Education in the North
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Date Available online: 1st October 2014

To cite this article: DARLING, K., (2014). Learning as knowledge creation: learning for, and from, all. *Education in the North*, **21**(Special Issue), pp. 21-37

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(Received April 2014)

Abstract

'Learning as knowledge creation' is a notion of learning that deeply contrasts traditional models of learning and teaching that centre on the idea that knowledge can be *acquired*. The shift in thinking underpinning this movement from knowledge acquisition to creation can have a profound impact on the everyday learning experiences of *all* children. Through this paper, it is therefore my objective to illustrate the possibilities that can be harnessed when children are given the opportunity to create knowledge *together.* To achieve this goal*,* the limitations of a 'learning as knowledge acquisition' model and associated assessment practices are first deconstructed and critiqued. Drawing upon theoretical insights from the arena of complexity theory, learning as an on-going process of collective knowledge creation is presented. Complexity theory opens up a dynamic space in which to explore the notion of otherness as well as further theoretical insights from the field of phenomenology. Walking and drawing are suggested as pedagogical approaches that smoothly bridge theory and practice, offering a pragmatic approach that gives children's perceptions and reflections an active voice in the complex process of learning as children engage with the world and each other. Finally, a reflection on an alternative curricular design is offered that may support a more inclusive approach to learning and teaching.

Key words: knowledge creation, voice, walking, drawing and curriculum

Introduction and Context

This paper has emerged from my doctoral study, which I am undertaking in order to explore my personal experiences as a Primary School teacher working in Scotland. Due to the inherently political and social nature of education, I was aware from the outset that my study would engage in the '*nexus between public and private, theory and practice, research and pedagogy, self and other*' (LaBoskey, 2004, p.818).

I therefore set out by deconstructing the political agendas underpinning educational rhetoric. At a political level, there is currently an inter-play between two diverse agendas. While policies that promote inclusion and inclusive practices are a priority, so too are policies that strive for efficiency and the effective attainment of government set targets. These agendas are however seen to be contradictory in nature (Black-Hawkins, 2010), creating an unhelpful tension between social justice and outcomes and efficiency.

At an epistemological level, in terms of equality and social justice, the potentially limiting effects of assessing individual children's learning in relation to targets and curricular outcomes becomes increasingly apparent (Gipps and Murphy, 1994, Gipps, 1995, 1999). The role of assessment in learning is thus a highly contested area and one which elicits many questions, especially with regard to the role assessment can play in promoting inclusive approaches, or not?

Insights from complexity theory and phenomenology allowed me to imagine new possibilities in terms of children's learning. Complexity theory understands learning as an ever-evolving process that occurs through the intersection of social and natural worlds. This relational view allows children's experiences to come together with the physical, objective world, giving children's unique and contextualised experiences and reflections a *voice* in the on-going learning process.

These theoretical understandings supported the development of a methodological approach, which I undertook *with* a class of Primary 1 and 2 children with varying and *changeable* emotional, social and educational needs. The research design employed walking and drawing as methods that would offer opportunities for children's voices to come together in their many forms (Mazzei, 2009), in order to support their collective and on-going learning.

An analysis of the impact of my study on vulnerable learners was not the primary focus of my work, I aim to illustrate however that by challenging epistemological assumptions about 'knowledge', that more complex and inclusive notions of learning can be engaged with. By harnessing space for children's rich and diverse lived experiences of the world, a pedagogical approach for *all* learners can emerge in which the children can learn with and from each other.

Learning as knowledge acquisition:

Models of learning based on the acquisition of knowledge and skills by learners reveal epistemological assumptions concerning the relationship between 'knowledge' and the '*would be knower'* (Heron and Reason, 1997, p.276).

Working from a pre-set curriculum, which outlines what knowledge is to be learnt at a particular stage of a child's life can serve to hinder and over-simplify learning. Such an approach to learning and teaching can promote teaching methods which Paulo Freire – a prominent voice in the critique of mainstream educational practices - refers to as '*banking*' (Freire, 1996); children are 'filled' with knowledge and skills which are deemed to be appropriate. The relationship between knowledge and the *would be knower* therefore remains relatively static and simplistic (Davis, 2004), as the individual learners passively accumulate knowledge. Such a view can be understood as curtailing children's role within their learning to simply 'representing' what they know in relation to a defined set of outcomes or standards (Osberg, Biesta and Cilliers, 2008).

