



Rights of Nature as an Innovation Space for Education for Sustainable Development and Transformative Learning?.

The Hybrid Values and Governance Mode of Taranaki Maunga (Mount Taranaki) in New Zealand

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Abstract:

This article examines the changing role of legal frameworks in addressing the urgent need for environmental justice, moving beyond anthropocentric perspectives and turning to more holistic, very often non-European concepts of sustainability. The case study chosen is the recent development in New Zealand environmental law, in which Taranaki Maunga (Mount Taranaki) was recognised as a legal entity in 2025. This Rights of Nature (RoN) approach reflects a hybrid legal architecture that combines indigenous worldviews and state structures. We show that this “magic of rights” (Mehlhorn 2024) also carries high transformative potential for educational and institutional learning. Using a cyclical framework for transformative learning as an important component of the concept of Education for Sustainable Development (ESD), the paper analyses how different actors

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deal with complex environmental issues and examines how current discourses on the RoN can be made fruitful for ESD.

Keywords:

Rights of nature, values of nature, education for sustainable development, transformative learning, uncertainty.

Resumen:

Este artículo examina el papel cambiante de los marcos jurídicos a la hora de abordar la urgente necesidad de justicia medioambiental, superando las perspectivas antropocéntricas y recurriendo a conceptos de sostenibilidad más holísticos, a menudo no europeos. El caso práctico elegido es la reciente evolución de la legislación medioambiental de Nueva Zelanda, en la que Taranaki Maunga (monte Taranaki) fue reconocido como entidad jurídica en 2025. Este enfoque de los derechos de la naturaleza (RoN) refleja una arquitectura jurídica híbrida que combina cosmovisiones indígenas y estructuras estatales. Mostramos que esta «magia de los derechos» (Mehlhorn 2024) también tiene un alto potencial transformador para el aprendizaje educativo e institucional. Utilizando un marco cíclico para el aprendizaje transformador como componente importante del concepto de Educación para el Desarrollo Sostenible (EDS), el artículo analiza cómo diferentes actores abordan cuestiones medioambientales complejas y examina cómo los discursos actuales sobre los RoN pueden ser fructíferos para la EDS.

Palabras clave:

Derechos de la naturaleza, valores de la naturaleza, educación para el desarrollo sostenible, aprendizaje transformador, incertidumbre.

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1. INTRODUCTION

FIGURE 1



Figure 1. View of Mount Taranaki (Taranaki Maunga) on New Zealand's North Island. ("Mount Taranaki" by kewl is licensed under CC BY 2.0).

The Mount Taranaki volcano, located on New Zealand's North Island, holds deep historical and cultural significance. Known by the Māori as **Taranaki Maunga**, a name referring to Rua Taranaki, the first ancestor of the Taranaki iwi (tribe), its designation also reflects its physical characteristics: the Māori word "tara" means mountain peak, while "naki" may denote "cleared of vegetation" (Reed 2016, Hōhaia 2017). This significant landmark was historically known as Mount Egmont, a name given by the British explorer James Cook in 1770 (McNab 1914), and was designated a National Park in 1900.

In a landmark decision, the volcano was officially recognized as a legal person on January 30, 2025, under the Taranaki Maunga Collective Redress Act (Te Ture Whakatupua mō Te Kāhui Tupua 2025). This legislation grants the mountain rights and responsibilities similar to those of a human being and recognizes it as an ancestor of the Māori people. This development follows similar legal precedents in New Zealand, such as the recognition of the Te Urewera forest in 2014 and the Whanganui River in 2017. These cases highlight the growing importance of the Rights of Nature (RoN) as a stewardship model for conservation, integrating indigenous and local knowledge (ILK) into environmental governance in the Anthropocene (Knauß 2018).

Following current developments, what specific insights can be gained from examining New Zealand's recent codification of the RoN? The RoN discourse offers the potential to enrich

educational and sustainability discourses in Europe by considering a broader range of values of nature and their social embeddedness in lifeworlds of people (Knauß *et al.* 2024).

This article explores the evolution of environmental governance through the lens of Education for Sustainable Development and Transformative Learning. We investigate how mostly non-European legal frameworks can challenge and inspire processes of societal learning in Germany. Traditional anthropocentric perspectives, which often prioritize human interests and technological fixes, are increasingly being challenged by more holistic, non-European understandings of sustainability, such as the concepts of *Buen Vivir* (good life/living) and *Pachamama* (Rieckmann 2017, Knauß 2020). Triggered by pressing global crises and aligned with the United Nations' Sustainable Development Goals (UN 2015), the field of Education for Sustainable Development (ESD) offers a crucial lens through which to understand this shift. ESD has evolved from instrumental approaches, focused on simply transferring knowledge and promoting "sustainable behaviors," to more critical-emancipatory and ultimately transformative approaches. These latter approaches aim to transcend existing contradictions, embrace uncertainty, and guide learners toward the co-creation of a "good life" in harmony with nature. Central to ESD is the cultivation of a dealing of uncertainty as a productive process, which encourages critical engagement with assumptions, open acknowledgement of complexity, space for emotional responses, fostering dialogue, mindfulness of relativism, and a deep reflection on power dynamics. This is all enacted through a cyclical framework of transformative learning - comprising phases of Positioning, Experimenting, and Reflecting - where real-world problems serve as powerful catalysts for continuous, adaptive learning (Pettig and Ohl 2023a).

