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## Article

# (Re)imagining Entangled Sustainability: A Human and Nonhuman Theorisation of Belonging to Safeguard Sustainability's Holism

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**Abstract:** After years of research and theorisation connected to education for sustainable development, the holistic core of sustainability seems to have disappeared within the frames of the social, environmental and economic pillars. This article suggests a post-humanism inspired understanding of a sense of belonging. Even though the phenomenon of belonging is ascribed to social sustainability, the post-human theoretical toolkit challenges the humanism-based understanding of a sense of belonging as a human-related phenomenon. Using Deleuze and Guattari's rhizome and affect concepts and Barad's concept of intra-action, we show the connections between the human and non-human elements constituting each other in our world. We conclude with the implications that using post-human language (to understand belonging) may have for policy, Early Childhood Education and care (ECEC) practice and theory.

**Keywords:** sustainability's pillars; sense of belonging; early childhood education; intra-action; human–nonhuman



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## 1. Introduction

Sustainability is a goal that implies changes in education practice [1]. Ideally, diverse dimensions of sustainability, systematised as environmental, economic, institutional, and social [2], will enter the education sector and be practised in the daily institutional life of early childhood education and care (ECEC) [3,4]. Nevertheless, within the discourse on (early childhood) education for sustainable development, it is the ecological aspect that still seems to receive the most attention. This has led researchers and educators to argue for a more balanced approach that considers social aspects that are connected to migration, social inclusion [5–7], social justice and human rights [8], as well as citizenship [3,4,8–11].

In this paper, we put forward a suggestion that enables possibilities of balancing unequal amounts of knowledge generated within different pillars of sustainability. By using post-humanism inspired theoretical toolkits, we try to describe and reflect on the concept of the sense of belonging (ascribed to the social pillar of sustainability) and show how such theorisation invites the expertise and interest of other pillars. We thereby suggest a way of balancing the education for sustainable development discourse so that it is not about generating more knowledge within a particular pillar of sustainability, which may enhance competition among them [2]. To do so, we experiment with theoretical tools that can enable an interdisciplinary and holistic thinking about the concept of sustainability [2]. Current distinctions between particular pillars of sustainability (environmental, economic and social) are so well established that even interdisciplinarity connected to sustainability research emerges within rather than across the pillars. By theorising the sense of belonging with the use of post-human inspirations, we try to open up this phenomenon ascribed to social sustainability [7,8,12,13] to economic and environmental aspects.

In order to realise this, the article begins with a discussion of the paradox of dividing the pillars of sustainability in order to open interdisciplinarity and holistic thinking. This is followed by a discussion that illustrates some of the ways in which sociocultural theories, anchored in humanism may be considered as viewing a sense of belonging as a human–human phenomenon, where random nonhuman elements are eventually enabled by and for humans. Next, thinking with post-humanism we explore social sustainability through a sense of belonging that appreciates the associations between human and nonhuman elements, whilst allowing for connections to be made between diverse aspects originally related to economic or environmental pillars of sustainability. The distinct three-pillar model of sustainability has been criticised for lacking theoretical justification [2]. We are, therefore, proposing theoretical toolkits that enable connections between and across these pillars as inseparable aspects. Even though the theoretical toolkits we present may also inspire justification of the co-existence of the three pillars, we focus on showing how a sense of belonging (ascribed to social sustainability) may be theoretically extended or re-written in ways that show its inseparability from the environment and economic aspects. As this paper is intended for policymakers, academics and practitioners, we try to illustrate our descriptions with practical examples and draw conclusions relevant for policy, theory and practice.

## 2. The ‘Uneasy Union’ of Three Pillars as Inhibiting a Holistic Reflection

Purvis et al. [2] detect origins and usage of the concept of sustainable development back in the 60s, in texts generated by diverse ecological/environmental movements that later on, in some countries, transformed into green parties. They also trace a complementary critique related to ‘economic development’ that ‘evolved from specifically denoting the exploitation of natural resources in a colonial context, to refer to a rise in material well-being indicated by an increase in the flow of goods and services, and growth in per capita income’ [2] (p. 683). However, it emerged that the nature-exploitation creating the base for growth-oriented economy perpetuates (and in the long run even generates) inequalities in access to material goods [14]. This resulted in the ‘limits to growth’ [15] perspective, and a concept of eco-development was invented, defined as an approach harmonising social needs, economic objectives and ecological considerations [16]. Eco-development was described as meeting ‘essential human needs’, referring to material goods, environment and participation [16] (p. 25). Eco-development was then ‘a different, environmentally prudent, sustainable, and socially responsible growth’ (p. 216), to which many similarities to United Nations rhetoric may be drawn [2]. This joint, intersectoral perspective on sustainability laid the foundation for the three pillars paradigm. However, Purvis et al. [2] note that there is no document that presents an explicit theoretical justification for this paradigm. Even Barbier’s [17] early antecedent of the intersecting circles diagram articulating ‘an interaction among three systems: the biological (and other resource) system, the economic system and the social system’ (p. 104) does not seem to be theoretically robust.

