

## **Real World Learning: toward a differentiated framework for outdoor learning for sustainability**

---

**Lewis Winks**

**Envigogika 10 (3) – Reviewed Papers/Recenzované články**

Published/Publikováno dne 29. 12. 2015

DOI: [10.14712/18023061.492](https://doi.org/10.14712/18023061.492)

### **Abstract**

The Real World Learning network (RWLn) set out in 2011 to explore elements which contribute to a 'deep and meaningful' outdoor education experience. Following three years of work, the RWLn developed the 'Hand Model', a learning model designed to support educators in the development of Outdoor Learning for Sustainability (OLfS). Since its launch in early 2014, the model has been used for planning, delivering and reflecting upon OlfS experiences. Making use of the comments made in Činčera's (2015) *Real World Learning: a critical analysis* which highlights inconsistencies existent within the model's internal logic, this paper considers the perceived contradiction between emancipatory and instrumental approaches to learning. Beginning with a comprehensive introduction to the Hand model, this paper goes on to discuss the theoretical divide which the model spans between a goal-led, knowledge based approach promoted by the model's focus upon understanding and values, and a pluralistic and exploratory approach typified by aspects of educational empowerment and experience. In response to this and augmented by examples, a differentiated conceptual framework is presented to facilitate a pragmatic application of the model from a *practice perspective*, making use of what has been termed a 'blended approach', whilst acknowledging degrees of inconsistency and dissonance from a *theoretical perspective*. Additionally, the model is viewed from a *context perspective* where questions are asked regarding the appropriateness of particular approaches depending upon the setting in which learning takes place. It is hoped that by moving beyond theoretically entrenched positions a mediated middle ground for the model's application may be established.

### **Key Words**

Outdoor Learning for Sustainability (OLfS); Environmental Education (EE); Emancipatory learning; Instrumental learning; Blended approach; Real World Learning network (RWLn).

### **Abstrakt**

Síť RWLn (Real World Learning network) byla založena v roce 2011, aby zkoumala prvky, které přispívají k „hlubokým a smysluplným“ zkušenostem v outdoorovém vzdělávání. Po třech letech práce RWLn vyvinula model „Ruky“ určený na podporu pedagogů při navrhování programů outdoorého vzdělávání pro udržitelný rozvoj (OLfS). Od svého spuštění počátkem roku 2014 byl model používán pro plánování, realizaci a reflexi zkušeností s tímto

typem vzdělávání (OLfS). Vycházejí z poznámek v příspěvku Činčery (2015) *Real World Learning: a critical analysis*, který zdůrazňuje nesrovnalosti ve vnitřní logice tohoto modelu, stávající článek se zabývá vnímaným rozparem mezi emancipačně a instrumentálně založenými přístupy k učení. Začíná povšechným úvodem do modelu „Ruky“, pokračuje diskusí teoretických rozporů uvnitř modelu – existujících mezi znalostně založeným přístupem, vyplývajícím z jeho zaměření na porozumění a hodnoty, a pluralisticky a experimentálně založeným přístupem, na který poukazuje důraz na posilování (sebe)uvědomění a využití zkušeností ve vzdělávání. Na tomto základě (a s využitím dalších příkladů) je zde prezentován diferencovaný koncepční rámec, a to s cílem usnadnit aplikaci modelu v praxi, přičemž je využíván tzv. kombinovaný přístup, který zároveň v tomto případě zohledňuje různou míru nekonzistence či nesouladu plynoucího z *teoretické perspektivy*. Navíc je tento model zkoumán z *kontextově založené perspektivy*, a jsou tak položeny otázky týkající se vhodnosti jednotlivých přístupů v závislosti na prostředí, ve kterém výuka probíhá. To vše s nadějí, že pokud úvahy vyjdou za rámec teoreticky zakotvených principů, budou nalezeny vhodné způsoby aplikace modelu v praxi.

### **Klíčová slova**

Outdoorové vzdělávání pro udržitelný rozvoj (OLfS); environmentální výchova (EE); emancipačně a instrumentálně založené učení; kombinovaný přístup; síť Real World Learning network (RWLn).

## Introduction

As the UN Decade for Education for Sustainable Development (2005 – 2014) drew to a close, outdoor educators from across Europe came together in 2011 to form the Real World Learning Network (RWLn). The network set out to explore elements that contribute to deep and meaningful outdoor learning experiences which support sustainable thinking and action, embedded within sustainability education (RWLn, 2015). After three years of collaborative work, the RWLn launched the Hand Model; providing guidance for outdoor learning for sustainability (OLfS). OLfS is based on the use of the term in the Scottish education context. It is used to incorporate outdoor learning, education for sustainable development, children's rights, international and citizenship education (Scottish Government, 2014), and additionally draws from, and connects to, the wider fields of environmental education (EE) and Education for Sustainable Development (ESD).



Figure 1: RWL 'Hand Model' (source: RWLn 2015)

Consisting of six interconnected elements, and visualised using the image of a hand, the Hand Model promotes a vision of holistic learning, integrating [the fingers of] understanding, transferability, experience, empowerment and [the thumb of] intrinsic value. Each element is presented with a principal question (see fig 1), aimed to provoke reflection and to enable effective planning. Arranged around these questions are what are known as

'ripples', representing the guiding principles for OLFs, as distilled by developers of the model. Although important individually, these elements when viewed as a whole are said to offer a 'deeper, more meaningful learning experience' (RWLn, 2015), and find meaning through the use of a frame [situated in the palm], which is understood to be a subconscious collection of memories, emotions, beliefs and values which are triggered by external stimuli. These frames give rise to individual internal narratives, or worldviews which generate personal meaning and understanding (RWL, 2014b). The model makes use of this concept to explicitly work with frames which trigger intrinsic, and self-transcendent values, following a methodology informed by the social psychology value theory of Schwartz (PIRC, 2011; Schwartz, 2012). The various elements of the model are introduced more comprehensively below.

## Understanding:

### Are scientific concepts of life included?

This element is concerned with the understanding required to develop thinking and action for sustainability. Exploring the ways in which teaching in the outdoors takes place, the RWLn suggest that a holistic approach is made use of to teaching scientific principles, whereby scientific reasoning is applied alongside other aspects of understanding such as emotions and values. Drawing from work on planetary boundaries (Rockström et al., 2009; Steffen et al., 2015), and the work of Fritjof Capra and the Centre for Ecological Literacy (Capra, 2004; Literacy, 2015), the RWLn propose four ecological principles which run through taught programmes; cycles, change, energy flow and stability. Operating predominantly as normative mechanisms for understanding ecological processes, these principles are also said work as metaphors for the way in which society operates and the way in which we interact with the world (RWL, 2015b). The RWLn suggests that the principles put forward within the understanding finger demonstrate the crucial interdependence of natural systems, but also act as principles for sustainable living and ecological / social awareness. The potential for these principles to be included within a taught teaching session or course are highlighted as the focus of curricula content and teaching approaches are prompted to shift from *parts to whole system processes*. An example of how a lesson might be structured to make use of this aspect of the model is provided in fig.2. As will be explored later in this paper, the 'understnding finger' presents theoretical concern when placed alongside less normative aspects of the model.

