

# Education for Sustainable Development Barriers

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## Abstract

Education for Sustainable Development (ESD) is seen as fundamental in the shift to realising sustainability. Unfortunately, the integration of ESD, especially in higher education is poor. An important question therefore is, what are the barriers preventing the integration of ESD? This paper explores key barriers preventing the integration of ESD. Additionally, it is emphasised in this paper that the dominant social paradigm fundamentally shapes and reinforces ESD barriers. It is argued here that addressing ESD barriers, particularly the dominant social paradigm, is fundamental to the integration of ESD. Within the context of anthropogenic climate change, resource overuse, water stress and wealth inequality, addressing ESD barriers is now imperative.

**Keywords:** education, teacher education, business and management education, interdisciplinarity, education disciplinarity, ESD barriers, dominant social paradigm

## 1. Introduction

Sustainable development is considered by many as the only way to avert environmental and social disaster (Brundtland, 2019). Key to the latter was the adoption of the Sustainable Development Goals in 2015 (United Nations, 2019). According to António Guterres secretary-general of the United Nations, the world and the future we desire are at risk, despite efforts made, the sustainable development goals (SDG's) will not be achieved. Achieving the SDG's now requires collective action and accelerated progress (Guterres, 2019). Importantly, the role of education (SDG 4) is seen as critical to achieving sustainability (Foley, 2016). Consequently, this article explores barriers preventing the implementation of ESD. This paper begins by focusing on a key sustainable barrier, the dominant social paradigm. Other barriers influenced by the dominant social paradigm and preventing the integration of education for sustainable development are, education itself, the pedagogic norms of disciplinarity, the challenge of interdisciplinarity and resistance to change within education.

## 2. Dominant Social Paradigm

According to Milbrath (1989) un-sustainability, in all its manifestations, arises from the political, social and economic and systems of the dominant social paradigm (DSP). Critical realism suggests, our concepts and beliefs are historically generated and conditioned therefore, a prerequisite for understanding the barriers relevant to ESD lies in examining the factors that shape peoples' beliefs and perceptions about how society functions. The philosopher and historian of science Thomas Kuhn (1962) has illustrated the way scientific disciplines or communities are dominated by an acceptable belief paradigm which shapes the way people participating in that discipline think about their subject matter (Milbrath, 1989). Milbrath (1989) defined the dominant social paradigm as:

*“A society's belief structure that organises the way people perceive and interpret the functioning of the world around them”* (Milbrath, 1989 p. 116).

The prevailing DSP created during the Enlightenment, has shaped scientific and social analysis since the 1750's (Milbrath, 1989). Similarly, Perlmutter and Trist (1986) have posited, the DSP is a social construction so widely held that individuals are unaware, this paradigm influences their behavior. Cotgrove (1982) brings an important contribution to the power of the DSP suggesting, it is not the number of people who conform with the DSP, but rather powerful groups in society who comply with the DSP, where these groups:

*“serves to legitimate and justify the institutions and practices of the market economy”... “which usually determines the outcome of debates on environmental issues”* (Cotgrove, 1982, p. 27) ... *The struggle to universalise a paradigm is part of the struggle for power”* (Cotgrove, 1982, p. 88).

This paradigm struggle is still evident (Marquardt, 2017; Jakobeit *et al.*, 2014). This struggle is elucidated by Marquardt (2017) who has indicated, the field of development theory is more diverse than ever before, with constant debates, reinventions and paradigm shifts still to come.

Fundamental to the DSP is western neoliberal economy. Harvey (2005) has broadly defined neoliberalism as, a theory of political and economic practices which suggests, human well-being can best be served by the maximisation of entrepreneurial freedoms, denoted by private property rights, free markets, free trade and individual liberty (Harvey, 2005). Additionally, it is dispute whether the neoliberal path can address social and environmental challenges (Kopnina, 2014).

Kopnina (2012) and Crist (2012) have posited, social scientists are also influenced by the dominant neoliberal ideology of anthropocentrism. Of concern, the UN Decade of Education for Sustainable Development (DESD) failed to recognise or challenge neoliberalism as a hegemonic force preventing movement towards genuine sustainability (Huckle and Wals, 2015).