Our analysis first delves into the Taranaki Maunga settlement in New Zealand, which presents a model for place-based governance. This innovative framework moves beyond conventional conservation by legally recognizing both the spiritual status and ecological vitality of the mountains (*Nga Maunga*), demonstrating a profound redefinition of environmental law through ontological pluralism and inclusive governance. This unique hybrid model, which seamlessly integrates state and indigenous (*iwi*) authority, exemplifies a responsive legal architecture. It not only addresses historical injustices but also actively promotes future ecological and cultural resilience, making a significant contribution to the global discourse on the RoN, postcolonial restitution, and socio-ecological justice. We use this compelling case to critically assess various ESD approaches - instrumental, emancipatory, and transformative. Through this examination, we illustrate how real-world governance processes both reflect and challenge educational assumptions, underscoring the necessity of adopting diverse and adaptable learning strategies. Building on the insights from mount Taranaki, we then explore its vivid illustration of a transformative learning as productive uncertainty within ESD. Productive uncertainty is a pedagogical approach that uses a lack of clear answers and contradictions in sustainability issues as a valuable opportunity to foster critical thinking, dialogue, and innovative problem-solving. This section highlights how the Taranaki experience embodies six core principles for dealing with uncertainty: (1) questioning taken-for-granted assumptions, (2) explicitly acknowledging uncertainty, (3) giving space to emotions, (4) engaging in genuine dialogue, (5) being mindful of relativism, and (6) critically reflecting on power relations (Pettig and Ohl 2023a). While the case Taranaki confirms and exemplifies these principles through its critical re-evaluation of colonial legal frameworks, its recognition of nature's contested meanings, its emphasis on identity and spiritual connection to the land, and its efforts towards equal representation and addressing historical injustices, it also brings to light inherent difficulties. These include the risk that radical critiques may be obscured by their

integration into existing legal structures, the potential for uncertainty to be prematurely resolved into fixed categories, the marginalization of emotional dimensions within institutional formats, the persistence of power imbalances despite formal equality, and the risk that excessive relativism could undermine actionable governance decisions. Ultimately, this precedent demonstrates the pivotal role of uncertainty as both a challenging yet valuable resource for transformative learning in complex socio-ecological governance settings (Pettig and Ohl 2023a).

Finally, we apply the framework for transformative learning (Pettig and Ohl 2023b) to understand the dynamics of cross-cultural learning, particularly concerning RoN frameworks. The evolution of jurisprudence often involves a “magic of rights” (Mehlhorn 2024), establishing hybrid values and governance for socio-ecological systems by combining local and indigenous knowledge with Western-European rights discourse in an almost paradoxical way (Knauß 2018). This consideration aligns with a growing body of scholarship exploring the conceptualisation and implementation of RoN in Europe, which examines how legal developments are redefining Nature’s status within law (García Ruales *et al.* 2024). This rising field acknowledges pioneering efforts in countries such as Ecuador and New Zealand, while also noting the increasing academic, legislative, and political momentum for RoN across Europe, exemplified by the 2022 Spanish law granting legal personhood to the Mar Menor (Law 19/2022 for the recognition of legal personality to the Mar Menor lagoon and its basin). Such diverse interpretations foster interactions across distinct areas of law, knowledge, practices, and societal domains, making them rich cases for transformative learning. We propose to understand this process as complex and non-linear, driven by continuous adaptation, contestation, and innovation, rather than straightforward knowledge transfer. We illustrate this based on the Taranaki case using European RoN initiatives, including the controversial judgments from the German Regional Court Erfurt, first local court to apply Rights of Nature in Germany (Urteil Az. 8 O 1373/21, LG Erfurt 2024a). These cases clearly exemplify the cyclical framework for transformative learning, showcasing how legal innovations and their subsequent criticisms, alongside artistic and activist modalities, collectively contribute to a fundamental re-evaluation of legal paradigms. By examining these examples, we highlight a dynamic and iterative process that fosters the development of more sustainable and just human-nature relationships. At the same time, the discourse on the RoN can provide valuable impetus for the concept of ESD and transformative learning by placing the example of Taranaki itself as a learning object in the form of a cyclical framework for transformative learning in the context of ESD. Both cases, though in distinct legal and cultural contexts, shed light on the dynamic processes of adaptation, contestation, and innovation within law, which are central to transformative learning.

2. ESD AND TRANSFORMATIVE LEARNING

2.1. EDUCATION FOR SUSTAINABLE DEVELOPMENT (ESD)

The concept of ESD is closely linked to goals, standards and values of sustainable development and was introduced as a global educational concept by the United Nations at the 1992 World Conference on Environment and Development in Rio de Janeiro and adopted with the Agenda 21. The education initiatives were triggered by the increasing awareness of unsustainable developments worldwide and the global challenges of the 21st century such as climate change, natural disasters, resource conflicts, globalization, migration

movements, development backlogs and pandemics, which require solutions to central problems and issues of the Anthropocene based on the guiding principle of sustainable development (Raworth 2012, Richardson *et al.* 2023). The Sustainable Development Goals (SDGs) adopted by the United Nations General Assembly 2015 serve as a guiding perspective for sustainable development. In order to achieve the SDGs, SDG 4 “Quality Education” with sub-goal 4.7 is of central importance (UN 2015). The aim of ESD is to “ensure that, by 2030, all learners acquire the knowledge and skills needed to promote sustainable development, including through ESD and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and culture’s contribution to sustainable development” (UNESCO 2020, p. 14).

However, Dusseldorp (2017) summarizes that the sustainability discourse in the European and German-speaking context is often characterized by anthropocentric concepts of sustainability in terms of human-environment relationships and technological solutions for unsustainable action in space. In this context, non-European sustainability discourses, which are often characterized by holistic visions of sustainability, can enrich anthropocentric approaches to sustainability. A holistic understanding of the values of nature and RoN can also provide valuable impetus for ESD (Knauß *et al.* 2024). One sustainability concept that is already much discussed in Europe and in German-speaking countries is *Buen Vivir* or good living, which in the case of Ecuador has been enshrined in the constitution as a political framework and expanded through a debate on RoN (Rieckmann 2017, Knauß 2020). At the same time, approaches such as *Pachamama* (Mother Earth) and *Sumak Kawsay* (Good Life) were seen by indigenous peoples as significant for a holistic sustainability approach to life (Altmann 2017). These non-European approaches have already been usefully designed and implemented for ESD learning events (Recknagel 2019).

There is consensus that ESD is key to implementing the SDGs, as numerous skills that are needed now and, in the future, (e.g. systems-thinking competency, futures-thinking competency thinking and value-thinking competency) can be developed through ESD learning processes (Brundiers *et al.* 2021). However, there is uncertainty about how the concept of ESD can be successfully implemented in order to initiate the individual and societal changes necessary for sustainable development (Pettig and Ohl 2023a). Here, the discourse on ESD approaches such as transformative learning can be helpful in connecting these with the new approach to values and RoN in the educational context, using the example of Taranaki.

