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ENVIRONMENTAL AWARENESS, SOLID WASTE SEGREGATION, AND SDG 17 ON
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ABSTRACT

Objective: The study aims to analyze the influence of environmental awareness (EA) on solid waste segregation (SW) and perceptions of the Sustainable Development Goals (SDG 17) in institutionalized online systems of international cooperation such as UN Data portals, Global Reporting Initiative (GRI) platforms, Global Compact communities of practice, and UNFCCC technology transfer interfaces used by governments, companies, and universities to share environmental data, indicators, and best practices for sustainable development (referred to as SDGI).

Originality/Value: Sustainability aims at preserving the planet, and is linked to environmental awareness, with solid waste management being one of its main outcomes. With technological advancements, online collaborative platforms emerge as allies in the context of sustainability. Although several studies address these themes in isolation, this study presents an original contribution by analyzing, grouping, and standardizing EA, SW, and SDGI in a unified framework.

Methods: The methodology used was quantitative and descriptive research, through a survey conducted with the application of questionnaires to 116 respondents, using a five-point Likert scale and the snowball sampling method. For data analysis, Descriptive Statistics were used through SPSS 23.0 software, Confirmatory Factor Analysis, and Multiple Linear Regression.

Results: The results found in the two Multiple Linear Regressions confirm the proposed model, in which EA has a significant influence on SW and SDGI. However, the relationship between EA and SW showed a greater intensity, that is, 56.5%, evidencing a high explanatory power of EA in SW (>0.5). The relationship of EA in SDGI shows a significant, but moderate intensity equivalent to 39.2%.

Conclusions: The research findings indicated that EA exerted a positive and significant influence on both dependent variables, showing greater explanatory power regarding SW than regarding perceptions related to SDGI. These results suggest, within the limits of the analyzed sample (116 respondents from Pernambuco, Brazil) and the proposed model, that EA is positively associated with favorable perceptions about sustainable behavior SW and SDGI. It should be noted that the study does not directly measure the achievement of the 2030 Agenda goals nor the effectiveness of digital platforms. The findings indicate that individual environmental awareness can be a relevant, though not sufficient, factor in supporting sustainable behaviors and mechanisms for international cooperation.

Keywords: Environmental Awareness. Solid Waste Segregation. ODS17. Online Collaborative Platforms for International Cooperation.

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C ONSCIÊNCIA AMBIENTAL, SEGREGAÇÃO DE RESÍDUOS SÓLIDOS E O ODS 17 EM PLATAFORMAS COLABORATIVAS ONLINE

RESUMO

Objetivo: O estudo tem como objetivo analisar a influência da consciência ambiental (CA) na segregação de resíduos sólidos (SR) e nas percepções dos Objetivos de Desenvolvimento Sustentável (ODS 17) em sistemas online institucionalizados de cooperação internacional como portais da UN Data, plataformas da Global Reporting Initiative (GRI), comunidades de prática do Pacto Global e interfaces de transferência de tecnologia da UNFCCC utilizados por governos, empresas e universidades para compartilhar dados, indicadores e boas práticas ambientais para o desenvolvimento sustentável (denominada ODSI).

Originalidade/Valor: A sustentabilidade visa à preservação do planeta, à qual está vinculada a consciência ambiental e tem como um dos principais desdobramentos a gestão de resíduos sólidos. Com o avanço tecnológico, as plataformas colaborativas *online* surgem como uma das aliadas no contexto da sustentabilidade. Embora diversas pesquisas abordem estas temáticas isoladamente, este estudo apresenta uma contribuição original ao analisar, agrupar e padronizar a CA, SR e ODSI em um *Framework* unificado.

Métodos: A metodologia utilizada tratou-se de uma pesquisa quantitativa e descritiva, por meio de *survey* realizada com a aplicação de questionários a 116 respondentes, valendo-se da escala Likert de cinco pontos e da utilização do método bola de neve. Para análise dos dados, utilizaram-se a Estatística Descritiva através do software SPSS 23.0, a Análise Fatorial Confirmatória e Regressão Linear Múltipla.

Resultados: Os resultados encontrados nas duas Regressões Lineares Múltiplas confirmam o modelo proposto, no qual a CA tem influência significativa sobre a SR e sobre a ODSI. Entretanto, a relação entre CA e SR apresentou uma maior intensidade, ou seja, de 56,5%, evidenciando um alto poder explicativo da CA na SR ($>0,5$). A relação da CA na ODSI apresenta uma intensidade significativa, mas moderada equivalente a 39,2%.

Conclusões: Os achados da pesquisa indicaram que a CA exerceu influência positiva e significativa sobre ambas as variáveis dependentes, apresentando maior poder explicativo sobre a SR do que sobre as percepções relacionadas às ODSI. Esses resultados sugerem, dentro dos limites da amostra analisada (116 respondentes de Pernambuco, Brasil) e do modelo proposto, que a CA está positivamente associada às percepções favoráveis sobre SR e ODSI. Ressalta-se que o estudo não mensura diretamente o cumprimento das metas da Agenda 2030 nem a eficácia das plataformas digitais. Os achados indicam que a consciência ambiental individual pode ser um fator relevante, embora não suficiente, para apoiar comportamentos sustentáveis e mecanismos de cooperação internacional.

Palavras-chave: Consciência Ambiental. Segregação de Resíduos Sólidos. ODS17. Plataformas Colaborativas *Online* para Cooperação Internacional.

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1. INTRODUCTION

The 2030 Agenda for Sustainable Development establishes that addressing global challenges such as climate change, resource depletion, and social inequality requires the integration of environmental, social, and economic dimensions (Baldassarre et al., 2024; Melo, 2024; Das, 2026). However, the effectiveness of this agenda depends not only on institutions and public policies, but also on the behavior of individuals in the face of environmental issues (Bezerra et al., 2023; Cederqvist et al., 2025).

Among the 17 Sustainable Development Goals (SDGs), SDG 17 occupies a strategic position by addressing the means of implementing the 2030 Agenda: multi-sectoral partnerships, knowledge and technology transfer, and international cooperation (ONU Brasil, 2025; Kanojia et al., 2025).

Pro-environmental behavior establishes that environmental awareness (EA) operates as an antecedent of sustainable practices at the individual level, such as waste reduction and recycling (Bezerra et al., 2023; Severo et al., 2023b). However, less is known about how EA relates to institutional mechanisms of global reach, such as SDG 17 (Kanojia et al., 2025; Khan et al., 2021). This research is based on the epistemological assumption that individual attitudes are not confined to the private sphere but extend to how individuals perceive and legitimize instruments of global governance (Das, 2026; Wang & Mangmeechai, 2021; Cederqvist et al., 2025). Thus, individuals with higher levels of EA would tend not only to segregate waste in their daily lives, but also to recognize the value of digital platforms for international cooperation as legitimate tools for sustainable development (Henao-Rodríguez et al., 2024; Costa et al., 2021). This dual movement from local behavior to global institutional legitimation underlies the analytical connection between EA, waste segregation (WS), and SDG 17 in collaborative platforms (SDGs) (Severo et al., 2021; Spigarelli et al., 2025).

Among the individual practices associated with EA, the segregation of solid waste (SW) stands out, as it is a concrete and everyday action that enables selective collection, recycling, and the circular economy (Azevedo et al., 2024; Shukla et al., 2024). The effectiveness of SW, however, depends both on public infrastructure and on individual attitudes guided by EA (Gonçalves & Roth, 2022; Severo et al., 2023a).

In parallel, technological advances have expanded the possibilities for cooperation between different social and institutional actors (Shirky, 2012; Jonathan & Pedron, 2026).

