on to-go meals in plastic containers and bottled water, limiting their control over plastic use. The COVID-19 pandemic worsened this by increasing disposable use, and post-COVID, these containers persisted. Unlike high school, where students used reusable containers from home, university dining encouraged and provided single-use packaging.

> I feel like we just have less control over how our food is packaged or where we're eating, whereas at home, you just [eat] something on a plate and you have your fork. But here, it's like everything's plastic. (On-Campus Resident 4, Focus Group 3, Female)

> [At] the time of COVID. We didn't use any sort of dining hall cutlery. It was all Styrofoam boxes. And they did give out these recycled plastic Tupperware that we were supposed to use. But nobody ever [did] - it just wasn't enforceable to take it to your room in the quad, wash it out, then bring it back. Just nobody wanted to do that. (Off-Campus Resident 2, Focus Group 6, Female)

Participants said all-you-can-eat campus dining halls harmed their sustainable habits. Unlike at home, they could not store leftovers and often took more food than needed, causing waste. Some cited poor

food quality or staff's lack of portion control. With limited cooking and storage options in dorms, students relied heavily on dining halls, resulting in more food waste than in high school.

> I probably waste more food when I'm eating at a dining hall, because it's not like I'm spending money on those ingredients or anything. So I load up on stuff I think I want, and then it's not that good, and then I don't finish it. (On-Campus Resident 4, Focus Group 2, Female)

Interviewees also pointed out some ways in which the university had made successful efforts to encourage sustainability, with some mentioning the reusable utensils distributed at the beginning of the school year, the reusable to-go food container program, and the Goodwill bins put outside college houses during move-out.

> So last year, when I was moving out, it was like really nice when there were Goodwill bins [put out during the move-out period] because I do like donating to thrift stores and going to thrift stores. But I didn't have any way to haul my things. So I did appreciate when [University X] put those out. (On-Campus Resident 1, Focus Group 1, Female)

Interviewees noted a clear contrast between how environmental practices were promoted in high school versus university, contributing to a decline in students' environmental behaviors over time. While many students cared about sustainability, it wasn't a priority amid other demands. They believed the university not only lacked support for eco-friendly practices but also often made them more difficult to follow.

> You don't want to have to structure your life personally around trying to be environmentally conscious. And if [University X] facilitated… the ability to be environmentally conscious for the student body in an easier way, in a more impactful way, then the students would probably turn towards that… It's not the thing that they're thinking about every day. (On-Campus Resident 7, Focus Group 3, Female)

> This feeling that I get is especially true in the dining halls, the culture at [University X] just it's not conscious of environmental impact. And I think it's discouraging. As someone who's cared about this issue my whole life, coming here and seeing how little is being done has really discouraged me. And I think a lot of that, yes, it might rub off on the students. But I think a lot of it comes from the administration. (On-Campus Resident 1, Focus Group 3, Female)

Across both on- and off-campus settings, participants identified challenges in continuing recycling behaviors. Improper separation of recyclable trash was common, particularly where bins were unlabeled or recycling locations were unclear. Improper recycling by others compounded the issue, reducing motivation when students believed the bin was already too contaminated. Ultimately, many appeared to have given up on consistently recycling in their housing.

> Even if I want to recycle, I don't know how I would, because there's just one trash chute on the floor. So that's where the trash goes […] I don't know where I would put it [recyclables]. (On-Campus Resident 1, Focus Group 2, Male)

> So [my housing complex doesn't] have a specific, put your recycled goods in this bucket and then put your non-recyclable items in this bucket. It's all in one go. And so I personally don't see them enforcing anything remotely that would adhere to environmental sustainability. (Off-Campus Resident 3, Focus Group 6, Female)

Additionally, moving from structured environments, such as family homes or college houses, to independent living situations presented new obstacles. Without accountability or accessibility, participants found it harder to keep up with their previous recycling habits. The need to self-manage waste sorting usually led students to deprioritize sustainability in day-to-day life.