2.2. ESD APPROACHES

Due to the complexity of sustainability issues, the diversity and interconnectedness of relevant influencing factors, existing controversies or insufficient factual knowledge, and the associated uncertainties and conflicting views, a key objective of ESD is to enable people to engage in reflective and critical debate on sustainability issues. In line with Vare and Scott (2007) and Wals *et al.* (2008), a distinction can be made between instrumental ESD 1 (ESD 1 = learning for sustainable development) and critical-emancipatory ESD 2 (ESD 2 = learning as sustainable development). ESD 1 focuses on certain behaviours that are regarded and promoted as sustainable (e.g. sustainable consumption and mobility behaviour). ESD 2, on the other hand, aims to enable learners to critically engage with

sustainable development issues and their complexity and contradictions (Rieckmann 2020). The approaches of ESD 1 and 2 are closely related in the sense of yin and yang and are complementary and mutually dependent (Vare and Scott 2007). In addition, the ESD 3 approach is distinguished as a transformative approach in which learners seek an approach to the paralysing contradictions of sustainable development (Vare 2014). The approach aims to work with learners to find ways to achieve a good life for all in the sense of a future worth living (Pettig and Ohl 2023b). The focus is on the meaningful questions of learners and their feelings and thoughts about an uncertain future. This also requires a change in learning culture, in which reflective engagement with one's own worldviews is as natural as the demand for self-determined participation in shaping a future worth living (Pettig and Ohl 2023b) (Figure 2).

FIGURE 2

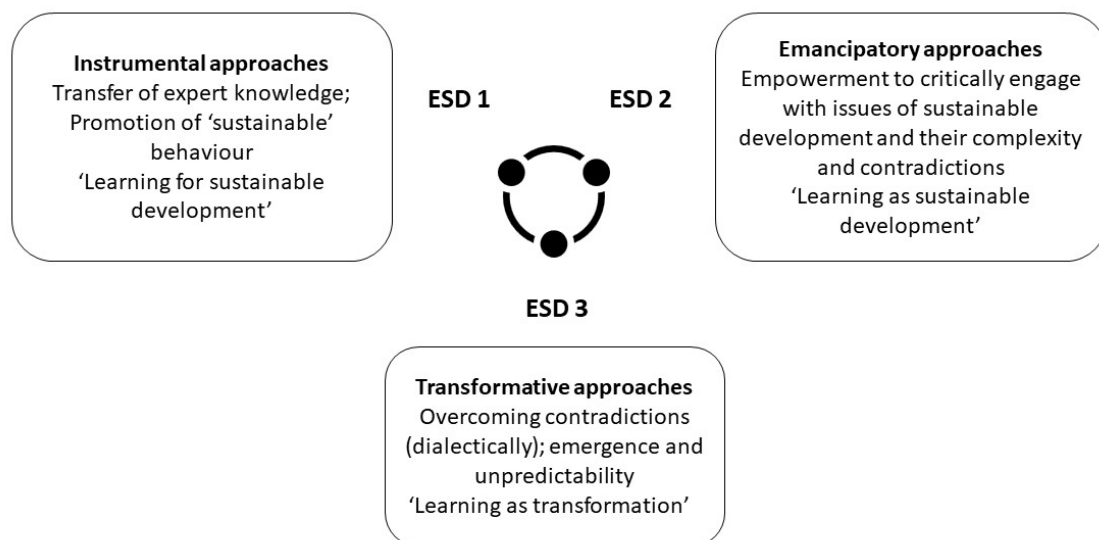


Figure 2. ESD Approaches (based on Vare and Scott 2007, Vare 2014, Pettig and Ohl 2023b).

The different schools of thought are based on different concepts of the future. If the future is understood as calculable and it is assumed that a sustainable future can be achieved through technological innovations, increased efficiency and changed consumption patterns, the knowledge, skills and competences required for this can be determined quite clearly and unambiguously (ESD 1). If, on the other hand, the future is understood as open and malleable, and it is assumed that a future attributed as sustainable is and must be tangible only in the moment of social negotiation, then education must promote the ability to participate, i.e. the willingness and ability to participate in this negotiation in a self-determined manner (ESD 2 and 3). In our understanding, transformative learning for socio-ecological change means precisely this and, in terms of its critical claim, can be classified as ESD 2 and, in terms of its understanding of a malleable and open future, as ESD 3 (Pettig and Ohl 2023b).

2.3. TRANSFORMATIVE LEARNING AS PRODUCTIVE UNCERTAINTY

The various facets of uncertainty pose challenges for teaching and learning settings and are seen by Pettig and Ohl (2023a) as a constitutive moment for education itself and also for upcoming sustainability issues. Uncertainty can be opened up as a space for possible futures

in which everyone is involved in a critical and collective search process for a sustainable future. The aim of this process is to find ways of dealing with the open ends, contradictions and gaps in sustainability-related topics and questions. Because in many areas we do not know what the ‘right path’ to a sustainable future looks like due to a variety of uncertainties (Kwiatkowska and Szatzschneider 2011).

Cultivating a productive engagement with uncertainty is an essential pedagogical aim within transformative learning. This involves a multi-dimensional approach (Figure 3): first, by questioning the taken-for-granted, learners are encouraged to deconstruct assumptions that often go unnoticed. Second, explicitly acknowledging uncertainty legitimises complexity as an inherent feature of socio-ecological challenges. Third, creating space for emotional responses allows learners to process ambiguity not only cognitively but also effectively. Fourth, engaging in dialogue fosters mutual understanding and collective sense-making. Fifth, maintaining mindfulness of relativism helps navigate the tension between openness and epistemic integrity. Finally, in a sixth step, reflecting on power relations ensures that educational spaces remain critically attuned to issues of voice, exclusion, and agency. Together, these elements support a learning environment capable of embracing, rather than avoiding, the uncertainties of sustainability transitions (Pettig and Ohl 2023a).

FIGURE 3

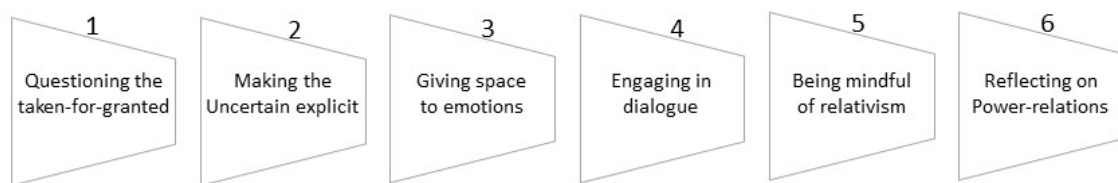


Figure 3. Guidelines for dealing with uncertainty in transformative learning (Pettig and Ohl 2023a, p. 34, slightly modified).

