CINEFORUM
ISSN: 0009-7039
Vol. 66. No. S2, 2026 (Special Issue 2)

Artificial Intelligence and Environmental Sustainability in Action: Student Narratives of Practicing Green Habits Beyond the Classroom

Ahasmarie Pasion-Pasinabo[1]

[1] College of Fisheries and Allied Sciences, Zamboanga State College of Marine Sciences and Technology, Zamboanga City 7000, Philippines.
Corresponding Author:
Ahasmarie Pasion-Pasinabo
Email: acpasion@zscmst.edu.ph

Abstract
The increasing integration of artificial intelligence (AI) into students' daily lives has created new opportunities to support environmental learning and promote sustainable behaviors beyond formal educational settings. This study explored how AI influences students' environmental learning and the development of green habits in their everyday lives. Guided by Narrative Inquiry, the study involved sixteen undergraduate students selected through purposive sampling based on their experience using AI applications and practicing environmentally sustainable behaviors. Data were collected through semi-structured interviews and analyzed using Braun and Clarke's thematic analysis. The findings revealed that AI functioned as an everyday eco-companion that translated environmental knowledge into practical action through personalized guidance, real-time recommendations, and enhanced ecological awareness. Participants further perceived AI as instrumental in strengthening consistent green habits, fostering personal environmental responsibility, building confidence in sustainable decision-making, encouraging environmentally conscious consumption, and inspiring environmental advocacy within their families and peer groups. Overall, AI was viewed not merely as an information source but as a facilitator that connected environmental learning with everyday practice. The study concludes that AI has significant potential to complement sustainability education by empowering students to integrate environmentally responsible behaviors into their daily routines. These findings contribute to the emerging discourse on artificial intelligence and sustainability education and provide insights for educators, curriculum developers, and policymakers seeking to leverage AI in cultivating environmentally responsible citizens..
Keywords : artificial intelligence, environmental sustainability, green habits, environmental education, narrative inquiry, higher education, sustainable behavior

Introduction

Artificial intelligence (AI) has rapidly evolved from a productivity tool into an integral component of students' everyday learning experiences. Generative AI platforms now assist learners in searching for information, synthesizing knowledge, solving problems, and making decisions that extend far beyond academic requirements. This shift has redefined learning as a continuous process occurring across formal and informal environments, where students increasingly rely on AI to navigate daily tasks and real-world concerns. At the same time, environmental sustainability has emerged as one of the defining educational priorities of the twenty-first century, reflecting global efforts to prepare individuals capable of responding to climate change, resource depletion, biodiversity loss, and other ecological challenges. The intersection of these developments raises an important educational question: as AI becomes embedded in students' daily lives, does it merely provide information about sustainability, or does it shape the environmental decisions and green habits students practice beyond the classroom? Addressing this question has become increasingly relevant as educators seek to understand how emerging technologies influence not only learning outcomes but also responsible citizenship (UNESCO, 2020; Khan et al., 2025; Ogunleye et al., 2024).

Environmental sustainability education has long emphasized that meaningful environmental action cannot be achieved through knowledge acquisition alone. Contemporary perspectives argue that sustainability education should cultivate values, critical reflection, and behavioral transformation that encourage learners to integrate environmental responsibility into their everyday lives. Studies have consistently shown that authentic learning experiences strengthen students' environmental awareness while encouraging practical engagement with sustainable living. Garden-based learning, sustainability projects, experiential education, and community

participation have all been associated with stronger environmental stewardship because they allow students to connect environmental concepts with lived experiences rather than treating sustainability as an abstract academic topic (Fisher-Maltese & Zimmerman, 2015; Berezowitz et al., 2015; Schoenfeld-Tacher et al., 2019). Similarly, young people increasingly view themselves as active contributors to climate action, demonstrating that environmental education becomes most meaningful when learning continues outside institutional settings and translates into everyday practices (O'Brien et al., 2021; Haque, 2022).