> I think for me, the absence of local initiatives and established systems of rules to follow– I think when I was growing up […] a lot more kind of pressure from local governments, and from my school, and like […] many more ways you could engage with these kinds of practices, whereas now […] it feels like there isn't that kind of same push. (Off-Campus Resident 1, Focus Group 4, Female)

> And I think that back home, it was just easier when you have your school enforcing [recycling] or your parents setting up the two trash bins [one for recyclables] for you. (Off-Campus Resident 3, Focus Group 5, Male)

Competencies: learning sustainability as a socialized skill

Participants said their families shaped their core environmental values. Parents encouraged habits like conserving energy and water, minding consumption, and reducing waste. Practices such as recycling, reusing, and eating less meat were common in many households, instilling a lasting sense of environmental responsibility. Verbal instructions were often accompanied by the modeling of sustainable lifestyles through parents' actions.

> My mom was a big influence in helping me be more aware of my environmental habits. She was really passionate about recycling. And so she always forced me to recycle and would even clean milk jugs when we used them to put them in the recycling, and would ask me to do the same. (On-Campus Resident 3, Focus Group 3, Female)

This sustainability was deeply integrated into daily life for some families, from sorting waste correctly to repurposing goods and reducing energy consumption. These role models not only laid the base for environmental habits but also framed sustainability as an ethical or cultural norm within the household.

> My family composted and recycled. And I think that having a household structure and where you're under parental supervision, I was a lot more adherent to those ideas of practicing eco-friendly disposal of waste. (Off-Campus Resident 2, Focus Group 3, Female)

> I guess for me, it was like I wouldn't say my parents even enforced these [environmental] behaviors. It was just my siblings and I, we just followed along. And that just became the norm of the house. (On-Campus Resident 6, Focus Group 1, Female)

In some families, sustainable habits were not framed as environmentally motivated but rather as ways to save money. Students recalled parents focusing on waste reduction, savings, and utility cost minimization. Others mentioned health as a factor, such as promoting reduced meat consumption or flexitarian diets. Regardless of motivation, many students continued these habits at university.

> I remember my mom would always yell at me because I'd [take] too long of showers […] I think it was probably for economic reasons. (On-Campus Resident 2, Focus Group 1, Female)

Participants reported varying levels of sustainability efforts in their K–12 schools. Some described strong environmental cultures with recycling programs, eco-themed clubs, and supportive staff that reinforced sustainable habits. These environments helped normalize eco-friendly behaviors. Students noted that the level of emphasis on sustainability often depended on the location of the high school.

> But my school, I think, in particular, was very eco-conscious. When I was in […] elementary school, I was in the Eco Club. And that's when we started doing compost, recycling, all that. […] When I graduated, they were still composting. So I think the value of being environmentally conscious got instilled in me very early through my school […]. (On-Campus Resident 1, Focus Group 2, Female)

Others, however, recalled little institutional support, citing poor infrastructure or administrative indifference.

> I went to middle school in Massachusetts, and there was recycling there. But then I moved to Texas for high school, and there was no recycling at all. I remember a lot of students brought it up with the administration, and they would just say, oh, it's just not possible because we don't have the infrastructure to build. (On-Campus Resident 5, Focus Group 1, Female)

> My high school happened to be very environmentally conscientious […] a campus-wide culture to recycle. We had our own garden on campus. And that composted. […] I don't think anybody carried around a plastic water bottle in high school […] and that was very reinforced continually, this idea about eliminating waste overall. (Off-Campus Resident 3, Focus Group 6, Female)

When schools effectively promoted sustainability, the habits learned often impacted participants' home lives. Participants suggested that school settings could be catalysts for long-term environmental behavior, especially when they offer consistent reinforcement and practical engagement.

> In my philosophy class, we watched the Leonardo DiCaprio [documentary] about being eco-friendly. […] and I think [my younger sister] took the same class, and so she had a similar experience with that. […] that obviously just filters through into your home and everyday life, to try and implement those and practice more eco-friendly habits. (Off-Campus Resident 6, Focus Group 4, Female)

Meanings: navigating values, emotions and institutional culture

When speaking of long-term sustainability habits, participants described how emotions like guilt, anxiety, or shame influenced their behaviors. Many, for instance, felt guilty when they did not recycle, which encouraged better habits. However, these emotions did not always lead to action, especially when participants felt their efforts were undermined by broader university culture.