2.4. TRANSFORMATIVE LEARNING

The various approaches to ESD and the view of transformative learning as productive uncertainty also call for different approaches to teaching and learning. Transformative learning in the sense of ESD 3 is characterised by the goal of offering learners opportunities to rethink their own ways of thinking and acting and to find new, sometimes as yet unknown paths to a future worth living (Pettig and Ohl 2023b). Learners should be consciously challenged to continually question their own views on things, and opportunities should be provided for them to adopt and establish new perspectives on the subjects they are learning and their own relationship to them. Irritations are a central part of the learning process, which is methodically oriented towards creating opportunities to question ingrained patterns of thinking and acting, e.g. on issues of (un)sustainable actions, (un)sustainable products or paths of (un)sustainable development, and to explore and establish new perspectives. Characteristics of learning environments that can make transformative learning processes possible (or more likely) include openness to results, project character, experimental phases and dialogue between all participants (Pettig 2021). It is about addressing the challenges of our time that are up for debate. These issues can be discussed in class using the framework for transformative learning. This process ranges from challenging ingrained patterns of thinking and behaviour to exploring alternative paths and possibilities, as well as deeply reflecting on the experiences gained in the process, to

integrating new perspectives into one's own life. The framework for transformative learning developed by Pettig and Ohl (2023b) is based on the work of Freire (1970), Meyer-Drawe (2019) and Mezirow (2000) (Figure 4).

FIGURE 4

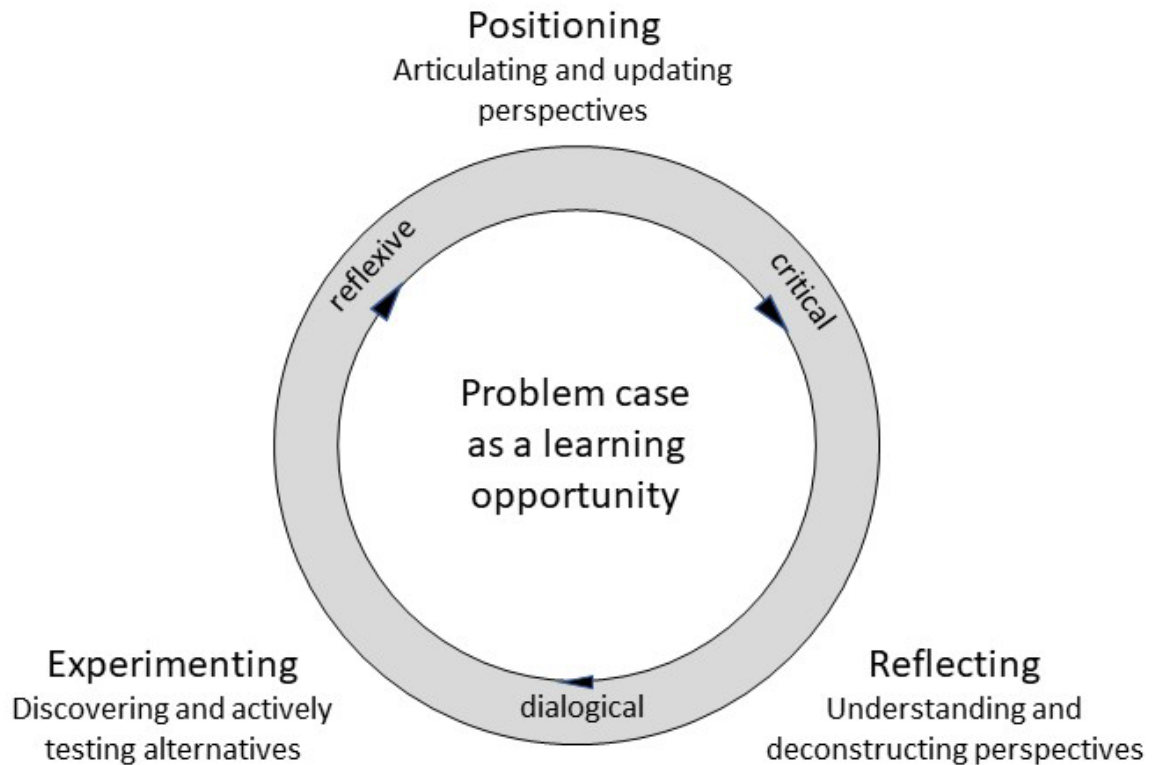


Figure 4. Framework for transformative learning (Pettig 2021, p. 12, slightly modified).

Transformative learning can start with a worthwhile problem that is relevant to learners' lives and experiences and that illustrates a conflicting goal or dilemma in sustainable development. The first phase of positioning is about approaching the problem in question on the basis of one's own assumptions, views and perspectives, but also to uncover similarities and differences within the learning group. The second phase of reflecting aims to contrast one's own viewpoint with alternative viewpoints and to make one's own thinking and original metacognition the subject of reflection. In this phase concepts and knowledge are necessary in order to categorise and critically reflect on facts together, but also to get to know and evaluate alternative points of view. The third phase of experimentation is about putting the developed alternatives into practice and trying them out, actively engaging with the sustainability-related problem and reflecting on and categorising the new experiences with a view to one's own life (Pettig 2021, Pettig and Ohl 2023b).

The question of how ESD can be implemented as transformative learning based on productive uncertainty, as outlined in the framework for transformative learning, remains largely unanswered (Bormann *et al.* 2022), as theory-based teaching and learning settings and thus empirical studies are not yet available in a comprehensive and meaningful form. It is also unclear what role impulses from non-European sustainability discourses, such as

the rights and values of nature¹, could play in this, and whether they could offer innovative approaches to sustainable social transformation (Recknagel 2019, Inkermann and Eis 2022).