Key Question examples for a Woodland Invertebrate Study:

**Stability:** What might happen if a tree fell down, how would that change the population numbers of a particular invertebrate? What would happen to the food web or the whole woodland ecosystem, in a storm?

**Energy Flow:** What are the food chains in a woodland? What are the food webs? What's the trophic structure like in woodland? What would happen if the top predators were poisoned and died in large numbers?

**Change:** Which species are adapted to different places? Why? What are the places like? What would happen if the places changed?

**Cycles:** From the definition of cycles I came up with the question of "How do the seasonal cycles impact on the life cycle of an invertebrate or groups of invertebrates?"

**Figure 2: Example of how the four principles of scientific understanding might be applied to teaching (RWL, 2015a).**

### **Transferability:**

#### **Are different areas of life included?**

In the Hand model, transferability refers to the way in which the material and experience of learning connects learners to different areas of life. The model prompts educators to examine and make use of the interconnections between teaching activities and a variety of contexts and scales, identified as: the learners themselves, the natural environment, the non-natural environment, the learner's communities, and global society. Theoretically, to teach while making use of transferability prompts the educator to place emphasis upon the emotional significance of experiences, to draw together social, economic and environmental perspectives in order to see how these aspects of life hold resonance with one another, and to make use of narrative and metaphor in order to extend the meaning of an experience into other areas of life – specifically to link the large scale of global society with the daily lives of learners. The literature which supports this element of the model presents some useful case studies which practitioners can make use of to link different areas of life with teaching activities (RWL, 2014d). In terms of this paper, the transferability element of the model offers a mechanism by which a compromise might be reached between the goal driven approaches of instrumentalism and the exploratory approaches of emancipatory learning.

### **Experience:**

#### **Do learners get in touch with outdoor settings?**

The Hand Model makes the assertion that experiential learning is critical for OLFs, for four main reasons; the development of a concern and sensitivity to the environment, the benefit it brings to wellbeing and health, for enhancing the contextual meaning of learning in the 'real world', and for the development of 'action-competence' – to reflect upon and learn from experience. The Hand model makes a number of recommendations for developing programmes which include these aspects, they should: provoke and raise curiosity, increase sensitivity and care for the environment, involve 'head, hand and heart' (educating *about*, *for* and *in* the environment), use a variety of methods to reveal something new to the learner, remain open to the outcome, and provide opportunities to act upon an issue and to see

a change (RWL, 2014a). Experience is a central component of the model and carries a practical significance which links it to many outdoor EE programs.

## **Empowerment:**

### **Are learners empowered to shape a sustainable future?**

Within this element of the model, two distinct stands present themselves. The first is concerned with learner experience and aims to provide opportunities for learners “to experience the 'real world' around them with the joy of learning in a self-directed way [and to] strengthen their intrinsic motivation to care about the world they live in” (RWL, 2015a). The second strand is concerned with skills and responsibility, including critical thinking, emotional intelligence, self-efficacy, determination, reflection and communication. The model emphasises that these should not be merely seen as skills or competencies to be acquired but that they should be integrated within the wider educational process to encourage learners to take responsibility for their own learning. The empowerment element of the model presents an emancipatory challenge to other instrumental elements such as understanding and values. It's place within the model creates a form of theoretical dissonance which this paper will examine from a theoretical and practical perspective.

## **Values:**

### **Are self-transcendence values promoted?**

Values are a key aspect of the model, and as such they are situated in the thumb (thus with the ability to connect with each other the other elements). Here, the term 'values' takes on a specific meaning. Grounded in the work of Schwartz (2012), a social psychology understanding of values is made accessible to practitioners working for social change by the organisation Common Cause (PIRC, 2011). In terms of this theoretical basis, value items are represented as a circumplex (see fig.3) in which a variety of value groupings are evident. Broadly these groupings fall into two categories – intrinsic value and extrinsic value. On this circumplex, the closer the value points are to each other, the more likelihood one person will hold those values in high regard, whereas the further apart they are, one person is less likely to hold those values highly. The work of Common Cause and of the RWLn draw links between the desirable hallmarks of sustainability education and intrinsic value – otherwise termed 'self-transcendent values' due to their focus on concerns beyond the self, such as social and ecological justice. The model is infused with three 'core values' to be made use of in the planning and delivery of education programmes; a *respect for nature and care for the state of the planet*, *respect for future generations*, and *equal opportunities for all people to shape their lives*. These core values can be interpreted as instrumental aspects of the model by which sustainable behaviours are promoted. This paper will examine the extent to which the instrumentalism evident in the values 'thumb' might be seen to be problematic and in contradiction to other aspects such as empowerment and experience.

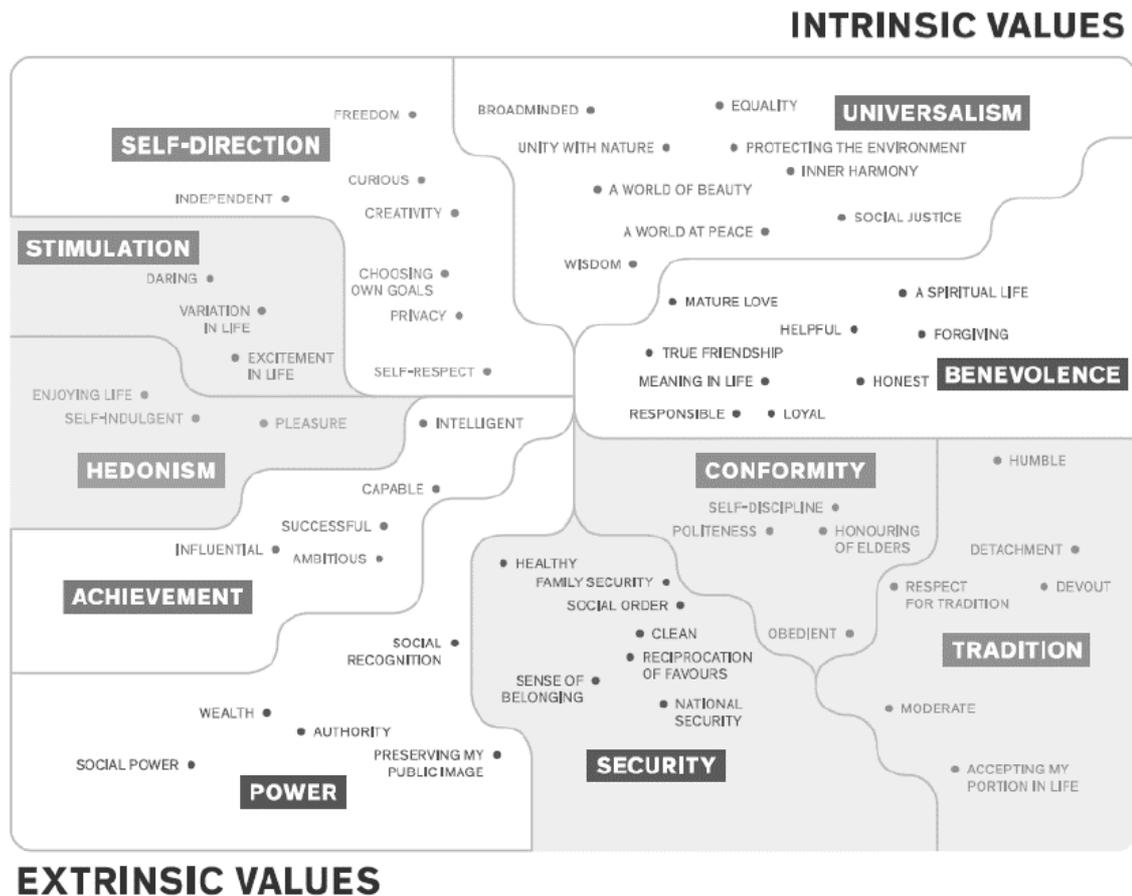


Figure 3: Common Cause values circumplex (source: PIRC 2011)