In this 3overnan, collaborative digital platforms emerge, understood in this study as institutionalized online systems used by governments, companies, universities, international

organizations, and civil 4overna organizations to share data, indicators, knowledge, environmental 4overnance4s, and best practices aimed at sustainable development (Winickoff et al., 2021). Specific examples include United Nations (UM) Data portals, the Global Reporting Initiative (GRI) platform for disseminating ESG data, the UM Global Compact communities of practice, the UNFCCC technology transfer interface (CTT), and the OECD collaborative platforms for emerging 4overnance4s (Spigarelli et al., 2025; Winickoff et al., 2021). These platforms are characterized by formal 4overnance structures, defined participation criteria, and explicit mandates related to sustainable development, distinguishing them from general-purpose social networks or open online forums.

It is recognized that the direct association between digital platforms and SDG 17 is an analytical approach of this study, not an equivalence foreseen by the official UN text. However, the SDG 17 targets related to partnerships, technology transfer, and data sharing allow us to interpret such platforms as contemporary instruments that can operationalize the means of implementing the 2030 Agenda (ONU Brasil, 2025; Spigarelli et al., 2025). Despite this, studies that integrate individual environmental awareness, local sustainability practices, and digital mechanisms for international cooperation are still scarce (Khan et al., 2021; Kanojia et al., 2025), which justifies the present investigation. Environmental awareness demonstrates an understanding of individuals' needs regarding environmental issues (such as use, reuse, and recycling) and the proper segregation of generated waste, considering its hazardousness and toxicity (Da Silva et al., 2026).

Given this gap, the following research question emerges: what is the influence of environmental awareness on solid waste segregation and perceptions of the Sustainable Development Goals (SDG 17) on collaborative digital platforms for international cooperation? In light of the above, the study aims to analyze the influence of environmental awareness (EA) on solid waste segregation (SW) and perceptions of the Sustainable Development Goals (SDG 17) on collaborative digital platforms for international cooperation.

The rationale for this research lies in its potential theoretical and practical contributions. In the academic field, the study integrates the behavioral (EA), operational (SW), and institutional (SDGI) dimensions into a unified analytical model. In the managerial and public policy context, the results can support environmental education initiatives, waste management programs, and digital cooperation strategies. It should be noted, however, that the conclusions are based on the perceptions of a limited sample and should not be generalized as evidence of

a direct impact on the implementation of the 2030 Agenda (ONU Brasil, 2025; Baldassarre et al., 2024).

2. THEORETICAL FRAMEWORK

2.1 Environmental Awareness

According to Grün (1996) and Sachs (1997), the United Nations Conference on the Human Environment, held in Stockholm, Sweden, in June 1972, was the first major meeting organized by the United Nations to address environmental issues, as there was a need for common principles to guide humanity in preserving and improving the environment. Subsequently, many other meetings dealing with environmental issues on a global scale took place and had international repercussions (Severo & Guimarães, 2015).

Discussions on sustainability have evolved in recent decades from a predominantly ecological perspective to a broader approach that integrates environmental, social, and economic dimensions, known as the sustainability tripod (Baldassarre et al., 2024; Klein et al., 2023). This perspective recognizes that long-term development depends not only on economic growth, but also on environmental preservation and social well-being, requiring transformations in institutions, organizations, and individual behavior (Melo, 2024; Das, 2026). In this context, sustainability has ceased to be restricted to regulatory compliance and has become a strategic and cultural imperative for contemporary societies and organizations, with environmental awareness emerging as a primary factor for the maintenance of natural resources and the quality of life of future generations (Severo et al., 2021; Cederqvist et al., 2025).

Within this trajectory, environmental awareness emerges as a relevant construct for understanding how individuals perceive environmental problems and respond to the challenges of sustainability (Bezerra et al., 2023; Biscaia & Ribaski, 2024). Environmental awareness refers to the level of knowledge, sensitivity, and responsibility that individuals develop in relation to the impacts generated by production, consumption, waste generation, and the use of natural resources (Das, 2026; Severo et al., 2023b). Individuals with higher levels of environmental awareness tend to recognize the consequences of unsustainable practices and become more favorable to adopting environmentally responsible attitudes (Bezerra et al., 2023; Cederqvist et al., 2025).

The relevance of environmental awareness is associated with its ability to promote cultural changes in organizations and society (Severo et al., 2021; Gonçalves & Roth, 2022). In an organizational context, environmental awareness can influence decision-making processes,

support environmental management systems, and encourage the adoption of sustainability-oriented routines (Jonathan & Pedron, 2026; Severo et al., 2023a). In the social sphere, it contributes to strengthening citizenship, conscious consumption, and public support for environmental policies (Biscaia & Ribaski, 2024; Das, 2026).

Previous studies indicate that environmental awareness is positively associated with practical environmental behaviors, especially with regard to water conservation, energy saving, recycling, waste reduction, and proper disposal of materials (Azevedo et al., 2024; Ottoni et al., 2024; Chin et al., 2023). Individuals who understand the scarcity of natural resources and the risks of pollution tend to reduce unnecessary consumption, adopt reuse practices, and support circular economy initiatives (Shukla et al., 2024; Gonçalves & Roth, 2022). In this way, environmental awareness acts as an antecedent of sustainable behaviors in everyday life.

Specifically about water use, environmentally conscious individuals tend to adopt practices such as rational consumption, waste reduction, reuse when feasible, and support for water preservation policies (Azevedo et al., 2024; Das, 2026). A similar dynamic occurs in electricity consumption, where environmental awareness can encourage efficient use, waste reduction, and a preference for cleaner sources (Ottoni et al., 2024; Cederqvist et al., 2025). These findings reinforce that environmental awareness goes beyond the realm of attitudes and materializes in concrete behavioral choices.

In the context of solid waste management, environmental awareness plays a particularly relevant role, since waste generation is directly related to individual habits and consumption patterns (Shukla et al., 2024; Chin et al., 2023). Individuals with greater environmental awareness are expected to engage more frequently in waste segregation, recycling, responsible disposal, and support for collective waste management systems (Severo et al., 2023a; Azevedo et al., 2024). Therefore, environmental awareness is considered a central explanatory variable for sustainable practices at both individual and organizational levels.

2.2 Segregation of Solid Waste

De Oliveira et al. (2021) highlight that few articles address risk issues related to solid waste management, although it is evident that waste management is not immune to risks and can cause major environmental impacts. Shukla et al. (2024) emphasize that the management of urban solid waste presents significant environmental and health risks due to the lack of source segregation and the dependence on sanitary landfills.

According to Ottoni, Assis and Amorim (2024), solid waste is a product generated from human action, regardless of whether it is recyclable; those that are not recyclable and/or do not

present economic viability are classified as rejects. Due to society's growing concern with the environment and sustainable development, the authors argue that NBR 10.004:2004 was implemented to classify solid waste according to criteria of potential risks to the environment and public health in order to dispose of it properly.

The environmental problems resulting from the generation of solid waste are highly complex and present challenging solutions, especially because they depend on awareness and a change in attitude from segments of society that are unaware of the impacts associated with the inadequate management of this waste (Gonçalves & Roth, 2022). In the school environment, for example, there is still little knowledge about the subject, where there is a lack of environmental awareness, materialized in the absence of criteria for waste segregation, reducing the possibilities of reuse/recycling of such materials (Gonçalves & Roth, 2022).

Chin et al. (2026) highlight that effective management of urban solid waste is essential to avoid negative environmental impacts that pollute the planet, such as pollutant emissions and leachate discharge, in addition to promoting economic viability and social acceptance.