> Honestly, sometimes, when I have single-use water bottles, I get self-conscious that people are getting upset with me. So I use a water bottle from time to time. (Off-Campus Resident 5, Focus Group 5, Female)

> I just like to get a guilty conscience if I don't [recycle]. (On-Campus Resident 1, Focus Group 3, Female)

> I can take my steps towards recycling and whatever, but, knowing that […] trash is going to get thrown in [the recycling] makes me less likely to go through the process of actually washing out my glass jars that I use so that they're recyclable. (Off-Campus Resident 3, Focus Group 4, Female)

Despite infrastructure gaps on and off campus, several participants maintained strong internal motivation to engage in environmentally responsible behaviors. They continued practices like plant-based eating, energy conservation, and careful recycling, often independent of their peers. This drive was typically rooted in personal ethics or long-standing habits.

> I think as I've gotten older and learned more […], I've been more internally motivated to do things that are better for the environment. [C]oming to [University X], I joined the Effective Altruism [club]. We talked a lot about how to make the most impact with your actions […]. So just learning more about how different things affect the environment, I think, has motivated me, yeah. (On-Campus Resident 2, Focus Group 1, Female)

> It's really common among […] our peers to use single-use paper plates and stuff […] I honestly don't really use them at all. I like cooking at my house, and I like using my own dishes. (Off-Campus Resident 3, Focus Group 5, Male)

However, many failed to practice environmental habits like recycling or using reusable materials. Even in off-campus housing where students were not on the university campus, the meal plan and had more autonomy, interviewees declared that they did not practice recycling because it was difficult or because they did not believe their house had recycling and mentioned that they frequently chose to use single-use plastic water bottles due to convenience, as eco-friendly habits would take too much time.

> I don't think my house has recycling […] I used to be very mindful about where I was throwing things out at home, but I've thrown caution to the wind here […] just because of convenience, I don't really recycle anymore. (Off-Campus Resident 1, Focus Group 5, Male)

> I think I'm definitely less environmentally friendly now than I was back home, […] I buy single plastic bottles of water just because it's easier. And I can take them to class […] (Off-Campus Resident 2, Focus Group 5, Female)

Discussion

Universities today often project strong commitments to sustainability, embedding green principles into strategic plans, branding, and campus operations. Yet, despite these visible macro- and meso-level initiatives, many students struggle to integrate and maintain sustainability practices in their daily behaviors. This disconnect mirrors prior evidence of high waste generation and limited behavioral engagement among university students (Buono, 2022; Fang, 2023; Vasquez, 2024).

A key tension studied in this research was the disconnect between institutional identity and students' lived experiences. Students enter universities that often publicly celebrate environmentalism; however, they then encounter barriers at the micro-level. These frictions undermine broader institutional messages and create a gap between what the university promotes and what students can practice. The misalignment across macro-, meso-, and micro-levels ultimately produces a sustainability system that appears strong in principle but remains weak in everyday execution.

In this paper, micro-level environmental behaviors included sorting waste, using reusable containers, minimizing food waste, and conserving energy. These behaviors, typically formed earlier in life through familial routines and structures, were more likely to continue when supported by contextual cues, convenience, and low perceived effort. This aligned with the "perceived behavioral control" component of the TPB, which helped explain why students deprioritized sustainable actions when they became inconvenient, costly, or time-consuming, despite positive intentions (Correia et al., 2022). The underlying role of convenience relative to students' environmental behaviors may serve as a key mechanism for universities to address in their future efforts.

The transition to university was further conceptualized as a period of habit discontinuity (Verplanken et al., 2008) during which established routines, norms, and behaviors could be disrupted. Without clear behavioral cues and adequate infrastructure, many students were unable to maintain practices learned at home. Although the university often promoted "green" values, this messaging did not compensate for the weak infrastructure hindering sustained daily practices. This stood in sharp contrast to the influence of family and early education. These early forces instilled environmental habits within the students, with many participants citing parents and teachers as role models, consistent with research on family and early-education norms shaping environmental values (Greenspan et al., 2022; Marrese et al., 2024).