### Frames:

#### Is there a frame providing a connecting story?

The final component of the model, known as the 'frame', is situated in the palm, connecting all other elements. The RWLn give two reasons for the place of frames within the model; they "act like a guiding light for teachers and learners, allowing self-directed learning to occur... [and]... provide a deeper meaning for the learner"(RWL, 2014b p. 1). The term 'frame' is used to understand and work with the meaning attached to specific symbolic references. Frames normally consist of a statement, concept or symbolic icon, such as a photo, action or even a place as a point of reference for the learning process to refer back to and to guide the principles of learning promoted by the rest of the model. The model attempts to work with the subconscious "bundle of different memories, emotions and values"(RWL, 2014b p. 1) which are triggered through engagement with a variety of frames. Statement-based frames are used to make an explicit link to Schwartz's sustainability values. Examples of statement-based frames and how they relate to these values are given in fig.4. Again, the frames element of the model creates theoretical conflict as sustainability values are seen to be embedded within certain frames (see fig.4). The extent to which values and frames might be seen as instrumental will be discussed in this paper.

Frame	Sustainability values	Items of self-transcending values	Key concept
All taking requires giving back. (Reciprocation frame)	respect for nature, respect for future generations	universalism: unity with nature, a world at peace, social justice, wisdom, inner harmony, equality; benevolence: meaning in life, responsible, helpful, mature love	Cycles
In diversity is the preservation of life. (Diversity frame)	respect for nature, equal opportunities for all people	universalism: unity with nature, equality, a world of beauty, social justice	Diversity
Living on Earth means achieving balance. (Balance frame)	equal opportunities for all people	universalism: unity with nature, equality, inner harmony, social justice, wisdom; benevolence: mature love, a spiritual life, true friendship	Self-regulation
Survival involves the ability to align with changes. (Alignment frame)	respect for future generations	universalism: unity with nature, wisdom, broad-minded; benevolence: forgiving, mature love	Resilience
Life can be enhanced if abilities are exchanged. (Exchange frame)	equal opportunities for all people	universalism: broadminded, equality, inner harmony, wisdom; benevolence: true friendship, mature love	Symbiosis
Small changes can have a big impact. (Butterfly frame)	respect for nature	universalism: wisdom, broadminded; benevolence: responsible	Butterfly effect
The sun powers us all. (Sunpower frame)	respect for nature, equal opportunities for all people	universalism: unity with nature, a world of beauty	Energy flow

**Figure 4: Examples of RWL 'frames' and how they relate to sustainability values (source: RWL, 2014).**

As well as a large number of case studies detailing its use across Europe (RWL, 2014c), the Hand model has been made use of within environmental and science based learning programmes developed by the UK education charity, the Field Studies Council (FSC). The development of programmes of fieldwork which make use of the guidance of the model have led to evolving practice, development of new approaches and a continuing renewal of approaches amongst practitioners (see: Winks & Deacon, 2015). Alongside the exploration of concepts within the model, a number of training events aimed at embedding an OlfS approach within outdoor teaching practice have taken place. These have lasted between half-day tasters to 6 day immersive courses. The author of this paper co-developed these training events for use with educators within the school-based and outdoor sectors, and was additionally involved in the trailing of the model in the UK. From this experience of the model in practice, critical insights into its practicality and theoretical implications have emerged. This paper will make use of these insights to refine understanding of the model in light of practice and current academic discourse. The next section will discuss wider relevant theoretical debates surrounding EE and OlfS, while attempting to connect these debates to the Hand Model itself.

## Discussion

It has been suggested that in order to move beyond a stunted posture and to grapple with issues relating to the current crisis of unsustainability, learning needs to now draw upon a more rounded epistemology, not only concerned with facts and knowledge, but additionally enriched through emotional engagement and “imaginative and creative entanglement with the world” (Selby & Kagawa, 2015 p.278). Additionally, it has been noted that the stories and metaphors which shape our worldviews are inadequate for moving into, or even imagining, a sustainable world (Judson, 2015; Orr, 1992; Sterling, 2001). Therefore it is proposed

that we need new narratives, shaped by metaphorical engagements to open up the possibility for alternative, creative and experimental educational practice to develop deeper and more meaningful relationships with the world. OLFs situates itself as part of this picture, but much criticism suggests that a practical pedagogical framework to support the aims of sustainability education is lacking (Huckle & Wals, 2015; Judson, 2015).

A distinction can be made between two contrasting paradigms in EE, termed as instrumental and emancipatory. The instrumental paradigm concerns itself with goal-driven approaches and is predominantly outcome-focused. The instrumental paradigm approaches environmental and social crises from a behaviourist perspective, asserting that behavioural intentions and outcomes are controlled by a range of variables including values, norms and attitudes (Ajzen & Madden, 1986; Barr, 2008; Stern, 2000). Although moving far beyond the now discredited (Hungerford & Volk, 1990) assumption that more knowledge leads to more action on a given issue, the instrumental paradigm crucially requires prior knowledge of what a 'right' action entails, and therefore a degree of certainty (or at least agreement) on where the solutions to unsustainability lie. It is this point which some have taken issue with, focusing upon the uncertainty and lack of consensus which exists in such an area (e.g. Jickling, 1992; Sterling, 2001). The objective, outcome focused tendency of instrumentalism is left wanting when the objectives and outcomes are unclear. Instead, many critical scholars finding fault with instrumentalism point to the opportunity to nurture a more open and subjective approach to sustainability education, which finds its footing in "capacity building and critical thinking... which will allow citizens to understand what is going on in society, to ask critical questions and to determine for themselves what needs to be done" (Wals, 2010 p.17). The emancipatory approach to education enables individual pluralistic perspectives, attitudes and actions, guided by a moral concern for the aggregated whole. Additionally, many educators disagree with the notion of goal focused learning, and see it in opposition to the democratic foundations of education (Jickling, 1992; Jickling & Wals, 2008; Wals, Geerling-Eijff, Hubeek, van der Kroon, & Vader, 2008). On the other hand Kopnina (2012) has been especially critical of the approach of emancipatory learning, arguing that pluralism will not only result in insufficient change required to move toward a sustainable society, but that it will continue to default to a strong anthropocentric worldview and fail to enable deep green and ecocentric perspectives. Furthermore, Kopnina (2015) argues that we know enough to begin to move away from unsustainable behaviours, and that making use of proven and concrete frameworks for sustainability, education for sustainability should be able to find the confidence to begin to address the immensity of the problems faced in the world today.