According to Severo et al. (2023b), during the Covid-19 pandemic, there was a considerable increase in the generation of solid waste. For the author, this occurred due to the high consumption of delivery services, significantly increasing the use of disposable packaging. Other factors can be added to this aggravating factor: deficiencies in cleaning and recycling services provided by the public authorities, lack of environmental education and awareness for the correct disposal of waste. In contrast, recycling cooperatives emerge as protagonists in the fight against the incorrect disposal of waste, promoting its segregation and environmentally correct final disposal (Severo et al., 2023a).

These cooperatives are supported by the National Solid Waste Policy (NSWP), approved in 2010, which aims to provide guidelines and instruments for environmental management regarding solid waste. As foreseen in the National Solid Waste Policy (NSWP), integrated solid waste management is understood as a set of actions aimed at finding waste solutions, considering the political, economic, environmental, cultural and social dimensions, with social control and oriented towards sustainable development (Brasil, 2010).

Selective collection is included in the NSWP, obliging the public authorities to make its implementation feasible at the municipal level; consequently, there would be a decrease in the amount of waste directed to landfills, reducing the emission of greenhouse gases, since such waste produces these gases. This policy is present in approximately 74% of Brazilian municipalities. The government should promote actions that encourage selective waste collection so that landfills and dumps are used less (Meireles, 2023).

2.3 SDG 17 (Partnerships and Means of Implementation) and Collaborative Digital Platforms for International Cooperation

The Sustainable Development Goals (SDGs) are a global call to action to end poverty, protect the environment and climate, and ensure that people everywhere can enjoy peace and prosperity. These are the goals to which the United Nations is contributing so that we can achieve the 2030 Agenda in Brazil (ONU Brasil, 2025).

The Sustainable Development Goals (SDGs) represent a global agenda established by the United Nations with the purpose of promoting economic prosperity, social inclusion, and environmental preservation by 2030 (ONU Brasil, 2025). Structured around 17 interdependent goals, the SDGs recognize that contemporary challenges, such as poverty, inequality, environmental degradation, and climate change, demand coordinated responses among governments, organizations, markets, and civil society (Melo, 2024; Baldassarre et al., 2024). In this context, SDG 17 occupies a strategic position by addressing the mechanisms necessary to enable the achievement of the other goals (ONU Brasil, 2025).

SDG 17 aims to strengthen the means of implementation and revitalize the global partnership for sustainable development (ONU Brasil, 2025). Its goals encompass different dimensions, such as mobilizing financial resources, technology transfer, institutional capacity building, international trade, coherence of public policies, production of reliable data, and strengthening multi-sectoral partnerships (ONU Brasil, 2025; Kanojia et al., 2025). In this way, SDG 17 functions as an integrating axis of the 2030 Agenda, as it recognizes that environmental, economic, and social goals depend on structured cooperation and shared institutional capacity (Khan et al., 2021; Kanojia et al., 2025).

Although the official text of SDG 17 does not explicitly mention collaborative digital platforms, its targets related to cooperation, technology, knowledge, and monitoring allow us to understand such platforms as contemporary instruments for operationalizing the objective (ONU Brazil, 2025; Spigarelli et al., 2025).

In this study, collaborative digital platforms are understood as institutionalized online systems used by governments, companies, universities, international organizations, and civil society organizations to share data, indicators, experiences, sustainable technologies, and best practices aimed at sustainable development (Winickoff et al., 2021; Jonathan & Pedron, 2026). These platforms are characterized by formal governance structures, defined participation protocols, and explicit mandates related to the Sustainable Development Goals.

Specific examples operationalized in this research include: (a) UN Data portals for sharing SDG indicators at the national level; (b) the Global Reporting Initiative (GRI) platform for standardized sustainability and ESG reporting; (c) UN Global Compact communities of practice for multi-stakeholder partnerships; (d) UNFCCC technology transfer mechanisms for climate solutions; and (e) OECD collaborative platforms for emerging sustainable technologies (Spigarelli et al., 2025; Winickoff et al., 2021). These platforms are distinguished from general-purpose social networks or open online forums by their institutional basis, purpose-driven design, and explicit alignment with sustainability governance structures. Such mechanisms promote transparency, technological dissemination, interorganizational learning, and the construction of joint solutions to complex global problems (Kanojia et al., 2025; Khan et al., 2021).

From this perspective, collaborative digital platforms can be interpreted as practical tools to support SDG 17, by bringing different actors closer together and expanding the capacity for international coordination around sustainability (ONU Brasil, 2025). In addition, these platforms reduce geographical barriers, accelerate information flows, and contribute to the democratization of knowledge necessary for the implementation of the 2030 Agenda (Winickoff et al., 2021; Jonathan & Pedron, 2026).

Thus, the relationship between SDG 17 and collaborative digital platforms does not stem from conceptual equivalence, but from the understanding that such technologies represent contemporary means to strengthen partnerships, share knowledge, and increase the effectiveness of global sustainable development strategies (ONU Brasil, 2025; Kanojia et al., 2025). Therefore, their analytical incorporation in this study as a variable associated with international cooperation mechanisms is justified.

2.4 Interactions Between Environmental Awareness, Segregation of Solid Waste (SDG 17), and Collaborative Digital Platforms for International Cooperation

When it comes to sustainability, individual behaviors have stood out because they play a central role in the effectiveness of environmental practices, especially when considered as elements that connect attitudes, perceptions, and concrete actions aimed at sustainable development (Severo; De Guimarães; Dorion, 2017; Wang; Mangmeechai, 2021). This movement is not merely a trend but a transformation in how companies operate, driven by growing demands from investors, society at large, and policymakers for more sustainable practices (Shibao et al., 2024).

In this context, environmental awareness is recognized as one of the main explanatory factors of pro-environmental behavior, influencing how individuals perceive environmental impacts and adopt sustainable practices in their daily lives (Wang; Mangmeechai, 2021; Henao-Rodríguez; Lis-Gutiérrez; Guzmán-Sierra, 2024). According to Sun and Ma (2026), a high level of environmental awareness is considered a prerequisite for ecological consumption behavior; however, improving this awareness may require greater consumption, which means that its emergence may have a cost for the environment.

Individuals with higher levels of environmental awareness tend to develop greater sensitivity to environmental issues, which is reflected in the adoption of responsible behaviors and support for initiatives aimed at sustainability (He et al., 2022). In this sense, environmental awareness can be understood as a relevant antecedent in the formation of attitudes and decisions aligned with the principles of sustainable development, acting as a predictor of pro-environmental intentions and behaviors and the effectiveness of environmental awareness actions (Severo; De Guimarães; Dorion, 2017; Romero-Luis et al., 2023).

In the context of operational practices, few articles address risk issues related to solid waste management, although it is evident that waste management is not immune to risks (De Oliveira et al., 2021). According to Sesay and Fang (2025), solid waste management remains a critical environmental challenge globally, particularly in cities in developing countries (Zhang et al., 2024; Lohani et al., 2025).

The effectiveness of waste management systems is associated with the level of individual engagement in the proper separation of materials, with environmental awareness being a determining factor in this process (Wang; Mangmeechai, 2021; He et al., 2022). Thus, a direct relationship is established between environmental awareness and solid waste segregation, in which the level of awareness influences the adoption of sustainable practices in daily life.

In addition to the local behavioral dimension, it is evident that sustainability depends on the integration between individual practices and broader mechanisms of global cooperation and governance. Therefore, SDG 17 emphasizes the importance of multi-sectoral partnerships, knowledge transfer, technological diffusion, and international cooperation as fundamental elements for the implementation of sustainable development (ONU Brasil, 2025; Azim et al., 2025).