3. TARANAKI MAUNGA — A HYBRID MODEL OF RIGHTS OF NATURE IN AOTEAROA/NEW ZEALAND

This section assesses the Mount Taranaki case, which was officially recognized as a legal person under the Taranaki Maunga Collective Redress Act 2025 (Te Ture Whakatupua mō Te Kāhui Tupua). We explore its ontological, normative, and institutional dimensions, anchored in the Record of Understanding (Te Anga Pūtakerongo 2017).² The case exemplifies a complex negotiation between relational Māori worldviews and the statutory framework of a national park. It shows how personhood for nature can be implemented in a hybrid legal architecture, reflecting both indigenous values and state institutions.

3.1. HISTORICAL BACKGROUND

Taranaki Maunga (Mount Taranaki) has long been venerated by the local Māori as a living ancestor, a resting place for ancestors' spirits, and a symbol of collective wellbeing (Te Anga Pūtakerongo 2017). Colonization disrupted this relationship, starting with Captain James Cook's renaming in 1770 and the subsequent confiscation of land in 1865. For much of the 20th-century, Māori were excluded from its governance, while tourism and recreation were promoted instead. Redress efforts since the 1970s - stemming from a revitalization of Māori rights and culture — laid the groundwork for a new legal relationship. In 2017, the Crown and the Taranaki iwi (tribe)³ signed a Record of Understanding, acknowledging historical injustices and initiating a process that resulted in the Taranaki Maunga Collective Redress Act 2025 (Te Anga Pūtakerongo 2017). While financial payments were expressly excluded, the agreement includes a public apology and cultural redress in the form of legal personhood for Taranaki Maunga, reflecting its role as an ancestor (*tupuna*) for Māori (Te Anga Pūtakerongo 2017, p. 7-8).

¹ Values of nature can be defined in many ways. In the context of this paper, the term refers to the various ways in which nature—including the non-human and more-than-human world—holds significance for people. We recognise that this may also include people themselves. This significance can be understood in four fundamental ways, based on how we interact with nature: “living from nature” (e.g., direct material benefits like food and raw materials), “living with nature” (e.g., cultural, spiritual, and identity-related meanings), “living in nature” (e.g., health and well-being from being in natural environments), and “living as nature” (a deeper recognition of our interconnectedness with nature). These definitions are based on approaches from Pascual *et al.* (2022) and O'Connor and Kenter (2019). As O'Neill *et al.* (2008, p. 1) clarify, there are no such “things” as values themselves, but rather various ways in which individuals, processes, and places matter to us.

² The Record of Understanding (Te Anga Pūtakerongo), signed by Taranaki iwi (tribe) and the Crown on December 20, 2017, served as a preliminary agreement outlining the framework and key matters for a collective redress deed concerning Taranaki Maunga (Mount Egmont). A major outcome was the shared intention to recognize Mount Taranaki as a living being with legal personality, a principle that also guided other settlements such as those for Te Urewera and the Whanganui River.

³ The Taranaki iwi, one of the eight tribes from the Taranaki region, has a deep historical and cultural connection to its ancestral lands, particularly the prominent Kaitake, Pouākai, and Mount Taranaki (Mount Egmont) mountains. As powerful symbols of the tribe's endurance, the mountains reflect their survival through historical conflicts and their forward-looking perspective (Ngāwhare-Pounamu 2014, p. 22).

3.2. LANDSCAPE VALUE: TE MANA O NGA MAUNGA

At the heart of this framework lies *Te Mana o Nga Maunga*, a guiding principle that can be translated as the authority or essence of the mountains. This “mana” is a hybrid understanding that profoundly integrates the mountain’s ecological health with its spiritual role as an ancestor (*tupuna*) (Te Anga Pūtakerongo 2017, pp. 7-8). The legislation articulates this concept through key principles: the indivisibility of Nga Maunga, the protection of its natural environment, and the safeguarding of its ancestral, historical, and cultural relationships. From a legal and ecological perspective, this demonstrates how legal personhood for a natural entity moves beyond a purely anthropocentric view, valuing a mountain based on both its ecological and its sociocultural dimensions.

3.3. RELATIONAL AUTHORITY: TE MANA O TE KAHUI

Te Mana o Te Kahui expresses the collective’s authority, founded upon genealogical connection (*whakapapa*) and consensus (Te Anga Pūtakerongo 2017, p. 7). This view resonates with relational ontologies, which connect physical, social, and cultural elements in a holistic way, similar to the Latin American concept *Buen Vivir* mentioned earlier (Knauß 2020, Mehlhorn 2024). The legislation thus recognises both the spiritual and epistemic competence of the local community, while allowing for geographic name restoration and a legal framework that expresses Māori relationships to their landscape (Te Anga Pūtakerongo 2017, The Associated Press 2025).

3.4. HYBRID GOVERNANCE: THE EMERGENCE OF A HUMAN FACE

The governance structure operationalises legal personhood through *Te Tōpuni Kōkōrangi o Nga Maunga*, a representative entity composed equally of members appointed by the Crown and by the iwi (Te Anga Pūtakerongo 2017, p. 12). The body is tasked with promoting the wellbeing of the maunga and ensuring policy decisions align with its values – acting “in the name” of the legal person (Knauß 2020, Mehlhorn 2024). This hybrid legal architecture displaces the classical view of nature as a park or a collection of resources (National Parks Act 1980). Instead, it offers a pluriversal framework for governance – a framework reflecting both state institutions and indigenous worldviews – and a precedent for addressing historical injustices and navigating the growing demand for ecological justice (Escobar 2018).

4. RIGHTS OF NATURE AS AN INNOVATION SPACE FOR ESD AND TRANSFORMATIVE LEARNING?

4.1. ANALYSING THE TARANAKI CASE THROUGH ESD APPROACHES

This section presents a structured analysis of the Taranaki governance case through the lens of three recognised approaches to ESD that we described in section two: instrumental, emancipatory, and transformative (Pettig and Ohl 2023b). For each approach, we identify aspects of the case that confirm, illustrate, or challenge its pedagogical assumptions and objectives. Each of these approaches is not only reflected in the Taranaki example but also tested and enriched by its hybrid legal and cultural framework.