Students struggled to maintain these habits in university settings. One pathway that may have led to the observed habit discontinuity could be the lack of collective responsibility and solidarity felt by students. Without shared norms and values (like those found within a family), many students discontinued sustainable habits, failing to believe in their ability to contribute to the larger picture. These findings show how sustainability-related habits are fragile during transitions and highly dependent on contextual reinforcement. A smaller group of participants continued sustainability practices through strong internal motivation rooted in personal values and environmental identity, but even they reported frustration or guilt when their efforts were undermined by systemic inefficiencies or peers' indifference.

Overall, the findings reveal a systemic misalignment at the university, where strong macro-level commitments and supportive meso-level structures fail to translate into micro-level behaviors. Daily environmental actions remain constrained by inadequate infrastructure and limited collective responsibility that made sustainable choices more difficult than unsustainable ones. The transition from home and school to university, represents a pivotal transition point identified in HDH theory, a period when students are particularly open to forming new habits. Sustainable practices depend not on awareness, values and the everyday contexts that enable or constrain actions. Without intentional design to support micro-level behaviors, institutional sustainability efforts risk remaining symbolic rather than transformative.

Limitations

Several limitations should be acknowledged. The research was conducted at a single, private, highly-ranked institution, which may reflect unique cultural and infrastructural conditions not representative of all campuses. The use of focus groups may have introduced social desirability bias or dominance effects that influenced how participants expressed their views. Additionally, the study relied on self-reported behaviors and perceptions rather than direct measurement of waste generation or disposal, which limits the ability to quantify behavioral outcomes. One author subsequently visited some of the campus dorms and dining facilities and validated the limited recycling options and the high use of single-use containers in dining halls. Lingering effects of COVID-19 protocols, particularly in dining services, also shaped student experiences in ways that may be temporary.

Nonetheless, the structural features described by participants are common across many higher education institutions, such as centralized housing systems, standardized catering contracts, limited recycling infrastructure, and the higher cost of sustainable alternatives. The challenges students face in translating environmental values into daily practices are likely to be reproduced in similar settings, especially where institutional routines, costs, and contracts constrain individual agency. This suggests that the tensions documented here may reflect broader sector-wide patterns. As such, the findings offer insight into how sustainability efforts may falter during students' transition from home to campus life.

Conclusion

While many efforts at universities are made at the macro and meso levels, such as constructing green buildings, improving fuel efficiency, reducing the ecological footprint of infrastructure, and conserving energy, much less focus is placed on daily sustainable practices at the micro level. Students who arrive with a genuine interest in engaging in sustainable practices are often challenged by and frustrated with the lack of infrastructure and policies at the ground level that would support such behaviors.

The transition from home to campus provides an important "window of opportunity" for behavioral change and establishment of enduring environmental habits. As students navigate new environments with different dorm layouts, campus facilities, peer norms, and institutional expectations, the absence of familiar cues from home and school makes them particularly receptive to adopting new patterns. By implementing targeted interventions early, universities can help foster habits that are likely to endure throughout students' college years and beyond, bridging the gap between institutional sustainability goals and lived student behavior.

This study demonstrates the presence of cross-level misalignment and provides evidence that, in the context of habit discontinuity, such misalignment can lead to regression unless campuses actively engineer and implement supportive systems to reduce the effort and cost students incur to engage in daily sustainable practices.

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Appendix

Table 1. On-campus vs. off-campus contexts of student sustainability behaviors.

	On Campus	Off Campus
Recycling infrastructure	Some dorm buildings had recycling facilities located on each floor, while others only had recycling in less accessible outdoor areas. Dorms also only provided students with a recycling bin, leading some students to not separate their trash and recycling.	Students noted limited recycling infrastructure in some housing complexes. Additionally, there appeared to be a lack of shared recycling norms among housemates, leading many to reduce or abandon these practices.
Impact of university policies	Students on the university dining plan noted a lack of control over the university's single-use plastic dining packaging. Additionally, the dining halls' all-you-can-eat format led to food waste. However, the university also promoted some policies to encourage environmental behaviors among students.	Despite reduced institutional influence, convenience continued to lead students to practice less sustainable habits, such as utilizing single-use plastics.
Obstacles in maintaining sustainable habits	Convenience often conflicted with sustainability, and, without the accountability mechanisms in place like in high school and at home, students chose convenience.	Convenience often conflicted with sustainability, and, without the accountability mechanisms in place like in high school and at home, students chose convenience.