Technological and organizational advancements have broadened the possibilities for collaboration among different actors, favoring the sharing of information and the construction of collective solutions focused on sustainability (Yang & Xiao, 2017; Costa et al., 2021). In this

context, collaborative digital platforms can be understood as instruments that allow the integration of governments, companies, universities, and civil society organizations through the sharing of knowledge, technologies, and sustainable best practices (Küfeoğlu, 2022; Spigarelli; Compagnucci; Lepore, 2025).

These platforms contribute to strengthening cooperation and innovation networks, promoting collective learning and the coordination of actions aimed at solving complex environmental problems, such as solid waste management (Henao-Rodríguez; Lis-Gutiérrez; Guzmán-Sierra, 2024). In this way, they can be interpreted as mechanisms that operationalize, in the contemporary context, the principles of SDG 17, especially with regard to strengthening global partnerships and promoting international cooperation (Azim et al., 2025; ONU Brasil, 2025).

The relationship between environmental awareness and collaborative digital platforms can be understood from the perspective that environmentally conscious individuals tend to value mechanisms that broaden the reach of sustainable solutions and promote cooperation among different actors (Wang; Mangmeechai, 2021). The need for sustainable development has grown in response to global environmental, social, and economic challenges, as conventional computational methods often struggle to cope with the complex nature of the SDGs (Meshram, 2024). Although these platforms operate at an institutional level, their acceptance and legitimacy are associated with the perceptions of individuals, who recognize their relevance as instruments to support sustainable development (Küfeoğlu, 2022; Spigarelli; Compagnucci; Lepore, 2025).

In this context, environmental awareness can be understood as an integrating variable between the micro level, related to individual behavior, and the macro level, associated with international cooperation and global governance, allowing us to understand how individual attitudes influence both local practices and perceptions about global sustainability mechanisms (Das, 2026; Wang; Mangmeechai, 2021). This integration contributes to understanding the factors that favor the implementation of the 2030 Agenda at different levels of analysis (Küfeoğlu, 2022; Azim et al., 2025).

Thus, the theoretical framework proposed in this study, presented in Figure 1, is structured around environmental awareness as an independent variable, which influences two distinct but complementary dimensions. The first refers to the segregation of solid waste, characterized as an operational and behavioral practice directly related to individual actions in the context of sustainability. The second dimension refers to perceptions about SDG 17 aligned

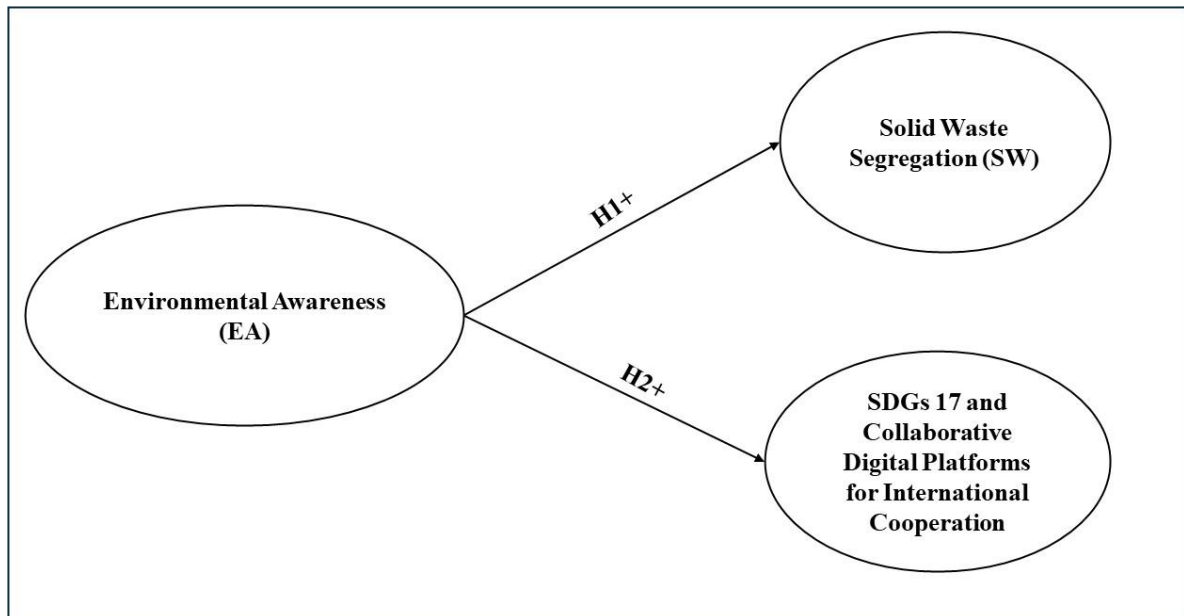
with collaborative digital platforms, understood as mechanisms for international cooperation aimed at sharing knowledge, technologies, and sustainable practices.

In this sense, the proposed model establishes a direct relationship between environmental awareness and the dependent variables, indicating that higher levels of environmental awareness tend to positively influence both the adoption of sustainable practices at the individual level and a favorable perception of digital instruments for global cooperation. Thus, the Framework integrates behavioral and institutional dimensions of sustainability, connecting the micro level, associated with individual actions, to the macro level, related to international cooperation and the 2030 Agenda.

Based on these relationships, this study proposes a theoretical framework that integrates environmental awareness, solid waste segregation, and SDG 17 aligned with collaborative digital platforms, allowing for the analysis of how behavioral factors influence both operational practices and perceptions about international cooperation mechanisms.

Considering the above, the Theoretical Framework and its research hypotheses are presented.

Figure 1 - Theoretical framework



Source: Authors (2025).

Based on this Theoretical Framework, the following research hypotheses are formulated:

H1: Environmental awareness is positively related to SW.

H2: Environmental awareness is positively related to SDG 17 and collaborative digital platforms for international cooperation.

3. METHOD

For the methodology of the present study, the concepts and techniques used by Severo (2024) based on Strauss and Howe (1991), Malhotra (2012), Hair Jr et al. (2014) and Turner (2015) were used as a basis. Aiming at the measurement and evaluation of three constructs, namely, to analyze the influence of environmental awareness (EA) on the segregation of solid waste (SW) and in the context of SDG 17 of collaborative platforms for international cooperation (SDGI), the research is characterized as quantitative and descriptive in nature.

About data collection, the technique of applying questionnaires from a survey was used in order to raise the perception of the research subjects in the context of the three constructs. In this context, each construct presents five observable variables. The EA construct considers the individual's perception of environmental preservation, environmental impact, sustainable practices, and personal responsibility in relation to environmental issues. The SW construct is related to the proper separation of generated waste (paper, plastic, glass, metal, electronics, and organic), environmental preservation, and separation encouraged by public institutions. The SDGI construct considers institutionalized collaborative platforms for international cooperation in sustainable practices (e.g., UN Data portals, GRI platform, Global Compact networks, UNFCCC technology interfaces), international environmental cooperation between countries to reduce global impacts, and how these specific online collaborative platforms can strengthen international partnerships for sustainable development.

The constructs and observable variables were developed by the authors themselves and validated by two qualified experts in the field of quantitative/statistical research, before being applied to the respondents. The snowball sampling methodology was used, resulting in a total of 116 responses, a sufficient number to characterize the research as a survey, as recommended by Hair Jr. et al. (2014).