The instrumental approach, with its focus on behaviour change and the implementation of sustainable practices, finds confirmation in the retention of the National Parks Act (1980) and the establishment of a legal personality for Taranaki Maunga (Mount Taranaki). These elements align with regulatory environmental management and traditional conservation principles. The metaphor of “nature as a museum or leisure park” illustrates this approach well, highlighting a paradigm in which nature is managed and accessed under state authority. However, this perspective reaches its limits when relational, spiritual and ancestral values such as tupuna (ancestor) and whakapapa (genealogy) are integrated. These elements require a broader epistemological framework than behaviourist models typically offer.

The emancipatory approach, which emphasises critical reflection and the recognition of contradictions, is confirmed through the explicit acknowledgement of legal and cultural tensions between colonial legislation and indigenous ontologies. The notion of a “hybrid constellation” – where diverse values and cosmologies co-exist and inform governance – illustrates the type of complexity this approach seeks to engage. The conceptualisation of Taranaki Maunga (Mount Taranaki) as a synthesis of physical, social, and spiritual realities further exemplifies multi-perspective thinking. The combination of rights-based argumentation and deeply rooted indigenous values acts as a conceptual contradiction that appears irreconcilable. It is this contradiction that constitutes the true educational value, which encompasses far more than the instrumental ESD approach.

Finally, the transformative approach, which seeks to transcend existing contradictions and foster paradigm shifts, is perhaps most strongly embodied in the Taranaki case. The establishment of a joint governance entity and the legal innovation that recognises the Taranaki Maunga (Mount Taranaki) as a legal person both point to a profound reconfiguration of authority, representation, and relationality. These elements go beyond institutional reform, proposing instead an ontological shift in the understanding of landscape, agency, and governance. Yet, even here, the transformative potential is not unchallenged. Embedding radical relational concepts within conventional legal frameworks risks reproducing the very paradigms the model seeks to overcome.

Table 1 shows a matrix summarising the ESD approaches using the example of the Taranaki case with regard to confirmation, illustration and contestation.

TABLE 1

Approach	Confirmation	Illustration	Contestation
Instrumental	Legal personality, regulatory management	“Nature as museum”, statutory protection	Spiritual and relational values transcend narrow behavioural focus
Emancipatory	Value pluralism, legal-cultural contradiction	Hybrid constellation, Maunga as synthesis	Risk of confusion from conceptually

			incoherent frameworks
Transformative	Hybrid governance model, legal redefinition	Emergent relationalities, rethinking place and identity	Potential co-optation of radical ideas by traditional institutional forms

Table 1. Summary-Matrix: Confirmation, Illustration and Contestation of ESD-Approaches.

Taken together, the Taranaki case exemplifies how real-world governance processes can simultaneously reflect, illustrate, and challenge the assumptions of diverse ESD approaches. It underscores the necessity of embracing plural pedagogies and offers a compelling model for navigating the complexities of socio-ecological transformation through education. This analysis demonstrates that the Taranaki governance model is not only illustrative of but also deeply generative for contemporary discourses on ESD. It affirms the importance of embracing plural ontologies and pedagogical strategies that align with holistic, emergent, and just sustainability transitions.

4.2. ELEMENTS FOR CULTIVATING A TRANSFORMATIVE LEARNING AS PRODUCTIVE UNCERTAINTY

The Taranaki case illustrates a compelling application of productive uncertainty to promote transformative learning based on six interrelated principles: questioning the taken-for-granted, making the uncertain explicit, giving space to emotions, engaging in dialogue, being mindful of relativism, and reflecting on power relations (chapter 2.3).

First, the principle of *questioning the taken-for-granted* is confirmed through the critical re-evaluation of colonial legal frameworks, while the disruptive presence of indigenous cosmologies illustrates how normative conservation paradigms can be unsettled. However, the legal integration of relational ontologies may obscure the radical potential of these critiques. Second, *making the uncertain explicit* is evident in the open discussion of tensions between legal regimes and cultural values, and the recognition of contested meanings of nature. Yet, there remains a risk that such uncertainties may be prematurely stabilised into fixed categories. Third, *giving space to emotions* is confirmed by the emphasis on identity, spirituality, and historical trauma, and illustrated by the cultural construction of landscape as an ancestor. Nevertheless, institutional formats risk marginalising or suppressing these affective dimensions. Fourth, *engaging in dialogue* is affirmed by the adoption of consensus-based governance and equal representation in decision-making. Still, entrenched institutional hierarchies may continue to marginalise plural voices despite inclusive frameworks. Fifth, the principle of *being mindful of relativism* is supported by an explicit respect for diverse worldviews, with the negotiated coexistence of ontologies exemplifying this attitude. At the same time, excessive relativism may challenge the coherence and actionable quality of governance decisions. Lastly, *reflecting on power relations* is confirmed through the recognition of colonial asymmetries and the legal redress of historical injustices. Yet, the formal balance between Crown and iwi may conceal deeper structural inequalities in authority and access to resources. Collectively, these dynamics

underscore the pedagogical and political relevance of uncertainty as both a challenge and a resource for transformative learning within complex socio-ecological governance settings (Table 2).

TABLE 2

Principle	<i>Confirmation</i>	<i>Illustration</i>	<i>Contestation</i>
Questioning the taken-for-granted	Colonial law frameworks are critically re-evaluated.	Indigenous cosmologies disrupt Western conservation paradigms.	Legal integration of relationality can obscure its radical critique.
Making the uncertain explicit	Tensions between legal regimes and cultural values are openly discussed.	The controversial interpretations of nature are recognised.	There is a risk of becoming entrenched in fixed categories, which can lead to uncertainty.
Giving space to emotions	The focus is on identity, spirituality, and historical trauma.	Landscape as ancestor reflects affective and cultural entanglement.	Institutional formats may suppress emotional and existential dimensions.
Engaging in dialogue	Consensus is a governance principle.	Equal representation is ensured in the decision-making structures.	Institutional hierarchies may marginalise plural voices.
Being mindful of relativism	Diverse worldviews within governance are respected.	The result of conflicting ontologies is a negotiated coexistence.	There is a risk of relativism undermining actionability or coherence.
Reflecting on power-relations	Colonial power dynamics are addressed explicitly.	Legal recognition responds to historical injustice.	Crown-iwi balance may mask underlying asymmetries in authority and resources.