Although environmental awareness has expanded considerably, translating environmental concern into consistent action remains a persistent challenge. Decades of research have demonstrated that pro-environmental behavior emerges through a complex interaction of personal values, intrinsic motivation, environmental identity, social expectations, habit formation, and contextual opportunities rather than environmental knowledge alone (Clayton, 2019; Schultz & Kaiser, 2012; Deci & Ryan, 2000). Individuals frequently express concern for environmental issues yet struggle to sustain environmentally responsible behaviors because competing priorities, social influences, convenience, and routine often shape everyday decision-making more strongly than environmental intentions (Kollmuss & Agyeman, 2002; Barr, 2007). Sustainable lifestyles therefore develop through repeated behavioral choices that gradually become embedded within daily routines, highlighting that environmental responsibility is ultimately practiced through ordinary decisions rather than extraordinary acts of environmental activism (Barr & Gilg, 2006; Mazar et al., 2021).

The emergence of generative AI introduces a new dimension to this behavioral process. Unlike conventional educational technologies that primarily deliver instructional content, AI functions as an interactive learning companion capable of generating personalized explanations, recommending alternatives, facilitating reflection, and responding immediately to learners' questions. Students increasingly perceive AI as a resource that enhances independent learning, creativity, productivity, and problem-solving despite acknowledging concerns related to accuracy and ethical use (Chan & Hu, 2023; Ogunleye et al., 2024). Recent scholarship further suggests that AI can strengthen sustainability education through personalized environmental learning experiences, interactive engagement with climate-related issues, and opportunities for future-oriented thinking that encourage students to envision practical responses to environmental challenges (Wang et al., 2025; Arif et al., 2025; Liu & Château, 2025). These developments suggest that AI may influence environmental behavior not simply because it delivers information, but because it accompanies learners during the everyday moments when environmental decisions are actually made.

Despite the growing body of scholarship surrounding sustainability education and artificial intelligence, their intersection remains underexplored. Research on environmental sustainability has predominantly examined environmental literacy, environmental attitudes, transformative learning, and pro-environmental behavior, whereas AI research has largely concentrated on academic achievement, learning efficiency, technological acceptance, and ethical implications of AI integration within higher education (Cotton & Winter, 2010; Evans & Stevenson, 2017; Khan et al., 2025). More recent studies have begun evaluating AI-supported environmental education and digital technologies for sustainability learning, yet these investigations continue to focus primarily on instructional effectiveness, technological design, or learning outcomes. Far less attention has been directed toward understanding how students themselves experience AI as part of their everyday environmental decision-making beyond formal instruction. Existing evidence further indicates that many students remain unaware of the environmental implications of AI technologies despite their widespread use, suggesting that AI literacy and environmental responsibility do not necessarily develop together (Dungo et al., 2025).

This absence of student-centered perspectives represents an important theoretical and practical gap. Sustainability is ultimately expressed through everyday choices—how individuals consume, recycle, conserve energy, reduce waste, or respond to environmental problems within their own communities. Artificial intelligence now accompanies many of these decisions by providing recommendations, explanations, and immediate access to information, yet little is known about whether students genuinely incorporate AI into their environmental practices or how they interpret its influence on their behaviors. A narrative perspective is particularly valuable because it captures the meanings students assign to these experiences, the motivations that sustain their green habits, the tensions they encounter while attempting to practice environmental responsibility, and the ways AI becomes integrated into—or excluded from—their everyday routines. Such insights cannot be adequately explained through measures of environmental awareness or frequency of AI use alone, as they require an understanding of lived experiences situated within students' social and educational contexts.

Against this backdrop, the present study, sought to explore how students experience the relationship between artificial intelligence and environmentally sustainable living beyond formal educational settings. Specifically, the study examined how students use AI to learn about environmental sustainability, how AI influences the development and maintenance of their green habits, and how they negotiate the opportunities and challenges associated with integrating AI into everyday environmental decision-making. Positioning AI as an emerging component of informal sustainability learning shifts the discussion beyond technological adoption toward the broader question of how digital intelligence may shape responsible citizenship in an increasingly complex

environmental landscape. In doing so, the study contributed to the growing dialogue on AI and sustainability while offering evidence that may inform educational practice, curriculum development, and future research at the intersection of technology, environmental education, and student behavior.