The questionnaire was structured in two parts. The first part contained five questions to characterize the sociodemographic profile of the respondents, covering income bracket, education level, state of residence, and generational group (classified according to Strauss & Howe, 1991). The second part presented fifteen observable variables, distributed across three constructs (CA, SW, and SDGI), measured using a five-point Likert scale, structured as follows: 1 (strongly disagree), 2 (partially disagree), 3 (neither agree nor disagree), 4 (partially agree), and 5 (strongly agree).

Regarding the origin and adaptation of the scales, the constructs and their respective observable variables were developed by the authors themselves based on the reference literature. The Environmental Awareness (EA) construct was inspired by the work of Bezerra et al. (2023), Biscaia and Ribaski (2024) and Das (2026), encompassing dimensions of perceived environmental impact, personal responsibility and adoption of sustainable practices. The Solid Waste Segregation (SW) construct was based on Azevedo et al. (2024), Gonçalves and Roth (2022) and Shukla et al. (2024), covering attitudes and practices related to the separation of recyclable, organic and non-recyclable materials. The SDG 17 construct in Collaborative Platforms for International Cooperation (SDGI) was based on ONU Brasil (2025), Kanojia et al. (2025) and Spigarelli et al. (2025), encompassing perceptions about the role of institutionalized digital platforms in strengthening international partnerships for sustainable development.

The constructs and variables underwent content validation by two experts with experience in quantitative research and statistical analysis, who assessed the clarity, relevance, and representativeness of each item in relation to its respective construct. After the suggested adjustments, a pre-test was conducted with 19 respondents to verify comprehension of the questions, the average response time, and the adequacy of the scale. The pre-test indicated that respondents adequately understood the questions and that the average response time (approximately 8 minutes) was considered adequate. After the suggested adjustments, the complete questionnaire is found in Appendix A.

Regarding the sample, it is classified as non-probabilistic, by convenience, according to the assumptions of Hair Jr. et al. (2014), and was applied in the Northeast region of Brazil, specifically, Pernambuco. The questionnaires were collected between September 29, 2025, and November 17, 2025.

For data analysis, descriptive statistics were used with the aid of SPSS 23.0 software, as well as Confirmatory Factor Analysis (CFA), which, according to Hair Jr. et al. (2010), verifies the explanation of the observable variables of each factor (construct) (Table 1). Furthermore, according to Malhotra et al. (2005), CFA is a study that verifies variance, allowing comparisons of the effects between factors.

Table 1 - Variables and constructs

Observable Variables		Factorial Loadings	Communality
Construct: Environmental Awareness (EA)			
EA1	I consider myself a person who is conscious of environmental preservation.	0.804	0.647
EA2	My daily actions reflect concern for environmental impacts.	0.858	0.736
EA3	I believe that small individual actions can contribute to global sustainability.	0.809	0.655
EA4	I try to stay informed about sustainable practices in my daily life.	0.759	0.576
EA5	I feel that I have a personal responsibility in addressing environmental issues.	0.845	0.715
Construct: Solid Waste Segregation (SW)			
SW1	I usually separate recyclable waste (paper, plastic, glass, metal, electronics) from organic waste.	0.519	0.270
SW2	I consider the segregation of solid waste important for environmental preservation.	0.904	0.817
SW3	I believe that waste segregation should be encouraged by public institutions.	0.909	0.826
SW4	The lack of trash cans and selective collection makes the practice of waste segregation difficult.	0.749	0.560
SW5	I believe that the segregation of solid waste can significantly reduce environmental impacts.	0.883	0.780
Construct: SDG 17 on collaborative platforms for international cooperation (SDGI)			
SGDI1	I believe that online collaborative platforms are fundamental for international cooperation in sustainable practices.	0.927	0.860
SGDI2	The sharing of online collaborative platforms for international environmental cooperation between countries is fundamental to reducing global impacts.	0.952	0.906
SGDI3	Online collaborative platforms for international cooperation can expand communication and international cooperation in solid waste management.	0.953	0.909
SGDI4	Developing countries should receive support from online collaborative platforms for international cooperation to advance environmental management.	0.892	0.796
SGDI5	I believe that online collaborative platforms for international cooperation can strengthen international partnerships for sustainable development.	0.966	0.933

Source: Authors (2025).

In the CFA, it was found that all observable variables had loadings >0.5 , as well as the Communality, which was within the recommended range >0.5 . Only one variable, SW1 (0.270), was lower than recommended, but the other tests confirmed the importance of the variable. As recommended by Hair Jr et al. (2014), it is up to the author to decide whether or not to remove the variable. In this scenario, it was decided to keep SW1, as it is important for understanding the construct.

In this context, to verify the influence of EA on SW in the context of SDG 17 of online collaborative platforms for international cooperation (SDGI), Multiple Linear Regression

(MLR) was used. According to Hair Jr. et al. (2010), MLR analyzes the relationship between the variables of the study and is considered an appropriate method whenever the research problem involves a single dependent variable that can be related to two or more independent variables.

3.1 Convergent and Discriminant Validity of the Constructs

To ensure the psychometric robustness of the proposed model, convergent validity and discriminant validity criteria were evaluated, as recommended by Hair Jr. et al. (2014) and Fornell and Larcker (1981).

Convergent validity verifies how much the observable variables of the same construct share a high proportion of common variance. The following criteria were adopted: (a) factor loadings greater than 0.50; (b) average variance extracted (AVE) greater than 0.50; and (c) composite reliability greater than 0.70. As shown in Table 1, all observable variables had factor loadings greater than 0.50, except for the SW1 variable (0.519), which, although above the lower limit, had communality below the recommended level (0.270). SW1 was retained due to its theoretical relevance to the solid waste segregation construct, as suggested by Hair Jr. et al. (2014).

Regarding the convergent validity indicators, the Environmental Awareness (EA) construct presented an Average Extracted Variance (AVE) of 0.665 and a Composite Reliability (CR) of 0.908. The Solid Waste Segregation (WS) construct presented an AVE of 0.577 and a CR of 0.857. The SDGs in Collaborative Platforms (SDGI) construct presented an AVE of 0.881 and a CR of 0.974. All AVE values exceed the recommended limit of 0.50, indicating that, on average, more than 50% of the variance of the indicators is explained by the underlying construct. The Composite Reliability (CR) values exceed 0.70, indicating high internal consistency.

Discriminant validity verifies whether the constructs are statistically distinct from each other. The criterion of Fornell and Larcker (1981) was adopted, according to which the square root of the AVE of each construct must be greater than the correlation between the constructs.

The results indicated that the square root of the AVE of Environmental Awareness (EA) was 0.815, while its correlation with Solid Waste Segregation (SW) was 0.751 and with SDGI was 0.626. The square root of the AVE of Solid Waste Segregation (SW) was 0.760, while its correlation with EA was 0.751 and with SDGI was 0.551. The square root of the AVE of the SDGI construct was 0.939, while its correlation with EA was 0.626 and with SW was 0.551.

It is observed that the square root of the AVE of each construct is higher than the respective correlations with the other constructs, attesting to the discriminant validity of the model. These results indicate that the respondents adequately distinguished the three proposed constructs.

4. RESULTS AND DISCUSSION

Methodological note on the scope of inferences: The results presented in this section are based on a non-probabilistic sample of 116 respondents residing in the state of Pernambuco, Brazil. The analyses refer to the participants' perceptions within the proposed model, and it is not possible to generalize the findings to larger populations or to other geographical contexts. The discussions on SDG 17 and collaborative platforms are based on the respondents' perceptions of such instruments, and not on objective measures of the implementation of the 2030 Agenda or the effectiveness of digital platforms.