Table 2. Summary-Matrix: Confirmation, Illustration and Contestation of Transformative Learning as Productive Uncertainty.

This analysis demonstrates the potential of the Taranaki case to promote the implementation of ESD by converting environmental policy negotiation uncertainties into opportunities for learning. The process of elucidating implicit structures, relationships, contradictions and controversies serves to render the coexistence of issues and their solutions explicit. The discourse on the RoN has the potential to underpin the valuation of the associated navigating of complexity, the promotion of systemic thinking and the transformation of epistemological norms. In addition, it can facilitate the embedding of emotional, cultural and relational dimensions in ESD and transformative learning.

4.3. TRANSLATING RIGHTS OF NATURE TO EUROPE: LEGAL IRRITATIONS AS LEARNING OPPORTUNITIES

This section explores the challenges and opportunities involved in translating the RoN into European legal and cultural contexts, with particular attention to Germany. While cross-cultural adaptation of normative concepts is possible, it is rarely straightforward. Drawing on intercultural philosophy, we understand cultures not as closed systems but as open, evolving constellations shaped by shared practices, historical trajectories, and contested values (Knauß *et al.* 2021). RoN frameworks, originally embedded in non-Western, often indigenous worldviews, are not merely adopted in new settings—they are reinterpreted, adapted, and re-contextualised. Using a cyclical framework for transformative learning from ESD (Pettig and Ohl 2023b), we argue that the reception of RoN in Europe unfolds through recursive processes of Positioning, Experimenting, and Reflecting. Real-world socio-ecological challenges serve as learning triggers that expose the limits of anthropocentric legal systems and open up new possibilities for ecological justice.

Ethnographic research on RoN initiatives in Switzerland, the Netherlands, and Germany illustrates that democratic institutions are conceptually open to normative innovation (Dietrich *et al.*, 2024). These initiatives often emerge not as straightforward success stories but as experimental responses to complex legal and political constraints. They demonstrate how stalled or failed initiatives - such as legal petitions denied or trapped in bureaucratic limbo - can function as critical entry points for transformative learning. The German Regional Court of Erfurt, for instance, issued two landmark rulings recognising the RoN in the context of diesel emissions litigation (LG Erfurt 2024a, 2024b). This innovative application, framed as “private enforcement” marks a departure from typical RoN cases in Latin America or New Zealand by using RoN not for nature’s direct restitution, but to strengthen the compensation claims of harmed individuals.

This legal strategy has sparked significant debate. Supporters have highlighted its experimental character and normative relevance (Gutmann 2024), while critics have raised concerns regarding its legal foundation, the court’s authority, and methodological shortcomings in its comparative reasoning (Degenhart 2024). Specifically, the court’s invocation of the EU Charter of Fundamental Rights as the basis for recognising “ecological persons” has been contested, alongside its reliance on “reverse legal transplants” from the Global South without sufficient contextualisation.

The Erfurt rulings illustrate what Teubner (2001) has called “legal irritations”: juridical responses that disrupt established norms and invite new modes of reasoning. The rulings suggest that RoN cannot simply be implanted into German law but must be actively reworked through situated legal and political processes. However, it is crucial to note that the embrace of uncertainty and ‘constructive irritations’ in a legal context finds its limits where legal certainty, as established by confined methods of interpretation, is a value in itself. These methods serve to ensure coherent and predictable application of law, which can be in tension with the often dynamic and ‘uncertain’ nature of transformative learning.

In this context, following Pettig and Ohl (2023b), we propose a cyclical framework for transformative learning to conceptualise the European engagement with RoN:

- **Positioning** involves recognising RoN as a dynamic and decentralised legal and political practice that challenges dominant anthropocentric paradigms (Dietrich *et al.* 2024). The Erfurt court repositions German legal doctrine by integrating EU-level rights and referencing global jurisprudence, signalling a shift towards pluralistic legal reasoning.
- **Reflecting** entails grappling with normative tensions that arise from the transplantation of RoN concepts into Western legal systems. These include unresolved questions of legitimacy, representation, and systemic transformation (Degenhart 2024, Dietrich *et al.* 2024). The intense scholarly debate surrounding the Erfurt cases underscores the need for procedural, educational, and institutional reflection to ensure meaningful and just legal innovation.
- **Experimenting** occurs across multiple domains - legal, activist, and artistic. While the ethnographic cases document diverse formats of advocacy and imagination (Dietrich *et al.* 2024), the Erfurt model can be seen as a hybrid legal innovation. It uses RoN interpretively to modify civil claims and foster preventive legal effects without formally granting standing to nature as a litigant (Gutmann 2024).

If the cyclical framework for transformative learning is placed in the context of ESD, the three steps of positioning, experimenting and reflecting could proceed as follows:

- **Positioning:** During the initial learning phase, positioning involves approaching the problem based on one's own assumptions, views, and perspectives. This process also reveals similarities and differences within the learning group. For example, this could involve exploring the facts of RoN in relation to Mount Taranaki. The issue is likely to be a new phenomenon for learners and confusing when viewed from a European perspective on the relationship between humans and nature. The innovative approach of hybrid legal architecture combines indigenous worldviews and state structures, offering a new perspective on RoN and allowing for confusion and a new perspective. Learners position themselves on this issue by evaluating the fact that nature has its own rights, and by formulating questions that arise for them as problems with the new situation. They then compare their opinions with those of the other group members, thereby articulating and updating their perspectives. The first approach can be supplemented by the two judgements of the Regional Court of Erfurt, in which RoN was addressed in the context of diesel emissions. This makes a European and German debate about RoN visible in the learners' living environment. This concludes the positioning phase.
- **Reflecting:** The second learning phase involves contrasting one's own perspectives with alternative views, making one's own thinking and its origins the subject of metacognitive reflection in the process. To this end, previous legal opinions and the relationship between humans and nature are considered. The juxtaposition of the traditional European understanding of nature in terms of ecosystem services and the concept that only legal entities can have rights is examined alongside the RoN debate on Taranaki Maunga (Mount Taranaki) and the hybrid negotiations and judgements of the Regional Court of Erfurt. This allows participants to learn about and evaluate alternative perspectives by reflecting on their own. It is important to question why you think the way you do and whether there are other alternatives. This phase also creates uncertainty, as previously stable assumptions are shaken, but at the same time raises thinking to a higher level by questioning fundamental and seemingly unchangeable facts.