Stepping outside of the theoretical limits of each of these arguments, it is possible to discover a pragmatic middle ground, applicable to both environmental philosophy and educational approach which has been termed a 'blended approach' and mediates between a goal-driven, instrumental, structural approach and a democratic, emancipatory, agency driven approach (Wals et al., 2008). The blended approach, emerges from the study of social practices (see: Spaargaren, 2003) and presents itself as a mediator between paradigms, which places focus upon educational practice – rather than solely the role of individuals or the role of top-down governance (Wals et al., 2008). Spaargaren's social practices model attempts to link these two positions through interplay between agency and structure, mediated by lifestyles and systems of provision – placing emphasis upon the everyday practices of people in society (Spaargaren, 2003). This approach may offer an opportunity to move away from the disempowering inertia which many educational practitioners feel when presented with the dualistic theoretical stances of instrumental and emancipatory paradigms, captured especially in the debates pertaining to the role of education in encouraging behaviour change for sustainability (Huckle & Wals, 2015; Jickling & Wals, 2008; Kopnina, 2015;

Wals & Jickling, 2002). Without forging a case for a mediated use of the theory, such arguments carry little currency in educational practice as their translation into the diverse and sometimes discordant world of education necessarily entails degrees of both instrumentalism and pluralism. Crucially however, the use of a blended approach offers the opportunity to make use of the theoretical constructs of such arguments, and then to develop an approach which is appropriate to the context in which it is being used.

While the work of the RWL network and the philosophy of the Hand Model appear to reside significantly within the emancipatory paradigm, it is apparent that it holds significant degrees of instrumentalism also. Činčera (2015) has presented an analysis of the model in which the theoretical approach is examined. He states that the ambition to determine a strategy to change learner behaviours to meet specific aims, as outlined in the introduction to this paper, the model promotes goal driven and outcome focused learning. Činčera suggests that the ecological principles set out in the understanding element could be seen to signify "scientific truths" (p.5) and that a belief is held therein that by equipping learners with these objective truths behaviour change of a predefined and approved sort will result. This inconsistency is seen to create a form of dissonance which is problematic due to elements of instrumentalism embedded within an otherwise emancipatory approach to learning.

Činčera's paper identifies a set of theoretical inconsistencies which work as opposing philosophical forces within the model. It is stated that while both instrumentalism and emancipatory learning have their value, the Hand model would be better off working within the theoretical limits of one paradigm rather than attempting to straddle both. Although the theoretical guidance offered by these arguments are useful, it is difficult to see their use in a practical setting. In order to move beyond idealistic inertia, this paper will now go on to explore the possibility of using the blended approach to understand the Hand model from three perspectives – theory, practice and context, in the hope that a pragmatic and practical application might be able to be found.

Set out under three headings for simplicity, the next section will begin by exploring the model from a theoretical perspective, exploring the meanings of different theories for the Hand Model – how they are applied and the questions these theoretical stances raise for education, as well as the problematic nature of their incompatibility and inconsistency. The model will then be viewed from a practice perspective whereby the practical application will be viewed from an 'on the ground' stance. Examples will be used from the use of the Hand model with groups in an attempt to outline the model's practical relevance to education. Finally, the model will be viewed from the position of context, making use of ideas surrounding pedagogies of place as well as often overlooked aspects of context such as institutional ethos, the purpose of the session and group dynamics.

### **The theoretical perspective**

Činčera's useful analysis raises the proposition that the model holds 'internal inconsistencies' which arise from a dissonance between opposing educational positions. By viewing the model from a theoretical perspective we are necessarily engaged in this debate, and prompted to understand the model as determined by the traits of specific paradigms. Viewing the model in theory asks questions of the epistemological underpinnings of the model, and of the traditions from which the model draws its inspiration. The potential for conflict between the internal logic and the components of the model when viewed through a theoretical lens is clear.

The Hand model displays the hallmarks of the two diverging educational paradigms in different guises. In a large part the model promotes emancipatory approaches and shies away from creating specified criteria for educators to follow in the design of their programmes and classes. Broadly, the model is described as offering a “flexible approach to outdoor learning for sustainability; a way of thinking, reflecting and being” (RWLn, 2015), while elsewhere in the guidance for developing the ‘experience finger’, it is stated that “it is important to remain open to learners’ ideas and respect even unpredictable outputs as the source of our own learning”(RWL, 2014a). These two examples are backed up by many more which hold similar sentiments in the supporting literature for the model. The generalised approach of the model is not to provide a rigid set of standards or expectations which must be included in every educational experience, but for it to be seen as a ‘pin board’, or a ‘compass’ for exploring different educational approaches toward OLFs (Winks & Deacon, 2015). However, when viewed with the necessary attention it is possible to unearth some more specific instrumental sentiments in amongst the theoretical construction of the model. Two examples are presented here which offer a glimpse of how the model might be described as ‘internally inconsistent’.

Firstly, the inconsistency between educational paradigms arises as a conflict between a pluralistic, emancipatory approach contained within the ‘empowerment’ and the ‘experience finger’, and the seemingly defined and instrumental aspects of ecological knowledge, contained within the ‘understanding finger’ (see fig. 1). The RWLn refers to empowerment as “a growth process, both for an individual or a group. This process is based on increasing self-esteem, of self-efficacy and self-determination: individuals can fully utilise and take ownership of their potential” (RWL, 2015a p.1). This is contrasted with the ecological principles of life which are promoted in the ‘understanding finger’ – which, along with the content of the experience finger, are referred to as requirements for successful sustainability education (RWL, 2015a). Therefore, it might be said that while the model encourages learner-led education and remains ‘open to the outcome’ in what might be described as a promotion of pluralism, it also suggests that a given set of knowledge based ‘truths’ might be responsible for the successful implementation of sustainability education – a certain acceptance of at least a small aspect of instrumentalism. Kopnina’s assertion that environmental education should be embracing the challenge of sustainability education and making efforts to educate *for* sustainability is echoed in these aspects of the model. So too we can see that a known end point is regarded by the model as appropriate in some instances while in others, openness and uncertainty are encouraged. This dissonance seems to shun the polarised debates existent within current literature and creates unease within the minds of scholars working with these concepts.

Secondly, but perhaps to a lesser extent, the model’s use of values presents a similar dilemma. ‘Self-transcendent’ values are promoted, while the model seeks to identify behaviours which correspond to the ‘good’ values of benevolence and universalism, and to promote them through educational programmes. The RWLn state that educators should be “mindful about which values [they] wish to support and develop through [their] work” (RWLn, 2015), and thus suggest that a particular set of values, attitudes and meanings should be attached to the programmes they deliver. These value items are explicitly attached to frames (see fig. 4) and termed ‘sustainability values’ which are constructed as the ‘good’ or ‘right’ messages to guide sustainability learning. As well as giving a definite nod toward instrumentalism, the values component of the model is akin to attempts to encourage moral learning. The concept of moral education is in part an attempt to realign outlooks along predetermined paths, as well as a looser, less well determined guide for relationships with the world. This leads us to see the ‘values thumb’ of the model in a similar light to character education and ecological education, which attempt to set out conditions likely to encourage

good behaviours (e.g. Noddings, 2002; Smith & Williams, 1999). Clearly, this component of the model is also responsible for infusing instrumentalism into its underpinning theory.