The formal education system has played a key role in supporting societal hegemony, resulting in the reproduction and acceptance of the DSP (Apple, 2004). Likewise, Sterling (1996) has highlighted, higher education follows rather than challenges the rationality of the DSP. Dobers *et al.*, (2008 p. 212) have concluded it is important, “*To reframe and analyse the role of universities in a broader socio-cultural and historical perspective if universities are to be agents in the paradigm shift to sustainability*”. Influenced by the dominant social paradigm, barriers preventing ESD are shown in Fig 1.

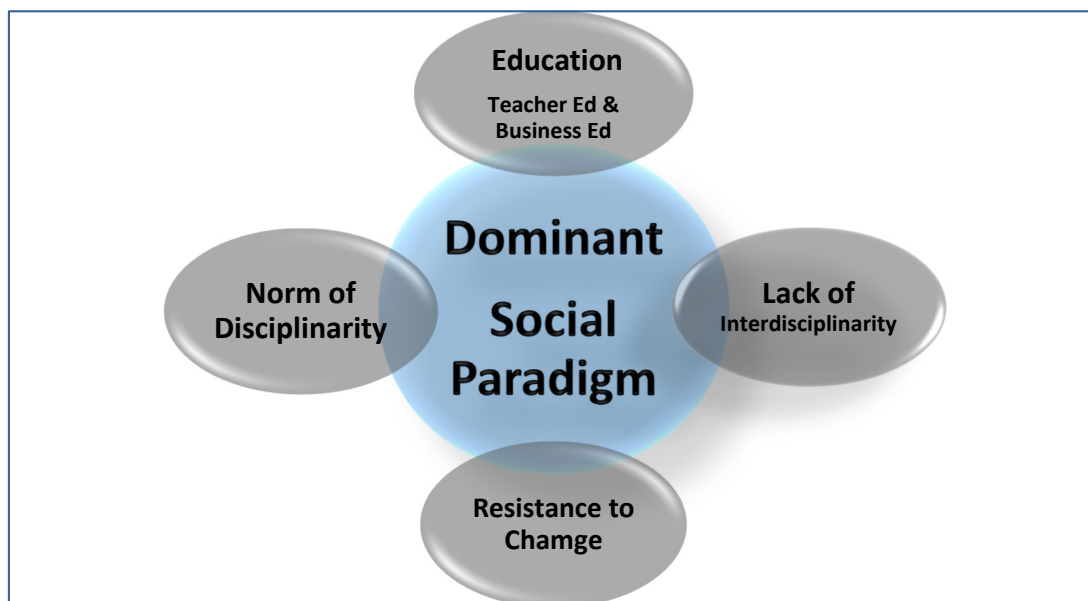


Figure 1. Education for sustainable development barriers

### 3. Education as an Education for Sustainable Development Barrier

Influenced by the DSP, education itself is an ESD barrier. Although, Higher Education (HE) must conduct research and learning for sustainable development (Koehn and Uitto, 2014), Scott *et al.*, (2012) have posited, there is a lack of commitment to ESD in Higher Education, where ESD implementation is poor (Wei Quan, 2013). Importantly, securing top level management support is seen as critical to addressing poor ESD implementation (Wei Quan, 2013).

In the Higher Education for Sustainable Development (HESD) literature, much attention has focused on barriers to change, preventing a systemic integration of sustainable development in HE (Lambrechts *et al.*, 2017). Verhulst and Lambrechts (2015) have indicated, barriers to change preventing a systemic integration of sustainability education in HE include: (1) lack of awareness of sustainability (2) the structure of higher education and (3) lack of resources available.

The increase of capsule education has been highlighted by McArdle-Clinton (2010) who stated:

*“The concept of education as product and students as consumer impacts on education, on students and*

*educational practitioners. Education conceived as product, makes for pedagogy of confinement which limits the creativity of students and inhibits any achievement by them beyond the limits which have been set for them. ... This ideological intent shapes education as an industry - the largest single industry in the world - where students are processed as inputs and awarded a qualification, the educational value of which is in serious doubt" (McArdle-Clinton, 2010 p. 1-2).*

Jackson (1968) has suggested, the integration of sustainability into education can be influenced by the hidden curriculum. The hidden curriculum refers to the messages sent by an individual teacher, lecturer or institution to students, often unconsciously and covertly about what they ought to think and how to behave (Jackson, 1968). A key way in which the hidden curriculum is made manifest is through the ethos and values of the educational institution (Jackson, 1968). More recently in the United Kingdom, although the development of sustainability literacy for graduates received strong political support, Winter and Cotton (2012) have indicated, embedding sustainability content in the HE curriculum in the United Kingdom was met with extensive indifference and strong resistance.