The present study is anchored on Self-Determination Theory (SDT), the Theory of Planned Behavior (TPB), and Transformative Learning Theory (TLT). Self-Determination Theory posits that individuals are more likely to sustain behaviors when these are driven by intrinsic motivation and supported by the psychological needs for autonomy, competence, and relatedness (Deci & Ryan, 2000). In the context of this study, students may choose to practice green habits because they personally value environmental responsibility rather than merely complying with external expectations, while artificial intelligence can strengthen their sense of competence by providing immediate guidance and personalized environmental information. The Theory of Planned Behavior explains that behavior is influenced by an individual's attitudes, subjective norms, and perceived behavioral control, suggesting that students are more likely to engage in environmentally sustainable practices when they hold positive environmental attitudes, perceive social support for such behaviors, and believe they are capable of carrying them out (Ajzen, 1991). Artificial intelligence may reinforce these behavioral intentions by increasing access to information and practical solutions that make sustainable actions more attainable. Complementing these perspectives, Transformative Learning Theory argues that meaningful learning occurs when individuals critically reflect on their assumptions, reinterpret their experiences, and consequently modify their perspectives and actions (Mezirow, 1997). This theory supports the study's emphasis on student narratives, as learners' interactions with AI may prompt reflection on environmental issues and encourage the adoption of green habits beyond formal classroom instruction. Collectively, these theories explain how internal motivation, behavioral intention, and transformative learning interact to shape students' experiences of using artificial intelligence to support environmentally sustainable practices.

Objectives of the Study

The study aimed to explore the role of artificial intelligence in shaping students' environmentally sustainable practices beyond the classroom. Specifically, it endeavored to:

Explore students' experiences of using artificial intelligence to support their environmental learning and green habits beyond the classroom.

Examine how students perceive the influence of artificial intelligence on the development and practice of their environmentally sustainable behaviors in their everyday lives.

METHODS

Research Design

A qualitative narrative inquiry design was employed to examine how students make sense of their experiences of using artificial intelligence in practicing environmentally sustainable behaviors beyond the classroom. Narrative inquiry is appropriate for exploring lived experiences because it enables participants to recount meaningful events, reflect on their personal journeys, and explain how these experiences shape their beliefs and actions within specific social contexts. This design aligns with the inquiry's focus on understanding the meanings students attach to AI-assisted environmental learning and the development of green habits through their own stories and reflections (Clandinin & Connelly, 2000; Creswell & Poth, 2018).

Population and Sampling

The participants consisted of 15 undergraduate students in Zamboanga Peninsula who actively use artificial intelligence applications and practice environmentally sustainable behaviors beyond the classroom. Purposive sampling was employed to recruit information-rich participants capable of providing detailed narratives relevant to the research objectives. This non-probability sampling technique is appropriate in qualitative inquiry because participants are intentionally selected based on their knowledge and direct experience of the phenomenon being investigated, allowing the collection of rich and meaningful data rather than statistically representative responses (Patton, 2015; Creswell & Poth, 2018).

Participants were eligible if they were currently enrolled in a higher education institution, had experience using artificial intelligence tools such as ChatGPT, Gemini, Microsoft Copilot, or similar applications for learning or information seeking, practiced at least one environmentally sustainable behavior outside the classroom, and were willing to participate in an in-depth interview conducted in English or Filipino. Individuals who had no experience using AI or could not describe personal experiences related to environmental sustainability were excluded to ensure that all narratives directly addressed the phenomenon under investigation (Patton, 2015; Merriam & Tisdell, 2016).

Research Instrument

A researcher-developed semi-structured interview guide served as the primary data collection instrument to elicit detailed narratives regarding participants' experiences of using artificial intelligence in supporting environmentally sustainable practices. Open-ended questions encouraged participants to describe their experiences freely while allowing the researcher to ask follow-up questions for clarification and depth. To establish content validity, the interview guide was evaluated by experts in qualitative research, educational technology, and environmental education for clarity, relevance, and alignment with the research objectives. A pilot interview with participants sharing characteristics similar to the target population was subsequently conducted to refine question wording, sequencing, and comprehensibility. In qualitative inquiry, trustworthiness and consistency of the instrument are strengthened through expert validation, pilot testing, and the use of a consistent interview protocol throughout data collection (Creswell & Poth, 2018; Kallio et al., 2016).