These two examples highlight that there exists a significant overlap between theoretically incompatible positions relating to the purpose of education, and present a useful philosophical discussion. It might be said that from a perspective concerned with theoretical consistency that this is problematic – even to the extent that the model’s usefulness is questioned. However, it should be asked; does it matter whether there is an inconsistency within the model’s approach? From a theoretical perspective, and one removed from the pragmatism of educational practice, it is only a matter of debate whether one sees this as a problem. Indeed, it is not the wish of this paper to refute these claims, for they are based upon sound reasoning and observation and both sides of the debate have their merits. Educational instrumentalism offers a strong set of normative aspects and concerns with which to guide educational programmes and connects with environmental education programmes which are aligned with this tradition. On the other hand, emancipatory learning opens up possibilities for education to work with uncertainty, concepts of exploration as well as to encourage student-led approaches to learning. Education programmes which fall wholly within a single paradigm are able to muster convincing support for their approach, effectively diminishing the claims of the other. However, for OLS to be enhanced by the Hand Model, it is essential that educators are able to access the practical significance of a multitude of theoretical undercurrents, in order to be informed by them, to be able to question them, and to carry them into educational practice. This might occur regardless of any perceived dissonance at a theoretical level and certainly does not require dogmatic affiliation to one or another theoretical paradigm. In order for this to happen, however, the model must be viewed from the perspective of practice as it is in the hands of educators and learners that such educational models find their true value. It is therefore to the model in practice that this paper now turns.

## The practice perspective

The Hand model has been in use for almost two years, and as a result, a range of practice based case studies are available (see: RWL, 2014c; Winks & Deacon, 2015). This section will highlight some examples from the author’s experience of using the model as well as some examples from reports which have been completed as a result of the project. These examples will be used to illustrate how the model ‘translates’ from theory to a practice perspective, and will be of interest to educational practitioners as well as those concerned with educational theory. Three main areas are highlighted which stand out as exemplars of how the model holds practical use-value, in ways which enhance the sometimes contradictory theory behind it by blending instrumental and emancipatory aspects of the model. These areas are; i) the use of metaphor, story and narrative ii) the ‘instrumental gateway’ effect, making use of knowledge in an affective light, and iii) the practice of values and ethics within educational programmes.

### **i. Narrative, story and metaphor**

In its palm, the Hand Model clutches the concepts of storytelling, narrative and metaphor – known in the language of the model as a ‘frame’ with which the other elements are linked together. It is this aspect of storytelling as part of the educational approach upheld by the RWLn, which this section will explore in terms of its use in educational practice.

Stories and the use of narrative have a long history within teaching from early years to higher education and within teacher training more plainly as a pedagogical tool (Alterio &

McDrury, 2003; Carter, 1993; Egan, 1985; Saunders, 2011), but also explicitly for developing character and values and as an instrument in moral education (Tappan & Brown, 1989). As discussed from the theory perspective, frames are the means of carrying sustainability messages and values through the educational experience. In one sense they are static conveyors of single meaning pre-determined in order to promote pro-environmental behaviour through an educational programme. However, the frame also enables the educator to tell stories in order to link learning to other contexts, scales and situations – thus extending the sphere of meaning and creating connections between the learners, their own communities, the human and natural environment as well as global society (see example in Fig. 6).

The use of narrative and metaphor within the learning process helps to bring together aspects of discovery and a synergy between experiences of learners. This approach helps to overcome the 'either-or' proposition consistent with a strictly theoretical posture. By making use of narrative approaches we are prompted to conceive of "experiences [which] might articulate with each other in order to avoid discontinuous experiences" (Nicol, 2014 p.455). By creating continuous experiences which involve emotional resonance with and between life-situations for the learner, a transfer of understanding can occur across scales, viewpoints and between contexts. From this perspective, rather than being seen as an either-or conflict between developing learner's knowledge and promoting affective engagement, the two strands become complementary components to make space for wonder, curiosity and imagination within the learning experience, whilst being guided by a central theme (Judson, 2015).

## **ii. The 'instrumental gateway'**

From a practice perspective it is neither possible nor (in many cases) desirable to implement educational programs which reside solely within the domain of one or another educational theory. Significantly for this paper, there emerges from this fractious debate the possibility of creating space for a middle ground for sustainability education which draws from both emotional, intrinsic engagement with the world, and to the knowledge based, instrumental view of the world. Regarding environmental ethics, the blended approach acts as a mediator between intrinsic and instrumental values pertaining to the human relationship with nature, known as environmental ethical pragmatism. These debates have been covered extensively elsewhere (e.g. Casas & Burgess, 2012; Light, 1996; Norton, 1991), but relate to the blended pedagogy which is promoted by this paper. It is necessary for educational practitioners to be able to work within the confines of a largely instrumental framework of mainstream educational institutions, while offering the possibility for emancipatory approaches within their work. In other words, where knowledge-based learning contributes to, and

**Figure 5: Example of the use of frames to link contexts and tell stories (source: Winks and Deacon, 2015)**

works alongside, an intrinsic and emotional engagement with the world (Diehm, 2008; Wals et al., 2008).

Christian Diehm eloquently argues that an intrinsic, deep connection with the environment normally reserved for strictly nonanthropocentric views of nature can be, and often is, achieved through instrumental first steps. A deep awe, respect and love for the non-human world finds its footing often through instrumental understanding, but given the right context, can lead to intrinsic and emancipatory learning, creating possibilities for deeper relationships with the natural world (Diehm, 2008). Diehm explains his fascination with trees which grew from the pages of an identification guide into a fondness which surpassed the initial instrumental basis, forming an experiential link between “becoming familiar with trees and coming to feel that they are among one’s familiars” (ibid., p.10). This type of ‘experiential link’ between *understanding* and *relating to* nature helps us to further conceptualise the potential for applying both instrumental and emancipatory theory within a practical

During the planning for a course in the autumn, I was struggling to decide upon the narrative for one of the days; it was a local rural morning which followed an urban day in Plymouth – it seemed superficial to use a frame to hang a single morning on – and, to my mind, was confusing. Eventually it clicked; [I would] plan the entire course using a single thread of narrative that held common ground between all of the teaching topics. We were going to look at flooding and erosion on the coast, ecosystems and succession, also on the coast (this was to be the main study day), urban changes in Plymouth post Second World War, and rural decline in a local village... a mix of physical and human geography days. The common thread, taken from the main study day was *adaptation and resilience*; key concepts for ecosystems and succession, but also applicable to coastal management, with strong links to post-war reconstruction of Plymouth and the loss of resilience in the local villages, so the frame I worked with throughout the course was “*the survival of all life requires adaptation to change*”. Examples of adaptation to change could be used and recognised not only in the succession of plant species on the beach as a result of physical changes, but also in human communities [living on the coast, and in danger of losing their homes and livelihoods to the storms].

setting, and relates also to the narrative structure which the hand model provides for OLFs. When applied to the Hand model practically, it appears that the notion that an experiential link may be formed between instrumental, investigative ‘field work’ and a deeper and more meaningful relationship with the world.

### iii. Values and an ethic of care

Of the two areas of ‘internal inconsistency’ found within the hand model, one of the most obvious normative and objective aspects can be said to be the social psychology approach adopted by the use of Schwartz’s values model. However, for educators it remains important to ask what this means in practice, and how the values framework forwarded by Common Cause and the Hand model are adopted for educational use.

