



Sustainability Literacy and Sustainable Outcomes Questioning the Utility of a Contested Concept

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Abstract. Improving the global population's sustainability literacy is a core component of international sustainable development efforts. It is widely assumed that as individuals increase their understanding of how sustainability works, and what it is, they will make more sustainable decisions. However, upon further consideration, sustainability literacy as an approach to approach to sustainable development has two major drawbacks. First, the concept of sustainability literacy is inevitably vague and all-encompassing. In a theoretical sense, this leads to issues with definition and measurement. Empirically, this has been shown to have led to incoherent measures of the concept and calls into question sustainability literacy as a useful domain of knowledge. Second, sustainability literacy implies that increases in knowledge lead to changes in behavior. However, work across a number of disciplinary fields suggests little minimal causal impacts of knowledge, especially general, on individual behaviors. Taken together, this calls into question the value of a focus on sustainability literacy in sustainable development and suggests alternative approaches that may more effectively promote sustainable development.

Keywords: Sustainability Literacy, Education for Sustainable Development, Environmental Behavior

1 Introduction

A long-held assumption within sustainable development efforts is that increases in sustainability literacy will lead to more environmentally sustainable outcomes. It is often taken for granted that as individuals increase their understanding of how sustainability works and what it is, they will make more sustainable decisions (UNESCO 2019). This is even enshrined within the United Nations Sustainable Development Goals. Target 4.7 aims to “ensure all learners acquire knowledge and skills needed to promote sustainable development.” While education across a variety of domains has been conclusively linked to many positive development outcomes (Duflo 2001; Gylfason 2001; Psacharopoulos and Patrinos 2018), this chapter calls into question the concept of sustainability literacy and its effectiveness in pushing societies toward environmentally sustainable outcomes.

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measurement. Empirically, this has been shown to have led to incoherent measures of the concept and questions the term as a useful domain of knowledge. Second, sustainability literacy implies that increases in knowledge lead to changes in behavior. However, work across a number of disciplinary fields suggests little minimal causal impacts of knowledge, especially general, on individual behaviors. Taken together, this calls into question the value of a focus on sustainability literacy in sustainable development. However, it does not suggest that the spread of scientific and environmental knowledge is ineffective. It shows that greater emphasis should be placed on domain and location-specific environmental challenges in order to achieve greater sustainability.

2 Method

The study adopts a qualitative methods approach to explore the concept sustainability literacy. This design qualitative methods to assess the theoretical and empirical validity of sustainability literacy and its implications for sustainable behavior.

3 What is Sustainability literacy?

To begin, it is necessary to define sustainability and sustainability literacy. Sustainability is often associated with the Brundtland Commission's definition of "Sustainable development as development that meets the needs of the present without compromising the ability of future generations to meet their own needs(Brundtland Commission 1987)." How this can be achieved is less clear. The most common focus has been on the three components of environmental, societal, and economic sustainability. Accordingly, sustainability represents the balanced integration of social equity, environmental protection, and economic prosperity. For literacy, this approach, often referred to as the triple bottom line, suggests that individuals should possess knowledge of all three.

Stibbe et al. go further, providing a definition of sustainability literacy "as the skills, attitudes, competencies, dispositions, and values that are necessary for surviving and thriving in the declining conditions of the world in ways which slow down that decline as far as possible." Accordingly, the core of sustainability is the knowledge and competencies individuals are expected to possess across conceptions of sustainability. Though broadly conceived as all components of the triple bottom line and encompassing more than knowledge, like attitudes and values, sustainability has tended to focus on environmental and scientific knowledge.

Despite this conceptual ambiguity, beyond being enshrined in the Sustainable Development goals under goal four, target seven(United Nations 2016), promoting sustainability literacy has been the focus of many development campaigns. In 2004, UNESCO launched the UN Decade for Education for Sustainable Development. According to UNESCO, 'Education for Sustainable Development empowers learners to make informed decisions and responsible actions for environmental integrity, economic viability, and a just society. These efforts have, in turn, led to many efforts to measure sustainability literacy. Higher education institutions, in particular, have

focused on building valid and reliable measures of sustainability literacy (Akeel, Bell, and Mitchell 2019; Horvath, Stewart, and Shea 2013; Leiva-Brondo et al. 2022; Zwickle and Jones 2018). These cities use a variety of approaches to scale development in differing contexts with hearing understandings of sustainability literacy, yet few are periodically rigorous and, with one exception (Zwickle et al. 2014), have not been widely adopted.

However, globally, The Sulitest has emerged as the pre-eminent assessment tool for sustainability literacy. Sponsored by the United Nations, by 2020, it had been administered to 160,000 individuals across 63 countries. Developed through collaboration between UN agencies and a team of 300 expert volunteers, the Sulitest was designed to evaluate sustainability knowledge across four primary themes: sustainable humanity and ecosystems, global and local human-constructed systems, transition towards sustainability, and individual roles in creating change. The Sulitest is available in multiple languages and has been adopted by companies, higher education institutions, and other organizations around. No other measure comes close in terms of its global reach and reputation.