Data Analysis

The interview data were analyzed using thematic analysis following the six-phase framework of Braun and Clarke (2006), which involved familiarization with the data, generation of initial codes, searching for themes, reviewing themes, defining and naming themes, and producing the final report. This analytical approach facilitated the systematic identification of recurring patterns across participants' narratives while preserving the depth and contextual meaning of their individual experiences. Credibility was enhanced through repeated examination of transcripts, reflective memo writing, and collaborative review of emerging themes among the research team (Braun & Clarke, 2006; Nowell et al., 2017).

Research Procedure

Approval to conduct the research was first obtained from the appropriate institutional authorities before recruiting participants who satisfied the inclusion criteria. Eligible participants received an explanation of the study's purpose, procedures, voluntary nature of participation, and confidentiality measures before providing informed consent. Individual semi-structured interviews were conducted in person or through an online platform, depending on participants' availability and preference. With participants' permission, interviews were audio-recorded, transcribed verbatim, verified for accuracy, and securely stored before undergoing thematic analysis. Data collection continued until sufficient narrative depth and information redundancy were achieved (Creswell & Poth, 2018; Lincoln & Guba, 1985).

Ethical Consideration

Ethical principles of respect for persons, beneficence, and justice guided all stages of the inquiry. Participation remained entirely voluntary, with informed consent obtained before data collection and the right to withdraw at any stage without penalty. Participants' identities were protected through pseudonyms, while all interview transcripts and digital records were treated confidentially and stored securely with access limited to the researchers. The inquiry likewise complied with the provisions of the Data Privacy Act of 2012 (Republic Act No. 10173) to ensure the protection, confidentiality, and responsible management of participants' personal information throughout the research process (National Commission for Culture and the Arts, 1979; Republic Act No. 10173, 2012).

RESULTS

Objective 1: *Explore students' experiences of using artificial intelligence to support their environmental learning and green habits beyond the classroom.*

Theme 1. AI as an Everyday Eco-Companion

Twelve of the sixteen participants described artificial intelligence as an everyday companion that supported their environmental decisions beyond formal classroom learning. Rather than relying on AI solely for academic purposes, participants incorporated it into routine activities where immediate environmental guidance was needed. They recounted using AI to verify recycling practices, identify environmentally friendly alternatives, monitor household resource consumption, and make more informed sustainability choices in real time. These narratives suggest that AI had become embedded in participants' daily routines, functioning as an accessible source of environmental support whenever uncertainty arose.

"Whenever I'm grocery shopping and unsure about an item's packaging, I snap a photo and ask my AI assistant if it's truly recyclable. It's like having a sustainability expert in my pocket 24/7. I feel like I am very nature friendly" ***P9***

"My eco-tracker app uses AI to analyze my water and electricity consumption. Seeing the automated daily insights pushes me to cut down my shower times and unplug my devices every single night." ***P10***

The narratives indicate that participants perceived AI not merely as a repository of environmental information but as a readily available guide that accompanied everyday decision-making. Its value extended beyond providing answers, as participants emphasized its immediacy, accessibility, and ability to offer context-specific

recommendations during ordinary situations where sustainable choices were made. This continuous interaction appeared to bridge environmental knowledge with practical action, enabling sustainability to become integrated into daily routines rather than remaining confined to classroom discussions. Collectively, these accounts portray AI as a consistent digital companion that supported students in translating environmental intentions into everyday green practices.

Theme 2. Theory-to-Action Bridge

Thirteen of the sixteen participants narrated that artificial intelligence enabled them to transform environmental concepts learned in the classroom into practical actions within their homes and communities. Participants explained that while sustainability lessons introduced theoretical knowledge, AI provided concrete guidance on how these ideas could be implemented in everyday situations. Their narratives described using AI to calculate household carbon footprints, improve energy conservation, organize community-based environmental initiatives, and develop actionable sustainability plans. These experiences illustrate that AI served as a bridge between environmental understanding and meaningful environmental practice.