In training and use of the model with trainee teacher groups in late 2014 and early 2015, a Common Cause based workshop on values and frames comprised a part of the programme, thereby giving trainees the opportunity to operationalise values and to gain a common understanding with which to relate within a group for the duration of the training. However, as the elements of the model were uncovered and the groups began to work with the model as a whole, the epistemological basis for values became increasingly less significant, and instead a form of ethical pluralism emerged which enabled the group to apply the abstract qualities of values to an appropriate real world context (see fig.6).

Throughout the course we attempted to centralise the idea of 'value' and to open up discussion on what this meant and what type of values were present in various activities and experiences. We had varying success with this. However, when we spoke more broadly about our relationship with the environment, our care for the world, for our work and for each other – suddenly things began to open up. We didn't talk about care as if it was a set of qualities to include, or a spectrum of care along which some forms are better than others, we simply discussed our relationships. Sometimes the notion of disconnection and lack of belonging arose, while at other times interconnection and dependence were themes. It felt like there was less judgement inherent in this language than that which we were working with [in the Hand Model], rather a set of very personal experiences – in which there is no 'right' or 'wrong', only difference... I felt that the discussion which moved from values toward relationships and care for the world made the whole thing easier for the trainees to 'own', but we never explicitly linked this to any theory... perhaps doing so would have removed some of the spontaneity from the feeling.

**Figure 6: The use of values in training with the model (source: authors notes, unpublished)**

It appears that while the objective understanding of value proposed by the model has its use; it might be more useful to work in practice with a more subjective ethical framework. Such an ethical framework can be found in the work on care ethics and ecological education (Smith & Williams, 1999; Tronto, 1993) which find their footing in *practices* of care and pedagogy rather than solely in theory. Indeed, care emerges in this sense from a relational ethical discourse which places at its centre the relationship between us and ourselves, between us and the world and between theory and action. Care must be enacted within the world for it to become a practice and in this sense care is better suited than a mere discussion on value for an action based education such as that which the hand model represents (Tronto, 1993). So too does a dialogue and enactment of care speak to aspects of empowerment which is a fundamental element of the model overlooked by a purely theoretical stance.

The model itself already puts forward a care basis for engagement with OLS, proposing a respect for nature and care for the state of the planet, respect for future generations, and equal opportunities for all people to shape their lives. Making use of an ethic of care in our work requires placing emphasis on both social and ecological justice within educational programmes, and grounding this learning in action. Learners must see the worth of socio-ecological justice education in creating change in the world. Such sentiments have been made before. An example of a course planned using the hand model to enact care through action is given in fig. 7.

On the last day, we wanted something which would bring the experiences of the week together in an inspiring manner, which would engage the students with their 'head, hand and heart'. Although we had been discussing changes in the landscape and sustainability related to the natural and the human environment, there lacked a grounding of this rather abstract 'theory' in the real life practice of the world. We decided that we should visit a farm on the final afternoon to meet the farmer (Mike) for a farm tour and some activity. We met Mike at lunch time and he took us to see his farm... He showed us his animals and talked of life as a farmer. The students had many questions for him. Although we had carried out some data collection in the local villages in the morning, the visiting teachers had agreed not to collect data on the farm. Instead we helped out on the agroforestry project there, with two groups of students splitting off to weed runner beans, mulch fruit trees and plant and water squash. We had liaised with the visiting school to agree this in advance and to check protocol with school based risk assessments. The activity lasted for an hour, during which time the students were able to choose their own pace of work. Initial reluctance at getting hands dirty quickly gave way to enthusiastic participation. Upon arrival back at the field centre, we spent 20 minutes reflecting on the farm visit. The students had feelings relating to empathy for Mike, and his life as a farmer, and interrelated discussions from earlier in the week were revisited in the context of the farm visit. The relatively unstructured afternoon had provided a hook for students to reflect on the deeper [and practical] meaning behind the explorations of the week.

**Figure 7: Enacting care through work on a farm (source: Winks and Deacon, 2015)**

In sum, from a practice standpoint, the model has been developed to be applied within educational practice, and as such needs to work both as a component of the educational system it finds itself within, and as a challenge – prompting practice to provide 'deeper and more meaningful' learning experiences which move beyond the knowledge and fact based paradigm, and to begin to work with emotional engagement and wonder. This mediated position compromises multiple, and competing, theoretical grounds of the model and as such a pragmatic position is necessarily arrived at, situated in educational practice. The middle ground of practice does not devalue the epistemological underpinnings of such an approach, but recognises the need to draw from a pluralistic context. This is evocative of the 'blended approach' and employs characteristics of both emancipatory and instrumental learning (Wals et al., 2008).

### The context perspective

Despite the potential for shifting conceptual understandings between the theoretical basis for the approach and its application in educational practice, the way in which this is achieved remains challenging for most educators. The assertion that the model can simply move beyond understanding as 'scientific truth' and into a more metaphysical setting which enables meaningful engagement with the world through symbolic transferability seems somewhat intellectual at best, and at worst may result in off-putting learning experiences

which step too far into an abstract realm. In order for meaning-making to occur, it is necessary to consider the basis from which learners will build their understanding and to consider the opportunities available for making meaning across environments, perspectives and scales.

The context view of the model asks questions of the setting in which education takes place. This places a focus on place-based learning, in which educational approach is informed by the setting, and allows both educators and learners to adapt their approach in response to stimuli from the environment and to develop relationships with place (Higgins, 2009; Rose & Cachelin, 2010). This attaches a due emphasis upon a strong grounding in the local, an interaction with environment and community, concerns for social and environmental justice and a contribution-focused outcome which seeks to empower involvement in public processes (Smith, 2002, 2007; Smith & Williams, 1999; Sobel, 2004). Similarly, bioregional education movements extend concerns and care to the locality, described by Gruenewald (Gruenewald, 2003b) as a 'place conscious' education. Gruenewald also describes the need for a 'critical pedagogy of place' which merges the ecological focus of place-based learning with the social justice concerns of critical pedagogy (Gruenewald, 2003a). This merger of approaches connects to the empowerment element within the model and places an emphasis upon the enactment of 'critically sustainable' behaviours rooted in care (Rose & Cachelin, 2010; Smith & Williams, 1999).

While the contributions of critical place based learning offer a good contextual starting point for thinking about how to develop the model's practical relevance, the context perspective additionally asks questions of the educator, the ethos of the institution as well as the implications of locality. Take for example the difference between a group of university undergraduate geography students on a field trip to Brittany at the beginning of their second year and a class of upper primary school children on a one day excursion to a local woodland. In these two cases the hand model might be applied to guide the group leader in planning activities which resonate and connect the learners to components of sustainability education. However, these two examples differ in more than one way, in ways which go beyond 'place', and into what is more appropriately termed context. The age groups are vastly different, their learning styles will be different also, as will their expectations from the trip. They will be focused on different aspects of the experiences; while the primary class might be more focused upon a new environment and a new experience, the university group might be thinking about their first summative assessments. So too will the institutions which support each of these trips differ in approach, style and ethos – not to mention expectations of their students and the curriculum which they follow. This will in turn be passed on to the educators who will want to design and plan a differentiated approach according to all of the above.