4.1 Sample Profile

The research sample consists of 116 people living in the state of Pernambuco, who were given a questionnaire administered between September 29, 2025, and November 17, 2025. Regarding the birth period, the classification was based on generation, according to the principles of Strauss and Howe (1991) and Severo et al. (2018), which use the year of birth to define generations: Baby Boomers are those born before 1965, Generation X those born between 1965 and 1981, and Generation Y those born after 1981. This criterion of birth years was used to classify the generation of the respondents, where 63% were born after 1981 (Generation Y), 34% were born between 1965 and 1982 (Generation X), and 3% were born before 1965 (Baby Boomers).

Regarding education, 9% of respondents hold a doctorate; 16% a Master's degree; 29% a specialization, and 38% a Bachelor's degree. 7% have completed high school, and 1% have completed elementary school. Regarding monthly family income, 15% of respondents received less than 2 minimum wages; 23% received between 2 and 4 minimum wages; 37% received between 4 and 10 minimum wages; 18% received between 10 and 20 minimum wages; and 7% received more than 20 minimum wages.

4.2 Confirmatory Factor Analysis

For data cleaning, we sought to identify univariate outliers, perform Pearson's skewness analysis with values close to zero (Kline, 2005; Hair Jr. et al., 2010), and examine kurtosis, with values less than 5 (Mardia, 1971). Questionnaires in which the respondents centered their

answers on a single option of the five-point Likert scale were also discarded. It is worth noting that the electronic form did not allow non-responses (missing), and there were also no cases in which respondents chose the same alternative (Likert scale) for all responses, resulting in 116 valid cases.

After data cleaning, the normality and reliability of the data were assessed (Table 2) using: i) Bartlett's sphericity tests, which showed significant results ($p < 0.001$); ii) Kaiser, Meyer and Olkin (KMO) adequacy index, which, according to Hair Jr. et al. (2010) and Pestana and Gageiro (2014), must present values above 0.5; and, iii) Verification of the internal consistency of the observable variables, using the calculation of Cronbach's Alpha, with values greater than 0.7 (Hair Jr. et al., 2010). Bartlett's sphericity tests showed significance for the set of variables, as well as KMO and Cronbach's Alpha, which presented values higher than the accepted criteria. Regarding homoscedasticity, the variations in the data around the mean are similar across all analyzed groups, meaning they are constant.

Table 2 – Cronbach's Alpha, KMO and Bartlett's Test of Sphericity

Test		Value Found
Cronbach's Alpha		0.93
KMO		0.841
Bartlett's Test of Sphericity	Chi-square	271.556
	Significance	0.000*
* < 0.001		

Source: Authors (2025).

With the aim of verifying the dimensional structure of the constructs Environmental Awareness (EA), Solid Waste Segregation (SW), and SDG 17 on online collaborative platforms for international cooperation (SDGI), a Principal Component Analysis (PCA) was performed using SPSS software. Considering that each construct was theorized as unidimensional, the extraction of a single component for each block of variables was adopted.

4.3 Environmental Awareness (EA)

In the Environmental Awareness (EA) construct, the factor loadings ranged from 0.759 to 0.858, indicating adequate convergence between the items. Item EA2 “My daily attitudes reflect concern for environmental impacts”, presented the highest factor loading (0.858), showing greater representativeness within the construct's structure. The other variables also presented satisfactory loadings (EA1 = 0.804; EA3 = 0.809; EA4 = 0.759; EA5 = 0.845), all above the recommended minimum limit of 0.50 for exploratory studies. Corroborating the theoretical assumptions of Biscaia and Ribaski (2024), Kanojia et al. (2025) and Sun and Ma

(2026), environmental awareness is extremely relevant to understanding how individuals perceive environmental problems and respond to the challenges of sustainability.

Table 3 – Component Matrix^a

	Component
	1
EA1	0.804
EA2	0.858
EA3	0.809
EA4	0.759
EA5	0.845

Source: Authors (2025).

These results suggest that the construct presents adequate structural consistency, reinforcing the literature that understands environmental awareness as an integrated set of values, perceptions, and behavioral predispositions (Bezerra et al., 2023; Severo et al., 2023). The high loading of item EA2 “My daily actions reflect concern for environmental impacts” indicates that the content it represents constitutes a central element in the formation of the respondents' environmental perception, which is in line with the research of Das (2026) and Cederqvist et al. (2025), since the use, reuse, improper disposal and excessive consumption of natural resources can cause negative environmental impacts.

4.4 Solid Waste Segregation (SW)

For the Solid Waste Segregation construct, the factor loadings ranged from 0.519 to 0.909. Item SW3 “I believe that waste segregation should be encouraged by public institutions”, showed the highest factor loading (0.909), followed by SWS2 (0.904) and SW5 (0.883), showing a strong association of these indicators with the extracted factor. Item SWS4 showed a satisfactory loading (0.749), while SW1 registered a lower value (0.519), although still above the minimum acceptable limit. These findings corroborate the study by De Oliveira et al., (2021) and Chin et al. (2026) as effective solid waste management is essential to avoid negative environmental impacts that pollute the planet.

Table 4 – Component Matrix^a

	Component
	1
SW1	0.519
SW2	0.904
SW3	0.909
SW4	0.749
SW5	0.883

Source: Authors (2025).

The high loading of SW3 suggests that the specific behavior captured by this item represents the explanatory core of the construct, indicating that effective segregation practices are determinants in the overall perception of waste management. These findings are aligned with studies that emphasize the centrality of practical action and daily behavior in the effectiveness of sustainable waste management (Azevedo et al., 2024; Gonçalves & Roth, 2022; Sesay & Fang, 2025). The lower loading observed in RS1 may indicate less perceptual homogeneity in relation to this indicator, suggesting possible future refinement of the scale.

4.5 SDG 17 On Online Collaborative Platforms for International Cooperation (SDGI)

In the construct related to SDGI, the factor loadings showed high values, ranging from 0.892 to 0.966, demonstrating strong convergence between the items. Item SDGI5 “I believe that online collaborative platforms for international cooperation can strengthen international partnerships for sustainable development”, had the highest factor loading (0.966), followed by SDGI3 (0.953), SDGI2 (0.952), SDG1 (0.927), and SDGI4 (0.892), which corroborates theoretical assumptions of ONU Brazil (2025) and Kanojia et al. (2025), since the relationship between SDG 17 and collaborative digital platforms stems from the understanding that such technologies represent contemporary means to strengthen partnerships, share knowledge and increase the effectiveness of global sustainable development strategies.

Table 5 – Component Matrix^a

	Component
	1
SDGI1	0.927
SDGI2	0.952
SDGI3	0.953
SDGI4	0.892
SDGI5	0.966

Source: Authors (2025).

The results indicate high internal consistency and strong unidimensionality of the construct, suggesting that respondents perceive collaborative platforms as an integrated mechanism for cooperation and support for sustainability. This evidence converges with the literature that associates collaborative technologies with the promotion of strategic partnerships and the implementation of sustainable agendas (Shriky, 2012; Meshram, 2024; Spigarelli et al., 2025).

4.6 Multiple Linear Regression

Regarding the results found in the first Multiple Linear Regression for the proposed model, it can be seen that the explanatory power of Environmental Awareness (EA) in Solid Waste Segregation (SW) is equivalent to 56.5% (R^2) (Table 4), that is, a high influence (>0.5) Hair Jr. et al. (2014). The significance test showed a p-value >0.001 , indicating that the estimated regression model is adequate for the study.

Table 6 – Summary of the model^b

Model	R	R^2	Adjusted R^2	Standard error of the estimate
1	0.751 ^a	0.564	0.543	0.55973

a. Predictors: (Constant), SW

b. Dependent Variable: mean-EA

Source: Authors (2025).