"We learned about carbon footprints in geography class, but it felt abstract. At home, I used an AI tool to audit our household energy bills, which helped my family create a real plan to cut our electricity use." **P6**

"I wanted to start a composting initiative in my apartment complex but didn't know how to organize it. I used AI to draft a step-by-step action plan and template letters that successfully convinced my neighbors to join." **P13**

Participants' accounts suggest that AI reduced the disconnect between knowing and doing by converting environmental concepts into manageable and context-specific actions. Rather than replacing classroom learning, AI extended it through practical recommendations that empowered students to initiate environmental practices within their immediate surroundings. These narratives indicate that AI functioned as a catalyst that transformed sustainability from an academic concept into a lived and actionable experience.

Theme 3. From Information to Practical Green Actions

Eleven of the sixteen participants shared that artificial intelligence helped them convert environmental information into practical actions that could be implemented immediately in their daily routines. Instead of simply increasing their awareness of sustainability, participants described using AI to identify realistic alternatives that matched their available resources, preferences, and household circumstances. They emphasized that AI simplified environmentally responsible decision-making by providing clear, actionable recommendations that eliminated uncertainty and encouraged prompt action. These narratives demonstrate how AI transformed environmental knowledge into practical solutions that participants could readily incorporate into their everyday lives.

"I wanted to reduce my meat intake but felt overwhelmed by recipes. I typed the random ingredients left in my fridge into an AI chef app, and it instantly gave me a zero-waste, plant-based dinner recipe." **P4**

"Instead of reading long, boring manuals on energy efficiency, I asked an AI chatbot for three quick ways to optimize my AC settings. I applied them immediately and saw a difference in our power consumption." **P11**

Participants' narratives reveal that AI facilitated sustainable behavior by making environmental information immediately usable rather than merely informative. The accessibility of personalized recommendations reduced the complexity often associated with adopting greener lifestyles, allowing participants to implement environmentally responsible practices with greater confidence and efficiency. These accounts suggest that AI supported sustainability not only through knowledge dissemination but through practical guidance that encouraged immediate environmental action.

Theme 4. Personalized Sustainability Guidance

Fourteen of the sixteen participants narrated that artificial intelligence provided recommendations tailored to their individual circumstances, making environmentally sustainable practices more attainable despite financial, logistical, and personal constraints. Rather than offering generic environmental advice, participants appreciated AI's ability to generate solutions that aligned with their budgets, daily schedules, and lifestyles. They explained that this personalized guidance enabled them to make environmentally responsible choices without disrupting their routines or requiring resources beyond their means. These narratives highlight how AI adapted sustainability practices to participants' unique realities, making green living more practical and achievable.

"I can't afford expensive organic foods or premium eco-brands, so I asked AI for budget-friendly sustainable grocery swaps tailored to a college student. It gave me a list of local, seasonal alternatives and bulk-buying strategies that fit my tight budget perfectly. It made me realize that living sustainably doesn't have to be an expensive luxury reserved only for wealthy consumers." **P7**

"As a commuter student, my schedule is incredibly chaotic and changes from day to day. I used an AI assistant to map out the most eco-friendly public transit routes and bike paths based on my evolving daily class schedule. This personalized plan helped me rely significantly less on rideshares, saving me money while fitting seamlessly into my busy academic routine without causing me to be late." **P15**

The experiences illustrate that the influence of AI extended beyond providing environmental information to delivering recommendations that reflected their individual needs and circumstances. This personalized support reduced practical barriers to sustainable living and reinforced the idea that environmental responsibility can be integrated into diverse lifestyles rather than requiring uniform solutions. Collectively, these narratives portray AI as a flexible guide that made sustainability more accessible, realistic, and personally relevant.

Theme 5. Enhancing Ecological Consciousness

Ten of the sixteen participants recounted that artificial intelligence deepened their understanding of environmental issues by revealing the interconnected nature of ecological systems. Participants described how AI-powered applications moved them beyond viewing sustainability as isolated acts of environmental protection toward recognizing the broader relationships among human activities, ecosystems, and climate processes. Continuous access to real-time environmental information and interactive simulations enabled them to develop a more comprehensive appreciation of how everyday actions contribute to wider environmental outcomes. These narratives indicate that AI fostered a heightened ecological awareness that influenced how participants interpreted and engaged with their surrounding environment.

