

Ecological awareness; Sustainable behavior; Ecological transition; Environmental knowledge; Morocco

Lamia BOUKAYA

ENCG-UIZ, Agadir, Morocco

Abstract

The ecological transition has become a major global priority in response to climate change, biodiversity loss, pollution, and natural resource depletion. While governments play a crucial role in promoting sustainability through environmental policies, regulations, and technological investments, the success of ecological transition ultimately depends on citizens' willingness to adopt environmentally responsible behaviors. Morocco provides a particularly relevant context for investigating this issue due to its ambitious environmental policies, including the National Sustainable Development Strategy, significant investments in renewable energy, and strong climate commitments. However, translating environmental policies and ecological awareness into concrete sustainable actions remains a major challenge. This study aims to investigate the behavioral mechanisms underlying the transition from ecological awareness to sustainable action among Moroccan citizens. More specifically, it examines the influence of ecological awareness on sustainable behavior, evaluates the mediating role of environmental knowledge, assesses the effect of ecological cost perception on behavioral intentions, and analyzes the influence of socio-demographic variables on ecological behavior. The study also seeks to validate an integrated behavioral model explaining sustainable action within the Moroccan context. By emphasizing the relationship between awareness, knowledge, perceptions, and individual behavior, this research contributes to a better understanding of the behavioral dimensions of ecological transition and provides valuable insights for policymakers and sustainable development strategies in Morocco.

I. Introduction

The Moroccan context provides an especially relevant setting for investigating this issue. Morocco has become one of Africa's leading countries in environmental governance through initiatives such as the National Sustainable Development Strategy, large-scale renewable energy investments, and ambitious climate commitments. However, the success of these initiatives ultimately depends on citizens' willingness to adopt environmentally responsible behaviors in their daily lives. Consequently, examining the factors that facilitate the transition from ecological awareness to sustainable action has significant implications for both national environmental policy and sustainable development.

This study aims to investigate the behavioral mechanisms that explain the transition from ecological awareness to sustainable action among Moroccan citizens.

More specifically, the study seeks to:

- examine the influence of ecological awareness on sustainable behavior;
- evaluate the mediating role of environmental knowledge;
- assess the effect of ecological cost perception on behavioral intentions;
- analyze the influence of socio-demographic variables on ecological behavior;
- validate an integrated behavioral model explaining sustainable action in the Moroccan context.

2.1 Ecological Transition: From Environmental Policies to Individual Action

Ecological transition has emerged as one of the most significant global priorities in response to climate change, biodiversity loss, pollution, and resource depletion. It refers to the transformation of economic, social, and institutional systems toward more sustainable models that preserve natural resources while ensuring long-term economic and social development. International initiatives such as the United Nations Sustainable Development Goals (SDGs), the Paris Climate Agreement, and the European Green Deal have reinforced the importance of integrating sustainability into public policies and organizational strategies.

Although governments play a crucial role through regulations and environmental policies, several scholars argue that ecological transition cannot be achieved without the active participation of citizens. Daily decisions regarding transportation, energy consumption, waste management, recycling, and purchasing behavior collectively exert a substantial impact on environmental sustainability. Consequently, understanding the determinants of individual ecological behavior has become a major research topic in environmental management and sustainability science.

In emerging economies, ecological transition presents additional challenges due to rapid urbanization, socio-economic inequalities, limited environmental infrastructure, and varying levels of environmental education. Morocco illustrates this duality. While the country has invested significantly in renewable energy projects and sustainable development strategies, long-term success depends largely on citizens' willingness to adopt environmentally responsible behaviors.

Therefore, ecological transition should not be viewed solely as a technological or political process but also as a behavioral transformation requiring changes in individual values, knowledge, and everyday practices.

2.2 Ecological Awareness and Sustainable Behavior

Ecological awareness refers to an individual's understanding of environmental issues, recognition of ecological risks, and sensitivity toward environmental protection. It encompasses cognitive, emotional, and ethical dimensions that influence how people perceive their relationship with nature and evaluate the consequences of their actions.

Previous research consistently identifies ecological awareness as a fundamental antecedent of sustainable behavior. Individuals who are aware of environmental problems generally demonstrate stronger intentions to recycle, reduce energy consumption, purchase environmentally friendly products, and support environmental policies.

However, awareness alone rarely guarantees behavioral change. Numerous studies have shown that people often possess adequate environmental knowledge while continuing to engage in environmentally harmful behaviors. This discrepancy has become one of the central paradoxes in sustainability research.

Consequently, researchers increasingly emphasize that ecological awareness should be considered a necessary but not sufficient condition for sustainable behavior. Other cognitive, economic, and contextual variables intervene between awareness and actual behavior.