The first estimated RLM for the proposed model shows a high explanatory power of EA in SW, since the coefficient of determination ($R^2=0.564$) indicates that 56.4% of the variance in SW is explained by the independent variables included in the model. The multiple correlation coefficient ($R = 0.751$) points to a strong relationship between the variables, while the adjusted R^2 (0.543) demonstrates that the model maintains explanatory consistency after adjustment for the number of predictors, ruling out evidence of overfitting.

The standard error of the estimate (0.55973) has an acceptable value, suggesting adequate precision of the estimates, and the model's overall significance test ($p<0.001$) confirms that the regression is statistically significant and appropriate for the study. These results indicate that higher levels of environmental awareness are strongly associated with social responsibility, reinforcing the relevance of this variable in explaining the phenomenon analyzed.

In the second Multiple Linear Regression for the proposed model, it can be seen that the explanatory power of EA in SDG17 of Online Collaborative Platforms for International Cooperation (SDGI) is equivalent to 39.2% (R^2) (Table 5), that is, it presents a moderate intensity. The significance test showed a p-value >0.001 , indicating that the estimated regression model is adequate for the study.

Table 7 – Summary of the model^b

Model	R	R^2	Adjusted R^2	Standard error of the estimate
1	0.626 ^a	0.392	0.387	0.67548

a. Predictors: (Constant), SDGI

b. Dependent Variable: mean-EA

Source: Authors (2025).

In the second estimated RLM for the proposed model, it is observed that EA presents a moderate explanatory power in relation to the dependent variable SDGI, since the coefficient of determination ($R^2=0.392$) indicates that 39.2% of the variance of SDGI is explained by the model. The correlation coefficient ($R=0.626$) reveals a positive association of moderate intensity, while the adjusted R^2 (0.387) confirms the stability of the model after adjustment for the number of predictors, evidencing explanatory consistency.

The standard error of the estimate (0.67548) is at an acceptable level, suggesting adequate precision of the estimates generated by the model. In addition, the overall significance test ($p<0.001$) indicates that the regression is statistically significant and appropriate for the study, allowing us to conclude that individual environmental awareness exerts a relevant influence on the SDGI variable, albeit with less magnitude when compared to other models in the study.

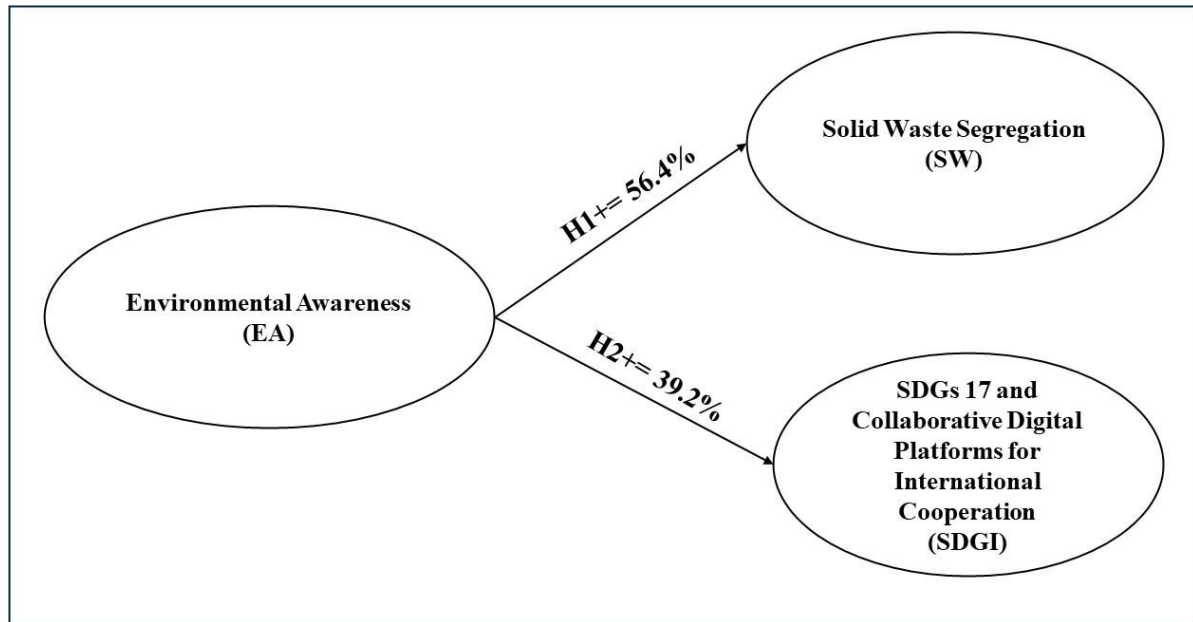
The results found in the two multiple linear regressions confirm the proposed model, in which Environmental Awareness (EA) has a significant influence on Solid Waste Segregation (SW) and on SDG 17 in Online Collaborative Platforms for International Cooperation (SDGI), with an explanatory power of 56.4% for SR ($R^2=0.564$) and 39.2% for SGDI ($R^2=0.392$).

The results of the second multiple linear regression indicated that Environmental Awareness (EA) explains 39.2% ($R^2 = 0.392$) of the variance in perceptions related to SDG 17 in collaborative platforms for international cooperation (SDGI). This percentage, although moderate and lower than that found for the relationship between EA and SW (56.4%), is statistically significant ($p<0.001$) and suggests that individuals with a higher level of environmental awareness tend to recognize the role of digital instruments for international cooperation more favorably.

It is important to highlight that the model does not measure the effective use or efficiency of such platforms, but rather the respondents' perceptions of the potential of these tools. The coefficient of determination of 39.2% indicates that other factors not included in the model, such as technological familiarity, prior experience with international cooperation, educational level, or trust in multilateral institutions, also contribute to explaining the variance in perceptions about SDGI. Future studies could incorporate these variables to increase the explanatory power of the model. Specifically regarding SDG 17, the findings suggest that individual environmental awareness can be a relevant antecedent for a positive perception of its means of implementation (partnerships, technology transfer, data sharing). However, the moderate magnitude of the effect (39.2%) indicates that the acceptance of international

cooperation mechanisms does not depend exclusively on environmental awareness, being equally influenced by institutional, political, and contextual factors.

Figure 2 - Search results



Source: Authors (2025).

The empirical findings indicate that Environmental Awareness (EA) exerts a significant influence on both Solid Waste Segregation (SW) and SDG 17 in Online Collaborative Platforms for International Cooperation (SDGI). The first multiple linear regression revealed a high explanatory power of EA on SW, with 56.4% of the variance explained, showing a high and statistically significant intensity. The second regression demonstrated a moderate explanatory power of EA on SGDI, explaining 39.2% of the variance of this variable. These results reinforce that individual environmental attitudes and perceptions are consistently reflected in distinct organizational dimensions, albeit with different magnitudes.

The results also corroborate studies that argue that environmental and social practices do not necessarily imply a significant increase in organizational costs, and may, on the contrary, generate strategic benefits for organizations (Hollos et al., 2012; Fry & Slocum Jr., 2008; Gimenez et al., 2012; Severo et al., 2021).

5. FINAL CONSIDERATIONS

This study aimed to analyze the influence of Environmental Awareness (EA) on Solid Waste Segregation (SW) and perceptions of the Sustainable Development Goals (SDG 17) on Collaborative Digital Platforms for International Cooperation (SDGI). Based on the proposed

quantitative model, the results indicated that EA exerted a positive and significant influence on both dependent variables, showing greater explanatory power on SW than on perceptions related to SDG1.