### 3.1 Teacher Education

In 2014, the UN Decade of Education for Sustainable Development came to an end, an important part of this decade focused on redirecting teacher education towards sustainability. To date, education for sustainability is not mainstreamed in any pre-service teacher education programmes (Babiuk, 2014). Babiuk (2014) also outlined, reorienting teacher education towards sustainability requires overcoming three challenges (1) lack of leadership (2) an unfavorable view of the role of ESD and (3) silo-ing of education faculties.

Utilising a paired pre-post design with 215 student teachers Yavetz *et al.*, (2013) found, student teachers' had a poor understanding of the environment, highlighting the need to integrate sustainability into teacher education. Research conducted in Sweden involving 3299 secondary teachers showed, participants did not have a holistic understanding of sustainable, while 70% of teachers highlighted they needed training in sustainable development (Borga *et al.*, 2014).

With the aim of enhancing teachers' knowledge of sustainable development, Hyseni Spahiu and Lindemann-Matthies (2015) have posited, continuous teacher education is a key aspect in terms of obtaining greater education for sustainable development effectiveness.

### 3.2 Business and Management Education

A college education is viewed as one of the key approaches to preparing concerned and involved citizens (McBee, 1980) in addition to fostering moral and social responsibility and intellectual development (Pascarella *et al.*, 1988). In contrast with the latter, management theorists have highlighted, business education supports the values of the dominant social paradigm (Alvesson and Deetz, 2000; Orsato and Clegg, 1999). Colin Mayer (2013) Professor of Management Studies at the University of Oxford has posited, the dominant view in business schools is to further the interests of their shareholders. Similarly, Professor Craig Smith of Insead believes, prior to entering business school students' have a rounded view of the management role, but when students' graduate, they believe it's all about maximising shareholder value (Smith, 2013). From paradigmatic and epistemological perspectives, Gladwin, *et al.*, (1995) believes management theory is reflective of an overarching anthropocentric paradigm and a fractured epistemology, which separates humanity from nature.

Accounting researchers' primarily focus on financial management and economic development, while social and environmental accounting research is marginalised (Parker (2011). Whilst, Sundin and Wainwright (2010) have emphasised, the lack of professional accreditation requirements for knowledge in sustainability is an important reason for the slow change in accounting education for sustainable development.

AdomBent *et al.*, (2014), Godemann, *et al.*, (2011) and Waddock *et al.*, (2011) support the view that business and management education should be more reflective of sustainability issues. The UN PRME (2019) has indicated, business and management education should embody the Principles for Responsible Management Education. These principles aim to encourage business and management schools to provide future leaders with the skills needed to balance sustainability and economic goals, while emphasising the SDG's (UN PRME, 2019).

According to Nelson (2014), through education, industrial engagement, and interdisciplinary collaboration, sustainability can become firmly established within the structure business schools. Sahadath (2010) and Gareis (2010) have posited, the change to embedding education for sustainable development will require educational leaders to commit to a change agenda.

#### 4. Pedagogic Norms of Disciplinarity

Influenced by the dominant social paradigm, according to Chettiparamab (2007), Selby (2006) and Arum (2004), subject disciplinarity is a strong education for sustainable development barrier. According to Arum (2004), discipline has been used since the middle ages to represent a way of ordering knowledge for teaching and learning. According to Selby (2006) faculties and schools are structured around disciplines. Whilst, Chettiparamab (2007) has outlined, disciplines maintain rigor and provide knowledge needed for the labour market and society. Internally, disciplines provide academics with a framework for their professional engagement, identity and advancement and perpetuate disciplinary intellectual paradigms (Kuhn, 1962).

Chettiparamab (2007) has also suggested, deep engagement with a discipline can limit reflexivity, which can result in a lack of engagement with real life problems, where critical questioning may be suppressed. Littleddyke and Manolas (2011) have posited, the roots of subject disciplinarity can be trace back to epistemology and ideology which consequently influence pedagogy.

Within the context of the pedagogic norms of disciplinarity a positivist epistemology is dominant, resulting in a subject dominant, fragmented curriculum (Eagen and Orr, 1992). This approach embodies an 'objectives' model of curriculum planning (Littleddyke and Manolas, 2011; Hirst, 1974) that is knowledge centered, utilising a transmission through instruction process (Lawton 1973) where the learner is a recipient of knowledge (Littleddyke and Manolas, 2011).