2.3 Environmental Knowledge as a Driver of Behavioral Change

Environmental knowledge represents the information and understanding individuals possess regarding environmental problems, ecological consequences, and sustainable solutions. Unlike awareness, which reflects concern, environmental knowledge provides individuals with the cognitive resources necessary to make informed environmental decisions.

Several studies demonstrate that environmental knowledge enhances individuals' capacity to recognize sustainable alternatives, evaluate environmental impacts, and adopt environmentally responsible practices. Citizens who understand concepts such as carbon emissions, recycling processes, renewable energy, or circular economy principles are generally more capable of translating ecological awareness into concrete actions.

Environmental education therefore plays a strategic role in promoting sustainable lifestyles. Schools, universities, governmental institutions, and media campaigns contribute to increasing environmental literacy, which strengthens citizens' confidence in adopting environmentally responsible behaviors.

Accordingly, this study considers environmental knowledge as a key explanatory factor facilitating the transition from ecological awareness to sustainable action.

2.4 Ecological Cost Perception

While environmental awareness and knowledge encourage sustainable behavior, economic considerations frequently influence final decision-making. Environmentally friendly products are often perceived as more expensive than conventional alternatives, creating financial barriers that discourage sustainable consumption.

Ecological cost perception refers to individuals' evaluation of the economic sacrifices associated with environmentally responsible choices. These costs may include higher product prices, additional effort, time investment, or lifestyle modifications.

Previous studies suggest that perceived costs significantly affect consumers' willingness to adopt green products and sustainable practices. Even environmentally conscious individuals may hesitate to purchase eco-friendly products when they perceive them as financially inaccessible. In developing countries, where purchasing power varies considerably across social groups, economic considerations become particularly important. Consequently, ecological transition requires not only awareness campaigns but also economic incentives capable of reducing perceived barriers to sustainable behavior.

2.5 Socio-Demographic Factors and Ecological Behavior

Individual ecological behavior is also influenced by socio-demographic characteristics. Previous research has examined variables such as age, gender, education, occupation, and income to explain differences in environmental attitudes and behaviors.

Educational level consistently appears as one of the strongest predictors of sustainable behavior, as higher education generally increases environmental knowledge and critical thinking regarding sustainability issues.

Income also affects ecological choices. Higher-income households often possess greater financial capacity to purchase environmentally friendly products or invest in renewable technologies. Conversely, lower-income individuals may prioritize economic affordability over environmental considerations.

Age and gender have produced more heterogeneous findings across countries. While some studies suggest that younger generations display greater environmental awareness, others report stronger ecological engagement among older individuals due to greater social responsibility. Similarly, women frequently exhibit higher environmental concern than men, although behavioral differences remain context-dependent.

These findings suggest that ecological behavior results from the interaction of psychological, cognitive, and socio-economic factors rather than from environmental awareness alone.

2.6 The Awareness–Action Gap: A Theoretical Perspective

One of the most influential concepts in sustainability research is the Awareness–Action Gap, also known as the Attitude–Behavior Gap. This concept describes the inconsistency between individuals' expressed environmental concern and their actual environmental behavior.

Several theoretical frameworks attempt to explain this phenomenon. The Theory of Planned Behavior (TPB) argues that behavior is determined by behavioral intentions, themselves influenced by attitudes, subjective norms, and perceived behavioral control. Even when individuals possess positive environmental attitudes, limited resources or perceived constraints may prevent sustainable action.

Similarly, the Value–Belief–Norm (VBN) Theory suggests that personal values influence environmental beliefs, which activate moral norms leading to pro-environmental behavior. However, contextual barriers such as financial costs or institutional limitations may interrupt this behavioral chain.

These theories collectively indicate that ecological awareness represents only one element within a broader behavioral system. Sustainable behavior emerges from the interaction of environmental knowledge, economic considerations, social influences, and individual capabilities.

Building upon these theoretical perspectives, the present study proposes an integrated conceptual framework explaining how ecological awareness is transformed into sustainable behavior in the Moroccan context.

II. Conclusion

This research makes several contributions to the sustainability literature: first, it extends existing knowledge on ecological behavior by proposing and validating an integrated behavioral model within the context of an emerging economy. While previous research has often examined environmental awareness or sustainable behavior independently, this study investigates the mechanisms linking awareness to action.

Second, the study contributes methodologically by adopting a mixed-methods approach, combining qualitative exploration with quantitative validation using Partial Least Squares Structural Equation Modeling (PLS-SEM). This methodological triangulation strengthens the robustness of the findings and provides a comprehensive understanding of ecological behavior.

Finally, the research offers practical implications for policymakers, educational institutions, and organizations seeking to promote ecological transition. The findings provide evidence-based recommendations for designing awareness campaigns, educational programs, and incentive mechanisms capable of fostering long-term sustainable behaviors.

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