It is important to note that the empirical findings refer to the respondents' perceptions and the explanatory power of EA on the variables within the proposed model. This study does not directly measure the achievement of the 2030 Agenda goals or the effectiveness of digital platforms, limiting itself to the analysis of the relationships between the constructs in the collected sample (116 respondents from Pernambuco, Brazil).

The findings reinforce the relevance of EA as an antecedent of sustainable behaviors at the individual level. Respondents with higher levels of environmental awareness demonstrated a greater propensity to adopt waste segregation practices, suggesting that environmental values and knowledge about sustainability can translate into concrete actions in daily life, such as recycling, selective disposal, and responsible waste management. This result is aligned with previous studies that associate environmental awareness with pro-environmental behaviors (Biscaia & Ribaski, 2024; Kanojia et al., 2025).

From the perspective of the 2030 Agenda, the study also suggests that environmental awareness can indirectly contribute to broader mechanisms for sustainable development. Although respondents did not directly evaluate public policies or international institutions, the positive relationship between environmental awareness and perceptions of collaborative digital platforms indicates that environmentally conscious individuals tend to recognize the relevance of technological and cooperative instruments associated with the principles of SDG 17 (SDGI).

The results obtained suggest, within the limits of the analyzed sample (116 respondents from Pernambuco, Brazil) and the proposed model, that EA is positively associated with perceptions about WS and about international cooperation instruments aligned with SDG 17 (SDGI). However, this study does not allow us to affirm that EA is a necessary or sufficient condition for achieving the 2030 Agenda goals, since objective variables of public policy implementation, effectiveness of digital platforms, or real environmental impact were not measured.

The greater intensity of the relationship between EA and SW (56.4%) compared to EA and SDGI (39.2%) suggests that environmental awareness translates more directly into concrete individual behaviors (such as waste separation) than into perceptions about global institutional mechanisms of cooperation. This difference in magnitude indicates that the link between micro-behaviors and macro-governance structures is mediated by other factors (access to information, institutional trust, social capital) that were not captured in this model.

In the organizational context, the results suggest that companies, universities, and public institutions can benefit from investments in environmental education, awareness campaigns, and sustainability-focused training. Strengthening environmental awareness can contribute not only to improvements in internal waste management practices but also to greater acceptance of digital cooperation initiatives, ESG information systems, sustainability reporting platforms, and collaborative networks focused on innovation and sustainable development.

In the academic field, this research contributes by integrating three dimensions that are often analyzed in isolation: environmental awareness, waste segregation, and Sustainable Development Goals (SDG 17) in collaborative digital platforms for international cooperation. By relating an individual behavioral construct to organizational and global sustainability instruments, the study broadens the analytical debate on how attitudes at the micro level can connect to sustainable development agendas at the macro level. The constructs (observable variables) were developed by the researchers and validated through statistical tests, which contributes to the advancement of science in the researched area, as it can be used by other researchers.

With regard specifically to SDG 17, the study does not intend to claim the direct measurement of the implementation of this goal. Instead, it analyzes perceptions associated with collaborative digital mechanisms that can support principles of SDG 17, such as partnerships, knowledge sharing, technological diffusion, and multi-sectoral cooperation. This distinction is important to ensure coherence between the empirical model adopted and the scope of the conclusions presented.

Some limitations must be acknowledged. The research used a non-probabilistic sample restricted to respondents from the Northeast region of Brazil, which limits the generalization of the results. In addition, the construct related to collaborative digital platforms was measured based on perceptions, which may vary according to the level of familiarity of respondents with these systems. Thus, the findings should be interpreted within the limits of the proposed model.

As a future research agenda, it is suggested to expand the sample to other regions or countries, test moderating variables such as education or organizational experience, and investigate specific collaborative platforms focused on sustainable governance. Comparative studies involving companies, universities, and public institutions can also deepen the understanding of how EA favors the implementation of the goals of the 2030 Agenda.

It is concluded that EA remains a relevant factor in promoting sustainable behaviors and attitudes favorable to cooperation mechanisms linked to sustainability. These results suggest, within the limits of the study, that achieving the goals of the 2030 Agenda depends not only on

institutions and public policies, but also on the level of environmental awareness of individuals within organizations and society, although other institutional and contextual factors also play relevant roles.

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APPENDIX A – DATA COLLECTION INSTRUMENT (QUESTIONNAIRE)

Part 1 – Sociodemographic Profile

Instructions: Select the option that best describes your situation.

- 1) In what period were you born?
 - ☐ Before 1965
 - ☐ From 1965 to 1981
 - ☐ After 1981

- 2) What is your gender?
 - ☐ Male
 - ☐ Female
 - ☐ Other

- 3) What is your level of education? (currently enrolled or completed)
 - ☐ Elementary School
 - ☐ High School
 - ☐ Undergraduate Degree
 - ☐ Specialization
 - ☐ Master's Degree
 - ☐ Doctorate

- 4) What is your monthly family income? (sum of all family members)
 - ☐ Less than 2 minimum wages
 - ☐ From 2 to 4 (exclusive) minimum wages
 - ☐ From 4 to 10 (exclusive) minimum wages
 - ☐ From 10 to 20 (exclusive) minimum wages
 - ☐ From 20 minimum wages onwards

- 5) In which northeastern state do you live?
 - ☐ Alagoas
 - ☐ Bahia
 - ☐ Ceará
 - ☐ Maranhão
 - ☐ Paraíba
 - ☐ Pernambuco
 - ☐ Piauí
 - ☐ Rio Grande do Norte
 - ☐ Sergipe

Part 2 – Constructs

Instructions: Evaluate each statement considering what you think or feel about the researched topics, using the following scale:

Evaluate the statements and answer considering what you think or feel about the researched topics, where:

1 = Strongly disagree 2 = Disagree somewhat 3 = Neither agree nor disagree 4 = Agree somewhat 5 = Strongly agree

* Consider the questions in relation to the company you work for or worked for in your last job.

Construct 1 – Environmental Awareness (EA)

Objective: To assess perception and personal responsibility in relation to the environment.

EA1: I consider myself a person who is conscious of environmental preservation.

EA2: My daily actions reflect concern for environmental impacts.

EA3: I believe that small individual actions can contribute to global sustainability.

EA4: I try to stay informed about sustainable practices in my daily life.

EA5: I feel that I have a personal responsibility in addressing environmental issues.

Construct 2 – Solid Waste Segregation (SW)

Objective: To measure specific attitudes and practices related to waste separation.

SW1: I usually separate recyclable waste (paper, plastic, glass, metal, electronics) from organic waste.

SW2: I consider the segregation of solid waste important for environmental preservation.

SW3: I believe that waste segregation should be encouraged by public institutions.

SW4: The lack of trash cans and selective collection makes the practice of waste segregation difficult.

SW5: I believe that the segregation of solid waste can significantly reduce environmental impacts.

Construct 3 – SDG 17 and Online Collaborative Platforms for International Cooperation (SDGI)

Objective: To assess perceptions of the role of institutionalized online collaborative platforms for international cooperation (such as UN Data portals, the Global Reporting Initiative (GRI) platform, UN Global Compact communities, and UNFCCC technology transfer interfaces) in

SGDI1 I: believe that online collaborative platforms are fundamental for international cooperation in sustainable practices.

SGDI2: The sharing of online collaborative platforms for international environmental cooperation between countries is fundamental to reducing global impacts.

SGDI3: Online collaborative platforms for international cooperation can expand communication and international cooperation in solid waste management.

SGDI4: Developing countries should receive support from online collaborative platforms for international cooperation to advance environmental management.

SGDI5: I believe that online collaborative platforms for international cooperation can strengthen international partnerships for sustainable development.