Such an ‘uneasy union’ that lacks theoretical justification of its interconnections seemed to weaken them (the interconnection). The holistic thought seemed to be more carefully safeguarded and emphasised in the absence of the three explicit pillars [2] (p. 687). The division into three separate pillars, inspiring the United Nations’ even more detailed specialisation into 17 sustainable development goals, seemed to result in the creation of ‘competing realities’ [2] (p. 689). Making connections between these realities may be increasingly difficult as each of them develops as a separate field.

Existing academic disciplines and research areas have furthered expert knowledge on sustainability as distinct pillars. Therefore, it is difficult, albeit not impossible, to develop a ‘theory of everything’ that is able to justify connections and intersections between the pillars. In this paper, we focus on a way of overcoming the lack of theoretical justification for connecting diverse pillars. What we propose is departing from a phenomenon associated with one of the pillars and theorising it in a way that embraces and encompasses the other pillars. In this article we focus on the sense of belonging, which is associated with

social sustainability [7,8,12,13]. However, when this concept is theorised with posthuman-inspired theories, economic and environmental aspects are shown to be meaningful. Our choice of post-human theoretical toolkits is justified below, in our reflection on humanism that with its assumed anthropocentrism perceives a sense of belonging as happening between human beings, while the eventual involvement of artefacts takes place from a superior position.

### 3. Humanistic Descriptions of the Sense of Belonging as Locating the Phenomenon within Social Sustainability

Belonging is a complex and elusive concept, which results in a wide theoretical spectrum employed by diverse researchers trying to deal with this phenomenon. Nevertheless, as most explanations are anchored in humanism, the phenomenon is described as a human one and referring to humans. The eventual involvement of artefacts, places, nature or other non-human elements is within a technical or instrumental role, which means that the nonhuman in one way or another ‘serves’ human beings. Therefore, these approaches, an overview of which is presented below, centre humans as superior to their environmental, economic and cultural surroundings.

Studies on children’s sense of belonging seem to build on studies on child communities (in play) and point out the need for continuous negotiation of their position in a group [18,19] or their right to undertake a particular role/task/activity [20]. The sense of belonging in such cases is described as a subjective feeling of being part of an entity bigger than oneself and ‘objective’ work that enables possibilities for all children [19]. It is also ascribed to other key elements crucial in developing a sense of community among children, such as membership, influence, integration or fulfilment of needs and shared emotional connection [21].

Membership in an emerging child community seems to be given and denied simultaneously, with the occurring communities rising on the negotiation of who belongs, who is excluded and who gets to decide [22]. These questions are anchored in the politics of belonging, which Nagel [23] recognises as a process in which the boundaries of group membership are produced and reproduced. Boldermo’s works [12,13] present the role of artefacts, surroundings and particular toys in creating criteria for membership, while agency and subjectivity remains with humans. The artefacts and places are ‘taken into use by humans’ [12] (p. 64), and function as instruments/objects in or around human activity and meaning making [10]. The same happens when Sumsion and Wong [24] try to embrace the rich dynamics of the politics of belonging by putting it on three axes of: (a) categorisation; (b) resistance and desire; and (c) performativity.

The axes of categorisation evoke questions of who belongs, to what and on which—and whose—terms [16] and thus ascribe particular positions on grids of power relations [25] that are developed externally (e.g., social class, ethnicity, nationality, gender) or internally in a group of people. As such categorisations tend to essentialise and dichotomise individuals and define them as belonging to some groups and not to others [24], resistance can be invoked. Resistance ‘could involve contesting, disrupting and/or subverting imposed categories of belonging and positioning to which they give rise’ [24] (p. 34). Resistance departs from the human desire of setting ‘into motion different possibilities’ [26] (p. 13) and connecting the points that position us differently [24,26]. This results in performativity, in the ‘continuous process of making and remaking ourselves—and ourselves in relation to others’ [27] (p. 151), a process through which we produce ourselves as subjects within our and other people’s stories [28]. Performativity is dynamic; it may move on the spectrum of categorisation and reproduce ‘given’ categories, or break through them, following resistance and the desire for another order of things. Nevertheless, all this research is still about human interaction as primary and the most important in the complex dynamics, and thus easily and ‘obviously connected’ to social sustainability.