While this example might be generalised, it does raise a key concern with educational models – that they remain inflexible and uniform, and treat every experience as if it were replicable – and thus end up being discarded, or reserved for certain 'special' circumstances. Viewing the model through a contextual lens helps to avoid a 'universal' approach to outdoor learning, whereby 'off the shelf' learning experiences occur regardless of the situation and context (S Beames, 2006; Simon Beames, Higgins, & Nicol, 2012), but additionally take on board the differences between groups, settings, approaches and outcomes. Furthermore, by understanding the context perspective as consisting of aspects of the educational experience which exist beyond location as perceived by place based learning methodologies; the educator is empowered to make use of the model in a wider variety of applications.

Supported by this view, instrumental field-based learning may lead to emancipatory opportunities for creative and experimental practice. By creating a connection with place, a sense of wonder might be developed for the topic, prompting an emotional engagement as part of the learning process. Moreover, by contextualising learning in this way, knowledge gains its own specific sense of meaning - connecting topic, place and self (Judson, 2015). If learning is enabled to step beyond a sole focus upon instrumental knowledge, and into a contextual setting, an 'imaginative and creative entanglement with the world' seems more likely. The contextual perspective prompts us to not simply see the pragmatic position as a compromise between theory and practice, but as a setting-specific, authentic and appropriate approach, heeding Selby and Kagawa's (2015) call for a more rounded educational epistemology.

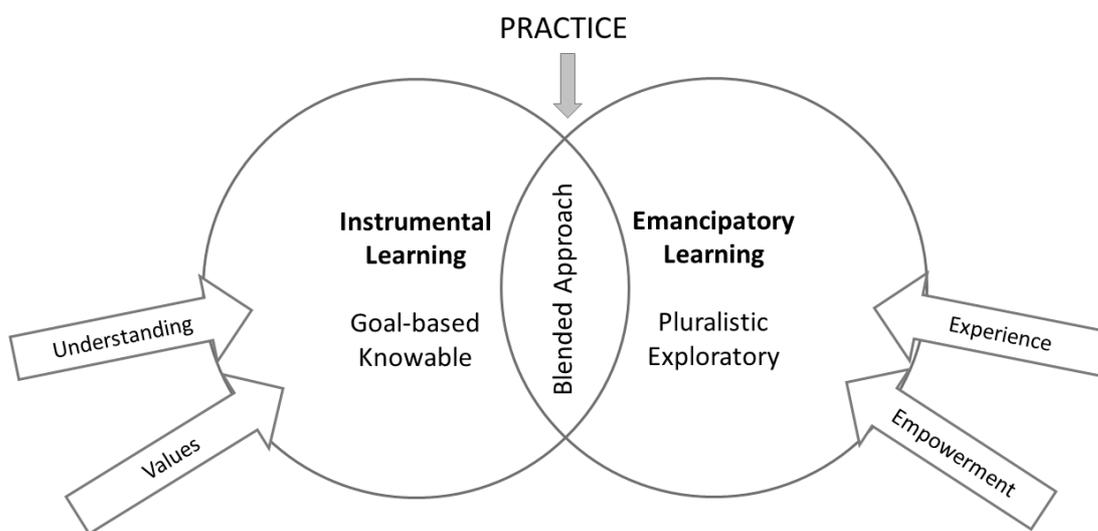


Figure 8: The 'blended' view of the theory behind the RWL Hand model

## Conclusion

It has been demonstrated that the model has a degree of theoretical uncertainty regarding its allegiance to approaches toward sustainability education, characterised as instrumental and emancipatory paradigms. The intention of this paper has been to make suggestions as to how such a model might be seen in a different light, where the Hand may span both paradigms, drawing from a combination of theories and still remain relevant to practice. This spread of approaches might be said to be a weakness of this model, but it is argued here that this only adds to its appeal. This case is furthered when viewed from the differentiated perspectives of theory, practice and context. A blended view of the model is arrived at when informed by theory, enabled by context and performed in practice (see fig. 8).

The practice perspective rightly attracts much attention in this paper as it is here where the model finds its footing in the actuality of educational work. By providing a differentiated framework through which to view the model, the opportunity arises to select the most appropriate perspective depending upon the circumstance. Educational theory has much to offer, and this paper does not attempt to argue that pragmatism is right in every situation, only that to arrive at a practical standpoint, one must mediate with the views of others. Additionally, the practice standpoint might be said to offer something to everyone,

and 'a way in' to using the model in our work as environmental educators. Broadly speaking, the application of this framework is to envisage the model as an embodiment of the 'blended approach' to education –an intervening force between emancipatory and instrumental paradigms –with which to bring about a dynamic and readily available approach to OLfS. More specifically, this framework offers a degree of guidance for those educators wishing to explore 'deeper and more meaningful' educational practice and for developing learning for sustainability as an educational priority.

The model may now begin to move beyond a dualistic debate between theoretical perspectives and toward a pragmatic and pluralistic position where OLfS is confidently enabled within educational practice. Without abandoning the important theoretical basis upon which the model rests, nor suggesting that the underlying theory ignores the contextual arguments pertaining to place based learning, this framework offers an opportunity for educators to draw from a practice-centred, blended approach, bridging the gap between learning paradigms while prompting us to place at the focus of concern a pedagogy which engages not only with knowledge, but also nurtures deeper and more meaningful relationships with the world.

While the model cannot be the only approach and should be seen as one of the many models from which we may take inspiration and guidance, the same can be said for our perspectives and conceptual understandings of these models. Regardless of the approach we choose to take as educators, it is clear that a 'deep and meaningful' education experience will not be found within a universally applied off-the-shelf model. Models offer us useful guidance and direction, but we must make the effort to find our own approach. The discussion presented in this paper offers a framework for doing so. It is hoped that by conceptualising OLfS in this way it will inspire a diversity of approaches, appropriate to circumstance, which take inspiration from theory and find application in inspirational and imaginative educational practice.

## Acknowledgements

The author would like to thank the Real World Learning team, specifically Tom Deacon and Richard Dawson for their comments and feedback as well as their enduring commitment to sustainability and education. The Field Studies Council supported trials of the Hand Model in educational practice in the UK and are appreciated for their contributions to the field of outdoor learning. Finally, thanks go to Stewart Barr and Harriet White for their attentive remarks and contributions to this paper.

## References

- Ajzen, I., & Madden, T. J. (1986). Prediction of goal-directed behavior: Attitudes, intentions, and perceived behavioral control. *Journal of experimental social psychology*, 22(5), 453-474.
- Alterio, M., & McDrury, J. (2003). *Learning through storytelling in higher education: Using reflection and experience to improve learning*: Routledge.
- Barr, S. (2008). Environment and society. *Sustainability, Policy and the Citizen*. Ashgate, London.
- Beames, S. (2006). Losing my religion: The quest for applicable theory in outdoor education. *Pathways. The Ontario Journal of Outdoor Education*, 19(1), 4-11.
- Beames, S., Higgins, P., & Nicol, R. (2012). *Learning outside the classroom: theory and guidelines for practice*: Routledge.
- Capra, F. (2004). *The hidden connections: A science for sustainable living*: Anchor.