- **Experimenting:** The third learning phase focuses on putting the alternatives developed in the reflection phase into practice and thus actively engaging with the sustainability-related problem and reflecting on and classifying the new experiences with regard to one's own life. For the integration of RoN into European contexts, this is not a linear process of legal imitation of non-European examples (e.g. Taranaki), but rather a situational practice of transformation. Further alternatives for the RoN debate can be developed and tested for their practical applicability. Furthermore, these new spaces for thinking and innovation can be transferred to other sustainability issues and visions can be developed in the sense of experimental spaces. Learning unfolds through encounters with resistance, criticism and experiments – thus creating 'enabling spaces' for the redesign of relationships between humans and nature within democratic frameworks and including the question of meaning and purpose for the individual, society and life itself.

Based on the cyclical framework for transformative learning it has been shown that, on the one hand, the debate on RoN and its transfer to the European context encompasses the process of positioning, reflection and experimentation by actors in the field of environmental policy and law. From the perspective of ESD, learners also go through this process with the help of transformative learning by choosing RoN as an innovative learning subject. We can therefore conclude that RoN can be understood both as a negotiation process (transformative learning for RoN) and as a subject of learning (RoN as transformative learning).

5. CONCLUSION

ESD aims to cultivate critical engagement with complex sustainability challenges, moving beyond anthropocentric views prevalent in Europe towards more holistic, often non-European perspectives. Triggered by global crises and aligned with the UN's Sustainable Development Goals, ESD has evolved through instrumental (ESD 1), emancipatory (ESD 2), and transformative (ESD 3) approaches, the latter seeking to transcend contradictions and embrace uncertainty for a "good life." Instrumental approaches ("learning for sustainable development") primarily focus on knowledge transfer and the promotion of "sustainable behavior." In contrast, emancipatory approaches ("learning as sustainable development") emphasize the cultivation of critical thinking and reflection skills, enabling learners to identify uncertainties and contradictions. Building upon this, transformative approaches ("learning as transformation") aim to transcend contradictions and embrace emergence and contingency in the pursuit of sustainability. A cultivating of the transformative learning as productive uncertainty is central to this, involving questioning assumptions, making uncertainties explicit, acknowledging emotions, fostering dialogue, respecting relativism, and reflecting on power dynamics. This is enacted through a cyclical framework for transformative learning - comprising Positioning, Experimenting, and Reflecting - where real-world problems act as catalysts for continuous, adaptive learning and the co-creation of just, liveable futures.

The Taranaki Maunga settlement presents a groundbreaking model for place-based governance, transcending traditional conservation by legally recognizing Nga Maunga's spiritual and ecological significance. This innovative, hybrid framework seamlessly integrates state and indigenous authority, creating a responsive legal architecture that

addresses historical injustices while promoting future ecological and cultural resilience. This record marks a significant contribution to the global discourse on RoN, postcolonial restitution, and socio-ecological justice.

Furthermore, this governance approach serves as a compelling case study for examining various ESD strategies—instrumental, emancipatory, and transformative. While it affirms aspects of each, such as regulatory management (instrumental), acknowledging legal-cultural tensions (emancipatory), and fostering profound reconfigurations of authority (transformative), it also surfaces inherent challenges. Integrating spiritual values, for instance, moves beyond purely behavioral approaches. However, the hybrid nature of the framework risks conceptual incoherence without careful pedagogical scaffolding. Moreover, embedding radical relational concepts within conventional legal structures faces potential co-optation. Ultimately, Mount Taranaki's example underscores the need for diverse approaches and the adoption of plural ontologies when navigating complex socio-ecological transformations in ESD.

Moreover, the Taranaki experience vividly illustrates a transformative learning as productive uncertainty within ESD, embodying six core principles: questioning assumptions, making uncertainty explicit, acknowledging emotions, fostering dialogue, embracing relativism, and reflecting on power dynamics. While the case confirms and exemplifies these through its critical re-evaluation of colonial frameworks, recognition of nature's contested meanings, emphasis on identity and spiritual connection to land, and efforts toward equal representation and addressing historical injustices, it also highlights inherent difficulties. These include the risk that radical critiques may be obscured by legal integration, uncertainty might be prematurely fixed, emotional dimensions could be marginalized within institutional structures, power imbalances might persist despite formal equality, and relativism could undermine actionable governance decisions. Ultimately, this precedent demonstrates the pivotal role of uncertainty as both a challenge and a valuable resource for transformative learning in complex socio-ecological governance.

Finally, cross-cultural learning, particularly concerning RoN frameworks, emerges as a complex, non-linear process driven by adaptation, contestation, and innovation, rather than straightforward transfer. Although there is no direct reference by the German judgment to the New Zealand precedent, both investigated cases serve as paradigm examples of how legal innovations and the debates they spark can initiate transformative learning processes in the sense of ESD. While Taranaki represents a comprehensive redefinition of the human-nature relationship through the recognition of Rights of Nature, the Erfurt judgments illustrate the challenges and opportunities of legal development under uncertainty in a European context, particularly when it comes to the application of innovative legal thought. Catalyzed by real-world socio-ecological problems, this process can be conceptualized through a cyclical framework for transformative learning model derived from ESD, encompassing phases of Positioning, Experimenting, and Reflecting. European RoN initiatives, including the controversial German Regional Court of Erfurt judgments, clearly exemplify this cycle. They showcase how legal innovations and their subsequent criticisms, alongside artistic and activist modalities, collectively contribute to re-evaluating legal paradigms and fostering transformative learning for more sustainable human-nature relationships as an innovation space. While the transformative approach seeks to redefine authority and relationality, the embedding of radical concepts within established legal frameworks must also consider the need for juridical stability and coherence, which is safeguarded by recognised methods of interpretation. However, the

evolution of jurisprudence involves always an element of “magic” of Rights (Mehlhorn 2024) establishing hybrid values and governance frame of socio-ecological systems. Combining local and indigenous knowledge with scientific understandings as well local stewardship ethics and classical western-european rights discourse in an almost paradoxical way (Knauss 2018). We wanted to show that this magic of rights also carries high transformative potential for educational and institutional learning.

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