Research conducted by Boldermo [12,13], but also others [3–11] departs from the assumption that generating more knowledge within social sustainability (automatically) contributes to holistically sustainable ECEC policies. Boldermo’s [12,13] research shows

how very young children can experience moments of togetherness and negotiate criteria for membership that are not based on ethnicity, gender or culture [13]. No less important is the endeavour to show how artefacts (for example, a football) and places (such as a football pitch) can entwine in developing a human sense of belonging [12]. Our intention is to show connections between diverse pillars of sustainability while theorising a social phenomenon ascribed to a particular type of sustainability. From this standpoint, Boldermo's studies [12,13] contribute their empirical richness and transparency in how the empirical material can be interpreted. This allows us to look at the empirical examples from a different theoretical standpoint and in order to illustrate how the post-human theoretical interpretation intertwines diverse pillars of sustainability.

#### 4. Rhizome and Intra-Action: Giving Agency to the Nonhuman

Before we discuss the limitations of the humanism-based conceptualisations of belonging, we present the theoretical standpoint from which we do so. Within the theoretical toolkits associated with the post-humanistic paradigm, it is new materialism and its concepts of rhizome theory [29], intra-action [30,31] and affect [32] that constitute the perspective from which we re-write/extend the sense of belonging.

##### 4.1. Rhizome

A rhizome is a non-hierarchical underground root system that produces shoots from its nodes and is characterised by lateral growth, similar to a couch grass [33]. Deleuze and Guattari's [29] notion of the rhizome is that it symbolises an ever-growing, ever-changing interconnected, in which none of the layers can take superposition, while at the same time they constitute each other. A rhizome is thus an image of thought that resists and challenges predetermined linear or hierarchical orders of things, or for example the superior positioning of humans over nonhuman objects. The latter way of thinking can be seen as what Deleuze and Guattari [29] call 'arborescent' or tree-like: a way of thinking marked by totalising principles, binarism or 'either/or' distinctions and hierarchical classifications. In contrast, the rhizome theory focuses on horizontal connections, fluidity and ever-widening dynamics of moments, moments that include human and nonhuman elements simply by neglecting the distinction between them. Therefore, thinking with Deleuze's notion of rhizome allows dynamic entangled connections between and across social, environmental, economic dimensions of sustainability.

The rhizome can be utilised in relation to belonging, for example, as a conceptual tool to reflect on the resistance, desire and performativity axes of belonging mentioned above [24]. In such a case, this image could underline the multiplicity, dynamics and unfixed nature of belonging characterised by movement (and performativity). Aside from using the rhizome as a metaphor, one can use its ontological assumptions in reflecting on the sense of belonging. In this way, the sense of belonging is seen as an ever-growing root/rhizome, shooting in different directions, entwining with elements that seem to stand in its way, and intertwining elements that seem not to belong together. This allows for the sense of belonging to be thought of as encompassing the human and nonhuman, the material and nonmaterial, and the past, present and future simultaneously. Deleuze and Guattari [29] thus inspire readers to think of belonging not as a human or interhuman phenomenon, but rather as a complex plane of multiple agents and heterogeneity, involving the process of overcoming diverse distinctions by entwining *the other into the* rhizome or intertwining more diverse heterogenic elements. A rhizome 'pertains to a map that must be produced, constructed, a map that is always detachable, connectable, reversible, modifiable, and has multiple entryways and exits and its own lines of flight' [29] (p. 21). Such an understanding encourages describing 'belonging' as 'ever-changing and always becoming in a never-ending process' [34] (p. 121), manifesting itself as the intra-connected web of both humans and materialities. The intra-connected elements may also refer to diverse disciplines ascribed to various pillars of sustainability. This could enable more interdisciplinary writings, safeguarding a holistic and not a pillar-focused discourse on sustainability.



#### 4.2. Intra-Action and Affect

Barad's [30] concept of intra-action points to the performative character of the existing world, by which she means that no subjects or objects pre-exist; rather, they constitute each other through interaction. To use Barad's words [30], one can say that the elements 'emerge through intra-actions' (p. 89). Intra-action is thus an interaction that constitutes the interacting elements. For Barad [30], every interaction is an intra-action. The mutual constitution of interacting elements suggests that 'the space of agency is not restricted to the possibilities for human action ( ... ) agency should be granted to nonhumans as well as humans, or that agency can be distributed over nonhuman and human forms' [30] (p. 178). When interacting, humans can experience affect, which is a more-than-emotion phenomenon 'which one is not in charge of' [34] (p. 180) as it happens between the interacting sides and includes affecting and being affected at the same time.