- Carter, K. (1993). The place of story in the study of teaching and teacher education. *Educational researcher*, 5-18.
- Casas, A. B., & Burgess, R. A. (2012). ENVIRONMENTAL REVIEWS AND CASE STUDIES: The Practical Importance of Philosophical Inquiry for Environmental Professionals: A Look at the Intrinsic/Instrumental Value Debate. *Environmental Practice*, 14(03), 184-189.
- Činčera, J. (2015). Real World Learning: a critical analysis. *Envigogika*, 10(3).
- Diehm, C. (2008). Staying True to Trees. *Environmental Philosophy*, 5(2), 3-16.
- Egan, K. (1985). Teaching as story-telling: a non-mechanistic approach to planning teaching. *Journal of Curriculum Studies*, 17(4), 397-406.
- Gruenewald, D. A. (2003a). The best of both worlds: A critical pedagogy of place. *Educational researcher*, 32(4), 3-12.
- Gruenewald, D. A. (2003b). Foundations of place: A multidisciplinary framework for place-conscious education. *American Educational Research Journal*, 40(3), 619-654.
- Higgins, P. (2009). Into the big wide world: Sustainable experiential education for the 21st century. *Journal of Experiential Education*, 32(1), 44-60.
- Huckle, J., & Wals, A. E. (2015). The UN Decade of Education for Sustainable Development: business as usual in the end. *Environmental Education Research*, 21(3), 491-505.
- Hungerford, H. R., & Volk, T. L. (1990). Changing learner behavior through environmental education. *The Journal of Environmental Education*, 21(3), 8-21.
- Jickling, B. (1992). Viewpoint: Why I don't want my children to be educated for sustainable development. *The Journal of Environmental Education*, 23(4), 5-8.
- Jickling, B., & Wals, A. (2008). *Sustainable Development, Education, and Democracy: A Cautionary Tale*. Paper presented at the Proceedings of the Yale conference on Environmental Governance and Democracy □ Institutions, public participation and environmental sustainability □ Bridging research and capacity development.-Yale University, New Haven, CT.
- Judson, G. (2015). The neglect of wonder and imagination in sustainability education. In F. K. David Selby (Ed.), *Sustainability frontiers*: Barbara Budrich.
- Kopnina, H. (2012). Education for sustainable development (ESD): the turn away from 'environment' in environmental education? *Environmental Education Research*, 18(5), 699-717.
- Kopnina, H. (2015). Sustainability in Environmental Education: Away from pluralism and towards solutions.
- Light, A. (1996). *Environmental pragmatism*: Psychology Press.
- Literacy, C. f. E. (2015). *Ecological Principles*. 2015
- Nicol, R. (2014). Entering the Fray: The role of outdoor education in providing nature-based experiences that matter. *Educational Philosophy and Theory*, 46(5), 449-461.
- Noddings, N. (2002). *Educating moral people: A caring alternative to character education*: ERIC.
- Norton, B. G. (1991). *Toward unity among environmentalists*: Oxford University Press New York.
- Orr, D. W. (1992). *Ecological literacy: Education and the transition to a postmodern world*: Suny Press.
- PIRC. (2011). Common Cause Handbook. <http://valuesandframes.org/>: PIRC.
- Rockström, J., Steffen, W., Noone, K., Persson, Å., Chapin III, F. S., Lambin, E., . . . Schellnhuber, H. J. (2009). Planetary boundaries: exploring the safe operating space for humanity.
- Rose, J., & Cachelin, A. (2010). Critical sustainability: Promoting pedagogies of placefulness in outdoor education. *Education*, 2010.
- RWL. (2014a). Experience: Do learners get in touch with outdoor settings? , from <http://www.rwlnetwork.org/rwl-model/experience.aspx>
- RWL. (2014b). Is there a frame providing a connecting story? In R. W. L. Network (Ed.). [http://www.rwlnetwork.org/media/66672/frames\\_full\\_text.pdf](http://www.rwlnetwork.org/media/66672/frames_full_text.pdf): RWLn.
- RWL. (2014c). Real World Learning: Case Studies. from <http://www.rwlnetwork.org/resources/case-studies.aspx>
- RWL. (2014d). Transferability: Are different areas of life included? *RWLn guidance notes*. from <http://www.rwlnetwork.org/rwl-model/transferability.aspx>

- RWL. (2015a). Are learners empowered to shape a sustainable future? Retrieved 2015
- RWL. (2015b). Understanding: Are scientific concepts of life involved? , from [http://www.rwlnetwork.org/media/67013/understanding\\_and\\_outdoor\\_learning.pdf](http://www.rwlnetwork.org/media/67013/understanding_and_outdoor_learning.pdf)
- RWLn. (2015). Real World Learning Network. from <http://www.rwlnetwork.org/>
- Saunders, A. (2011). Exhibiting the field for learning: Telling New York's stories. *Journal of Geography in Higher Education*, 35(2), 185-197.
- Schwartz, S. H. (2012). An overview of the Schwartz theory of basic values. *Online Readings in Psychology and Culture*, 2(1), 11.
- Scottish Government. (2014). Curriculum for Excellence: Learning for Sustainability.
- Selby, D., & Kagawa, F. (2015). Drawing threads together: a critical and transformative agenda for sustainability education. In D. Selby & F. Kagawa (Eds.), *Sustainability Frontiers: Barbara Budrich*.
- Smith, G. A. (2002). Place-based education. *Phi Delta Kappan*, 83(8), 584.
- Smith, G. A. (2007). Place-based education: Breaking through the constraining regularities of public school. *Environmental Education Research*, 13(2), 189-207.
- Smith, G. A., & Williams, D. R. (1999). Ecological education in action. *State University of New York. Albany, New York*.
- Sobel, D. (2004). Place-based education: Connecting classroom and community. *Nature and Listening*, 4.
- Spaargaren, G. (2003). Sustainable consumption: a theoretical and environmental policy perspective. *Society & Natural Resources*, 16(8), 687-701.
- Steffen, W., Richardson, K., Rockström, J., Cornell, S. E., Fetzer, I., Bennett, E. M., . . . de Wit, C. A. (2015). Planetary boundaries: Guiding human development on a changing planet. *Science*, 347(6223), 1259855.
- Sterling, S. (2001). Sustainable education. *UK: Green Books Ltd*.
- Stern, P. C. (2000). Towards a Coherent Theory of Environmentally Significant Behavior, *Journal of Social Issues*, 56.
- Tappan, M., & Brown, L. M. (1989). Stories told and lessons learned: Toward a narrative approach to moral development and moral education. *Harvard Educational Review*, 59(2), 182-206.
- Tronto, J. C. (1993). *Moral boundaries: A political argument for an ethic of care*: Psychology Press.
- Wals, A. E. (2010). *Message in a bottle: learning our way out of unsustainability*: Wageningen University, Wageningen UR.
- Wals, A. E., Geerling-Eijff, F., Hubeek, F., van der Kroon, S., & Vader, J. (2008). All mixed up? Instrumental and emancipatory learning toward a more sustainable world: Considerations for EE policymakers. *Applied Environmental Education and Communication*, 7(3), 55-65.
- Wals, A. E., & Jickling, B. (2002). "Sustainability" in higher education: from doublethink and newspeak to critical thinking and meaningful learning. *International Journal of Sustainability in Higher Education*, 3(3), 221-232.
- Winks, L., & Deacon, T. (2015). RWL Hand Model Guidelines: building the approach into practice. In press.