"I used to think of environmentalism just as picking up litter, but interacting with an AI climate simulator completely changed my perspective. I plugged in different data points and watched how a small change in local deforestation rates ripples out to affect regional rainfall, agricultural yields, and economic stability. It forced me to stop looking at environmental issues in isolation and start viewing nature as a massive, deeply interconnected system where every small action triggers a chain reaction." **P2**

"Having an AI-powered air quality and biodiversity monitor on my phone has permanently altered how I perceive my surrounding environment. The app constantly feeds me real-time data about local pollen counts, pollution spikes, and migratory bird patterns in my area based on current weather shifts. This continuous stream of information has heightened my daily ecological consciousness, making me highly aware of the living ecosystem around my campus rather than just seeing a concrete urban landscape." **P14**

This means that AI broadened their environmental perspectives by making ecological processes more visible, understandable, and personally relevant. Rather than simply increasing environmental knowledge, these digital interactions cultivated a systems-oriented understanding that encouraged participants to recognize the interconnected consequences of everyday human actions. Collectively, these experiences portray AI as an educational companion that nurtured deeper ecological consciousness and a more holistic appreciation of environmental sustainability.

Objective 2: *Examine how students perceive the influence of artificial intelligence on the development and practice of their environmentally sustainable behaviors in their everyday lives.*

Theme 1. From Intention to Consistent Green Habits

Thirteen of the sixteen participants perceived that artificial intelligence played a significant role in transforming their environmental intentions into consistent daily practices. Participants explained that while they had previously recognized the importance of environmentally responsible behaviors, these actions were often performed inconsistently or only when circumstances allowed. Regular interactions with AI introduced timely reminders, personalized recommendations, and practical prompts that gradually reinforced environmentally conscious routines until they became part of everyday life. These narratives illustrate how AI supported the transition from occasional environmental awareness to sustained behavioral practice.

"AI reminds me to bring my reusable bags whenever I make my grocery checklist. Before, I would always forget and end up using plastic bags, but now it has become part of my routine before leaving the house." **P5**

"I used to recycle only when it was convenient. After constantly asking AI how to separate household waste properly and receiving simple reminders, I no longer think twice before sorting recyclables. It has become something I automatically do every day." **P12**

Participants' accounts suggest that AI influenced sustainable behavior through continuous reinforcement rather than one-time instruction. Repeated exposure to personalized prompts and practical guidance appeared to strengthen environmental routines, allowing green practices to become habitual components of participants' everyday lives rather than deliberate or occasional actions.

Theme 2. Redefining Everyday Environmental Responsibility

Twelve of the sixteen participants reflected that artificial intelligence reshaped how they understood environmental responsibility by shifting their attention from large-scale environmental issues to the significance of individual everyday actions. Participants acknowledged that they had previously associated sustainability with government policies, international climate initiatives, or community-wide campaigns, often underestimating the impact of their own behaviors. Through continuous interactions with AI, they began to recognize that simple daily decisions—such as reducing waste, conserving energy, choosing reusable products, and minimizing unnecessary

consumption—collectively contribute to broader environmental sustainability. These narratives indicate a growing sense of personal accountability, where environmental responsibility was no longer perceived as the obligation of institutions alone but as an individual commitment practiced through everyday choices.
"I always thought protecting the environment was something governments and big organizations were responsible for. After asking AI about simple ways I could reduce my environmental impact, I realized sustainability actually starts with the choices I make every single day." **P3**
"AI made me realize that small actions really do matter. Turning off unused lights, carrying my own tumbler, or refusing plastic utensils seemed insignificant before, but seeing how these habits add up over time made me feel more accountable for my own contribution to the environment." **P9**
Participants' narratives demonstrate that AI encouraged a shift in perspective from viewing sustainability as a distant societal concern to embracing it as a personal responsibility enacted through consistent everyday behaviors. This reframing strengthened participants' sense of environmental accountability and reinforced the belief that meaningful environmental change begins with individual action.