The blurring and disappearing borderlines between the self and the not-self and between the subjective and the objective situate the self in a web of overlapping intra-actions, which Barad [31] calls diffractions. We as subjects are constituted by and constitute the diffractions; however, how we are within them is an ultimate dynamic. Who we are 'is not essence, fixity or givenness, but a contingent iterative performativity' [31] (pp. 173–174). In relation to the sense belonging, the new materialistic concepts of Barad [30,31] articulate the mutual constitution of a human among other humans and nonhuman elements, opening up the ultimate dynamics of this. The sense of belonging is thus never fixed and requires continued intra-action between human and nonhuman elements, including the environment, cultural artefacts and the economy. Diffractions can thus be used to explain both the diversity of the elements constituting the effect of a sense of belonging and intra- or interactions between the pillars of sustainability.

#### 5. Increasing the Significance of Nonhuman Elements in Constituting a Sense of Belonging (Intra-Action)

When discussing belonging, focusing solely on human experiences or human–human relations neglects the agency of nonhuman factors. Material matter, artefacts, things, space and time are mentioned by belonging researchers in Early Childhood Education and Care ECEC settings [12,13], but as 'serving' humans. Our intention is to follow the post-human theoretical toolkits that give equal status and agency to nonhuman elements, to see what this may bring to the process of reimagining ECEC for a sustainable future. Inspired by the potentialities of Barad's ideas of intra-action, we attempt to decentre the human by considering a range of complexly intra-acting human and nonhuman factors that shape ways of being, doing and thinking. Barad's work affords the possibility of considering the 'role of human and nonhuman, material and discursive, and national and cultural factors in scientific and other social-material practices' [30] (p. 26). This allows us to explore ways in which 'normativities of sociocultural categories work on, in, and through human beings; as well as how matter or materialities and technologies enact and are enacted in these processes' [35] (pp. 339–340). This relationality recognises multiple entanglements that again (re)define or extend the possible conceptualisations of the sense of belonging.

The sense of belonging can thus be conceptualised as constituted in the intra-action between both human and nonhuman elements; intra-action in which not only the sense of belonging, but also each of the elements is constituted in its (intra-active) performance [30,31]. Intra-action is thus a term that enables an understanding of the sense of belonging as being constituted when both the human and the nonhuman constitute each other (through interacting/intra-acting).

An example from Bodermo's [12] description of Mike, whose sense of belonging develops in strong reaction to football illustrates the entangled network of human–nonhuman where Mike is often seen taking a football with him to the ECEC, plays football on a football pitch, and wears football shorts and a football t-shirt both indoors and outdoors, as the ECEC staff allow him to wear the football outfit over his rain trousers and winter clothes. From the theoretical perspective of sociocultural, humanism-anchored theories, it is Mike

who negotiates and develops his sense of belonging through the identity and role of a ‘football player’ and the activity of playing football, which means that the football pitch is an arena where his sense of belonging flourishes.

However, thinking with Barad’s [30] notion of intra-action, it is possible to offer a diffractive analysis of Mike’s development of a sense of belonging where Mike is caught up in dynamic intra-actions and affective flows between heterogeneous entities: the football, the football outfit and the football pitch all actively mutually constituting each other and the sense of belonging. This mutual composition of human and nonhumans, the football and the pitch that allow Mike’s ‘football player’ performance and acts of dribbling the ball, where the dribbling constitutes the ball and the ball enables dribbling.

Our intention behind this small rewriting of the story of Mike is to invite readers to challenge their own, probably human-centric way of thinking of a sense of belonging as being about feeling part of a peer group/community, where nonhuman elements are only objects that can be used. By using post-human ideas, we try to give agency to nonhuman elements such as nature, artefacts and money that enable both the existence of the football pitch and the ball and thus Mike’s belonging to the community and the place. We chose Mike’s story because of the rich empirical description presented by the author [12], which allow us to ‘experiment’ and illustrate ways in which social, economic, environmental components of sustainability are tangled and inseparable. Our ‘experiment’ of reading Boldermo’s article [12] through post-human lens leads us to see the agency of nonhuman elements. This could be shown through diverse examples that the reader only can imagine, like for example snow and activities in it, a forest or trees, a garden and the activity of gardening, a museum or any other matter that in humanism-oriented theories is neglected in terms of agency. Underlining the agency of nonhuman elements in constituting humans’ sense of belonging should enable stakeholders to reflect on protecting the environment through sound, circulation (not growth) oriented economies. Thereby, it will be possible to sustain and develop the places in which human beings experience a sense of belonging (as both constituted by and constituting part of the human–nonhuman assemblages).