However, a statistical analysis conducted in 2021, using both exploratory and confirmatory factor analysis, revealed that the test's architecture does not align with empirical patterns in the data (Kuehl et al. 2021). Rather than the intended four-factor structure, factor analysis identified eleven distinct factors, with questions failing to consistently map onto their designated themes. These results suggest fundamental issues with the conceptualization of sustainability literacy as a coherent domain of knowledge. As the authors of that study note, These findings do not necessarily indicate a failure in test design but rather suggest that sustainability knowledge may be too multifaceted and variously interpreted to be measured as a unified construct. When subjected to these additional statistical tests, other attempts measures have failed the characteristics of a cohesive concept (Kuehl n.d.).

As suggested above, sustainability is necessarily a broadly encompassing concept. It requires engaging with and transcending multiple traditional academic disciplines. Given its breadth, it is thus perhaps not a surprise that it is not a coherent domain of knowledge. In fact, sustainability likely means so many things that it means nothing at all (Farley and Smith 2020). This suggests that the concept of sustainability literacy, as well as sustainability generally, has been stretched too far (Sartori 1970). As discussed below, both scholars and practitioners are better off dividing it into its constituent parts.

4 Literacy And Sustainable Behavior

Even if sustainability literacy had a widely accepted definition and an empirically verified valid and reliable scale to measure it, there remains a crucial issue with relying on increasing sustainability literacy to achieve sustainable development. Fundamentally, this approach assumes that individuals without knowledge of sustainability literacy are less likely to perform environmental behaviors and that those who do have it will increase their environmental behaviors. In other words, those with a deficit of knowledge will not perform the behaviors that lead to sustainable development.

This assumption is consistent with the information deficit theory of environmental behavior. Emerging in the 1970s, that approach posits that people's unsustainable behaviors stem primarily from a lack of knowledge about environmental issues (Burgess & Harrison, 1998). Across domains, it suggests that if people are provided with clear, scientific information about environmental problems and their solutions, they will naturally modify their behavior to become more sustainable (Kollmuss and Agyeman 2010). The underlying theory heavily influenced early environmental education and public awareness campaigns, with organizations and governments investing significantly in information dissemination as their primary strategy for promoting sustainable development (Blake, 1999).

However, subsequent research has largely challenged the simplicity of this model, revealing that the relationship between environmental knowledge and sustainable behavior is far more complex. Studies have consistently shown that increased knowledge alone rarely leads to sustained behavioral change (Owens and Driffill 2008). Critics argue that the theory fails to account for numerous other factors that influence environmental behavior, including social norms, economic constraints, institutional barriers, and deeply ingrained habits (Stern 2000). This critique has led to more nuanced approaches to promoting sustainability among experts. It suggests that rather than just relying on information, it should be considered just one of multiple factors provision, including social marketing and structural changes to make sustainable choices more accessible and convenient for all (Steg and Vlek 2009).

5 Implications

None of the above should be misconstrued to suggest that sustainability education should be abandoned. Rather, it suggests that efforts to promote sustainability literacy as an all-encompassing concept that can be applied universally misses key issues and should be critically assessed. They necessitate a reconsideration of how such knowledge is conceptualized, measured, and taught in educational and policy contexts.

For scholars, it suggests that efforts might be better directed toward measuring specific components of sustainability knowledge rather than attempting to assess it holistically. For educators, this could mean focusing on specific issues and specific places. For example, rather than universal efforts to increase sustainability literacy, a focus on climate change knowledge within a localized area is preferred. Not only is climate change a much more coherent area of knowledge, even when bringing in transdisciplinary concepts, but special localized knowledge is much more likely to lead to changes in behavior. This could be extended to several environmental issues, like water conservation and plastic pollution, but could also extend underlying social equity and economic sustainability challenges.

In addition, put into a broader environmental context, a focus on sustainability literacy implies that sustainable outcomes occur when more individuals change their behaviors to protect the environment. Implicitly, this places the onus of environmental protection on individuals repeatedly making conscious decisions, often sacrifices, that benefit the environment. This encourages us to ignore the broader political, social, and economic structures that constrain individual decisions. Individuals cannot consume or make small behaviors change at the scale necessary to solve global scale environmental

problems like climate change (Maniates 2001). Rather, true potential for progress only arrives when individuals help push for broader institutional and policy changes that can accomplish the meaningful change necessary.

Finally, it is crucial to note that the studies, and thus their conclusions, above are almost exclusively completed in wealthy Western countries and thus, it is unknown the degree to which the insights travel elsewhere in the world. Knowledge may be more effectively associated with behavior change in certain contexts. A base level of sustainability may indeed be necessary for behavior change. Taking local context into consideration is crucial across sustainable development. The same is true of sustainability literacy.

6 Conclusions

Sustainability literacy, a concept longer favored by the sustainable development community and embedded within the UN Sustainable Development Goals, has long been assumed to drive environmentally sustainable outcomes. Yet careful analysis reveals two fundamental problems with this approach to sustainable development. First, sustainability literacy suffers from definitional ambiguity and measurement challenges. This is evidenced by statistical analyses of prominent assessment tools like the Sulitest, which reveal that sustainability literacy fails to function as a coherent domain of knowledge. Second, this approach relies on the flawed information deficit theory, which assumes that increased knowledge directly translates to behavioral change—an assumption that has been consistently challenged by empirical research across multiple disciplines. These findings suggest the need to reconceptualize how sustainability knowledge is approached, measured, and taught. Rather than pursuing sustainability literacy as a comprehensive, universal concept, efforts should focus on specific environmental challenges within localized contexts.

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