Alternatively, a re-constructivist ideology sees education as a process of social change, embodying a process (as opposed to objectives) model of curriculum planning (Littleddyke and Manolas, 2011; Blenkin and Kelly, 1987), which is learner (as opposed to knowledge) centered. Utilising a process model of curriculum planning, the teacher or lecturer is seen as a facilitator (as opposed to a transmitter) of the learning process.

This re-constructivist ideology is important because, if the embodiment of ESD is to be realised, the pedagogic norms of disciplinarity need to be challenged (Tilbury and Wortman, 2004). When considering epistemology, ideology and pedagogy, this section highlighted the dominance of subject disciplinarity and emphasised the importance of interdisciplinarity regarding the advancement of ESD. When considering epistemology, ideology and pedagogy, this section highlighted the dominance of subject disciplinarity and emphasised the importance of interdisciplinarity in terms of advancing education for sustainable development.

#### 5. The Challenge of Interdisciplinarity

The challenge of interdisciplinarity is explored in this section. Klein and Newell (1997) have defined interdisciplinarity as:

*"A process of answering a question, solving a problem, or addressing a topic that is too broad or complex to be dealt with adequately by a single discipline or profession"* (Klein and Newell, 1997, p. 393).

Moving towards an increased emphasis on sustainability is a profound challenge to all systems of education, especially in higher education (HE) (Aktas, 2015). According to Aktas (2015), *"A viable way to increase the role of sustainability in higher education is to foster interdisciplinary research and teaching"*, (Aktas, 2015, p. 354). Similarly, Klein (2006) has posited, interdisciplinarity is the key to universities rethinking their purposes and practices at a fundamental level.

*"Ultimately, interdisciplinary raises the most fundamental question of all. What is the purpose of education? In its highest form, interdisciplinarity is not a finite set of skills, a simple add-on, or an adjustment in the schedule. The ultimate goal is to reconstruct what is taught and how it is taught"* (Klein, 2006, p. 16).

Importantly, the respected biologist and Father of sociobiology and biodiversity, Edward Osborne Wilson advocated, unity of knowledge when he stated:

*"The greatest enterprise has always been and will always be the attempted linkage of the sciences and humanities" ... "the ongoing fragmentation of knowledge and resulting chaos in philosophy are not reflections of the real world but artifacts of scholarship"* (Wilson, 1999, pp. 5-6).

As posited by Meyer *et al.*, (2015) becoming a sustainability scientist requires specialised training that addresses the complex boundaries implicit in sustainability science approaches to solving social-ecological system challenges.

Spangenberg (2011) has distinguished between science for sustainability (mono-disciplinary) and science of sustainability (inter- and transdisciplinary) and suggested inter and transdisciplinary research has received much

less attention. Whilst, Lang *et al.*, (2012) have emphasised, there is an ever increasing call for transdisciplinary approaches to tackle fundamental societal challenges, especially those related to sustainability. Research completed by Biberhofer and Rammel, (2017) has shown the potential benefits of transdisciplinary learning and teaching when identifying real answers to sustainability challenges.

## 6. Resistance to Change

Vales (2007) has posited, resistance to change is one of the main obstacles to implementing organisational change. Similarly, as indicated by Chen and Komph (2012), the main reason curriculum change is a failure or only accomplishes surface change is due to teacher resistance to the change. One of many barriers relevant to both individual and organisational change is a failure to recognise the need for change (Heifetz and Linsky, 2002). If educators do not understand and appreciate the need for change, their interest in maintaining the status quo will take precedence over their willingness to accept change (Greenberg and Baron, 2000). Both Fullan (2001) and Greenberg and Baron (2000) support the view that, habit, past experience, a sense of security from doing things in familiar ways, disrupting well-established professional and instructional patterns can also result in a fear of the unknown. Rather than working to develop new skills/strategies, it is simply easier to continue teaching in the same ways (Greenberg and Baron, 2000).

## 7. Conclusion

In conclusion, implementing education for sustainable development is central to the achievement of sustainability. Importantly, addressing education for sustainable development barriers is a prerequisite to the implementation of education for sustainable development. Core to the advancement of ESD is the recognition of the dominant social paradigm (which underpins other ESD barriers) and the willingness to challenge this paradigm, especially among educational and political leaders.

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