## 6. So What?

We agree with many authors [3–11] that discourse on education for sustainable development needs to balance economic, environmental and social aspects connected to all of the pillars of sustainability. We suggest a way to achieve this by extending the theoretical description of a sense of belonging, a phenomenon that is ascribed to the social sustainability pillar using a post-human toolkit that does not necessarily obey the distinctions among the pillars and theoretically equalises and connects the economic, social, and environmental elements. We believe that this has the potential to safeguard holistic reflections and avoid competition among diverse aspects of sustainability [2].

Our extended description of the sense of belonging as not only a human-related or human-centred phenomenon, using Barad’s [30,31] notion of intra-action and Deleuze and Guattari’s [29] concept, of rhizome provides a theoretical possibility of joining environmental, institutional and economic elements. However, this possibility is not often exploited in research, policy, and practice. Even though some authors use post-human toolkits [22], their focus remains on social, human-related aspects.

By pointing to the agency of nonhuman elements, we invite interdisciplinary dialogue on sustainability that goes beyond established distinct disciplinary collaborations within the pillars. Encouraging such partnerships may happen at the level of policy writing, where local communities or ECEC settings may be viewed as assemblages of human and nonhuman elements continuously constituting each other and living interdependently. Such a shift in policy discourse could provoke context-specific social, environmental, and economic implementation of policy in ECEC settings. In this way, sustainability could be seen as not only a value for humans to realise through particular practices, for example, as is written in the Norwegian curriculum [36], but also as the way of our daily existence, involving continuous intra-action among humans, the environment and the economy that

constitute us all. Turning to the example we provided previously: perhaps the connection between the football, the football pitch might enable the sense of belonging in the refugee child as it invokes past memories of playing football and present experiences, sensations, movements and feelings. However, it also invites questions about the (economic) care of places for all (like the football pitch), but also care for the environment or natural areas that constitute positive affects both among people and between them and the localities. Such questions allow the rhizome of reflection to entwine with the economic pillar. In this way, there would not only be a discussion of how to finance a football pitch, but also a reflection on the economy of the locality. Raworth [37], for example, challenges the notion of a growth-oriented economy, proposing a circular model focused on good circulation of basic goods among all people (water, housing, schooling, etc.). This model is limited by the green ceiling, which necessitates innovative thinking in developing technologies to protect natural resources (when circularly safeguarding the basic goods to all people). In the near future, the Dutch city of Utrecht intends to implement this circular model as the foundation of the local economy. It will be possible for future research to explore its agency and intra-action with nature and humans living in the region. Research on the sense of belonging that intra-acts with a policy of housing and schooling for all may strengthen the effect of belonging between humans and places (and nature and cultures).

Extending agency to nonhuman elements when constituting the sense of belonging of children in the ECEC may empower practitioners in their intuitions, perceptions and experiences of the places/spaces where pedagogical activities take place. This could empower them in matters to do with the children's sense of belonging, but also in other aspects of pedagogical work. Understanding the sense of belonging as constituted in intra-action between the human and nonhuman may inspire people to work with the natural environment with other than an ecological focus, so as to invite the social and economic aspects. Theoretical recognition of nonhuman agency in constituting children's sense of belonging may inspire professionals to generate arguments for purchasing particular artefacts or trips to particular places. Expanding human-centred belonging into overlapping human, nonhuman and other elements may extend professionals' attention beyond inter-human relationships to human–nonhuman ones. We believe that professionals embracing an understanding of belonging as constituted in the blurred lines between human and non-human intra-actions will not only change the teachers' reflection, but also the children's daily experiences of effects of what Haraway [38] calls 'webbed existences' (p. 72) intertwining elements of culture, natural environments and humans. Our intention is thus to inspire new, exploratory ways of reflecting and acting, confidently joining unpredictable (human–nonhuman) connections, and thus more reflectively facilitating children's vivid and exploratory intra-actions.

As sustainability invites interdisciplinarity and holistic reflection, our intention was to suggest a way of achieving it by exploring post-human concepts that through their ontological assumptions and epistemological possibilities theoretically allow the mutual connection of all pillars. In relation to the sense of belonging, we intended to present the limitations of humanistic theories that 'reduce' belonging to an inter-human phenomenon, with the eventual involvement of nature, places or cultural artefacts enabled by humans and happening for their sake. We argue that a sustainable future demands opening up to theories that instead of confirming the central position of the human being, enable articulations of the interdependencies (including economic, environmental, and social aspects) that constitute our world.

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