Theme 3. Building Confidence to Make Sustainable Decisions
Eleven of the sixteen participants shared that artificial intelligence strengthened their confidence in making environmentally responsible decisions by reducing uncertainty and providing immediate, evidence-informed guidance. Participants explained that they previously hesitated when selecting environmentally friendly products, interpreting recycling labels, or evaluating sustainable alternatives because they were unsure whether their choices were genuinely beneficial to the environment. Access to AI-generated explanations, comparisons, and recommendations enabled them to make informed decisions with greater assurance, minimizing the need to rely on guesswork or incomplete information. These narratives suggest that AI enhanced participants' perceived capability to engage in environmentally sustainable behaviors with greater certainty.
"I used to spend a lot of time second-guessing whether I was buying the more sustainable option. Now I simply ask AI to compare products based on their environmental impact, and it explains the differences in a way that's easy to understand. It has made me much more confident with my choices." **P8**
"Whenever I feel unsure about whether something is recyclable or environmentally friendly, I ask AI before making a decision. Having instant explanations gives me confidence that I'm making better choices instead of relying on assumptions." **P14**
Participants' narratives indicate that AI fostered confidence by making reliable environmental information readily accessible during everyday decision-making. This immediate support reduced uncertainty and empowered participants to make environmentally responsible choices with greater conviction, reinforcing sustainable behaviors through informed rather than hesitant action.

Theme 4. Developing Environmentally Conscious Consumption
Fourteen of the sixteen participants narrated that artificial intelligence influenced them to become more deliberate and environmentally conscious consumers. Rather than making purchases based solely on convenience, price, or personal preference, participants described consulting AI to evaluate the environmental implications of products, compare sustainable alternatives, assess packaging materials, and identify more responsible transportation and food options. This process encouraged greater reflection before consumption, allowing participants to align their purchasing decisions with their environmental values. These narratives suggest that AI fostered more mindful consumption by integrating sustainability considerations into participants' everyday decision-making.
"Before buying something online, I now ask AI to compare its environmental impact with similar products. It helps me look beyond the price and think about things like packaging, durability, and whether there are more sustainable alternatives. I definitely think before buying now." **P6**
"AI helped me realize that I didn't need to buy everything I wanted. Sometimes it suggests repairing, reusing, or choosing products with less packaging instead. Because of that, I've become more careful about unnecessary purchases and more conscious of how my choices affect the environment." **P15**
Participants' accounts reveal that AI encouraged a shift from impulsive consumption toward intentional purchasing grounded in environmental awareness. The ability to access immediate comparisons and sustainability-oriented recommendations enabled participants to make more informed consumer choices, reinforcing environmentally responsible consumption as an integral part of their daily lives.

Theme 5. Inspiring Environmental Advocacy Beyond Personal Practice
Nine of the sixteen participants recounted that the influence of artificial intelligence extended beyond their individual environmental practices and encouraged them to promote sustainable behaviors within their immediate social circles. Participants described sharing AI-generated recommendations with family members, classmates, roommates, and friends, believing that environmental responsibility becomes more meaningful when practiced collectively. Some introduced simple recycling systems at home, while others initiated conversations about

reducing single-use plastics, conserving energy, or adopting more sustainable consumption habits. These experiences illustrate how AI not only informed personal behavior but also fostered a willingness to influence others toward environmentally responsible living.

"Whenever AI gives me practical sustainability tips, I usually share them with my friends in our group chat. We even started bringing reusable tumblers together because we realized small changes are easier when everyone participates." **P7**

"After using AI to learn about proper waste segregation, I explained it to my family and suggested we place separate bins for recyclables and biodegradable waste at home. At first they weren't interested, but eventually it became part of our daily routine." **P16**

Participants' accounts reveal that environmental learning facilitated through AI frequently evolved into shared action, as sustainability practices were communicated, modeled, and reinforced within participants' families and peer networks. These narratives suggest that AI's influence extended beyond individual behavior, encouraging students to become advocates who promoted environmentally responsible practices within their communities and everyday social interactions.

DISCUSSIONS

Artificial intelligence has become an integral component of students' environmental learning beyond formal educational settings. Rather than functioning solely as an academic tool, AI emerged as an everyday eco-companion that enabled participants to translate environmental knowledge into practical action through personalized guidance, immediate access to information, and continuous ecological awareness. Participants described using AI to clarify sustainability concepts, identify environmentally responsible alternatives, and connect classroom learning with everyday environmental practices. These experiences suggest that AI extends sustainability education beyond the classroom by transforming abstract environmental concepts into meaningful and context-specific learning experiences. This finding is consistent with previous studies reporting that AI enhances personalized learning, promotes learner engagement, and strengthens environmental education through interactive and adaptive support (Khan et al., 2025; Wang et al., 2025; Arif et al., 2025). It also reflects Transformative Learning Theory (Mezirow, 1997), which posits that learning becomes meaningful when individuals critically reinterpret knowledge and apply it to real-world situations. In this context, AI served not merely as an information source but as a catalyst that encouraged students to construct new understandings of environmental sustainability through their lived experiences.

Beyond facilitating environmental learning, the findings reveal that AI contributed to the development and maintenance of environmentally sustainable behaviors in participants' everyday lives. Students perceived AI as reinforcing green habits, strengthening environmental responsibility, increasing confidence in sustainable decision-making, encouraging more intentional consumption, and motivating them to influence environmentally responsible practices within their families and peer groups. These narratives indicate that AI supported the internalization of sustainability by embedding environmentally responsible behaviors into participants' daily routines rather than limiting them to isolated actions. Similar findings have been reported in previous studies demonstrating that sustained pro-environmental behavior is influenced by continuous reinforcement, intrinsic motivation, and opportunities to practice environmental responsibility in authentic contexts (Clayton, 2019; Mazar et al., 2021; Takshe et al., 2023). These findings are likewise supported by Self-Determination Theory (Deci & Ryan, 2000), which argues that behaviors are more likely to persist when individuals perceive them as personally meaningful and aligned with their values. The personalized nature of AI recommendations appears to have strengthened participants' sense of autonomy and competence, encouraging them to adopt sustainable behaviors voluntarily rather than through external obligation.

The findings suggest that artificial intelligence functions as more than a digital learning resource; it operates as a facilitator of behavioral transformation that bridges environmental knowledge and everyday environmental practice. Participants' narratives illustrate that AI reduced uncertainty, strengthened informed decision-making, and encouraged the application of sustainability principles across diverse aspects of daily life. These findings extend existing scholarship by demonstrating that the educational value of AI lies not only in improving academic learning but also in supporting students' capacity to practice environmental sustainability beyond institutional contexts. This interpretation aligns with the Theory of Planned Behavior (Ajzen, 1991), which emphasizes that positive attitudes, perceived behavioral control, and behavioral intentions collectively shape human action. Through immediate guidance, personalized recommendations, and accessible environmental information, AI appeared to enhance participants' confidence in making environmentally responsible choices while reinforcing their commitment to sustainable living. Consequently, this study contributes to the emerging literature at the intersection of artificial intelligence and sustainability education by illustrating how AI can facilitate the translation of environmental awareness into sustained green habits and environmental advocacy within students' everyday lives.

CONCLUSION

Artificial intelligence has emerged as a meaningful extension of environmental learning beyond formal educational settings. Students perceived AI as an accessible and personalized learning companion that enabled them to transform environmental concepts into practical actions through real-time guidance, context-specific recommendations, and continuous access to sustainability-related information. Rather than replacing classroom instruction, AI complemented formal environmental education by fostering ecological awareness, supporting reflective learning, and helping students integrate environmentally sustainable practices into their everyday experiences.

Artificial intelligence also influenced the development and practice of environmentally sustainable behaviors by reinforcing consistent green habits, strengthening environmental responsibility, increasing confidence in sustainable decision-making, and encouraging environmentally conscious consumption and advocacy. The findings indicate that AI served as a facilitator of behavioral change by empowering students to make informed environmental choices and extend sustainable practices within their families and peer communities. Collectively, the study demonstrates that AI has the potential to bridge environmental learning and everyday action, positioning it as a valuable educational resource for promoting long-term environmental sustainability beyond the classroom..

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