The assessment of children against *norms* within education, in the form of curricular outcomes and expectations, can be traced to meta-physical understandings of the world (Davis, 2004). Within such a world view, everything within the world is considered to be finalised and fixed; truths are 'out there' and exist beyond human impact. Effective learning is therefore understood as the accumulation and *representation* of knowledge, the accuracy of which is assessed against an 'ideal'. Within this perception, classroom learning takes on a simplistic '*cause-and-effect'* form where teacher teaches, learner learns. But what role can children play in their own *and* each other's learning?

Learning as knowledge acquisition presents a naïve view of learning, avoiding engagement with the complex inner worlds of children (Dewey, 1938).

Knowledge acquisition and curricular design:

Curriculum for Excellence (CfE), the latest curricular reform in Scotland, intended to bring progressive change to Scottish education. Unfortunately however CfE has resolved to maintain a linear curricular structure that avoids engagement with the 'processes' of learning. Priestly and Humes (2010) believe that CfE, in its original conception, set out to be a *participative* curriculum, which would recognise children as active participants in their learning but has developed as a behaviourist model that avoids discussion of pedagogy and theory. There has been a lack of thought and commitment given to any process-led values as illustrated through the decision to organise the learning outcomes and experiences under subject headings which have to be worked through in a linear, sequential manner. This is a decision that limits the scope of CfE as a broad, balanced, holistic curriculum that set out to move away from the practices and values of the previous '5-14' curriculum, which relied upon the frequent Summative assessment of children against set standards (Priestly and Humes, 2010).

Much of the rhetoric surrounding CfE mirrors global trends, calling for the production of learners who will have the knowledge and skills to be 'successful' and contribute towards the economic health of the nation, in order to:

> '...*create a more successful Scotland with opportunities for all to flourish through increasingly sustainable economic growth*' (SG, 2008, p.3).

Such underpinning political agendas driving curricular change forward are the focus of great criticism. Apple (2006) for one suggests that decisions made surrounding schools, which focus on individual success and competition, echoing those of the business world, are highly detrimental and breed inequality. He is appalled that '*the fundamental role of schooling is to fill students with the knowledge that is necessary to compete in today's rapidly changing world'* (ibid, p.5).

The assessment of children against set standards magnifies the potentially limiting effect of a 'learning as knowledge acquisition' approach to classroom activities, interactions and emerging identities (Hart, 1998). This effect is compounded further when assessment data is required for accountability purposes. While the notion of accountability *can* be positive in its potential to encourage

more democratic approaches towards decision making in education, involving pupils, parents and the wider society in their common interest of improving education (Biesta, 2004), political contexts that value '*cost effectiveness'* and '*efficiency*' over '*professional care'* and '*social justice'* (ibid, p.236) limit the democratic nature of accountability practices.

Drawing on an American example, the detrimental effect of testing and accountability practices can be illustrated. 'No Child Left Behind' (NCLB) is an example of an initiative designed to enhance social justice and equality by 'closing the gap' between marginalised groups. Conversely however NCLB has had a detrimental impact on learners due to its emphasis on testing for accountability purposes (Giroux and Schmidt, 2004). Existing child orientated accountability systems, which ensured relevant school improvements, have instead been replaced with '*rote-orientated, punishment-driven approaches'* (Darling-Hammond, 2007, ibid p.246) that serve the purpose of ensuring children meet score goals. Some children were excluded or moved schools because their test results prevented the school from meeting its pre-set targets. The learning and teaching approaches being employed in this system are concerned with repetitive, rote learning for test purposes. A *'…corporate driven notion of learning'* (Giroux and Schmidt, 2004, p222) has replaced a critical approach which promotes deep, contextualised learning.

In response to the emphasis placed on children's ability to successfully 'represent' their conceptual understandings, I am going to present a complex model which assumes that *all* learners are active participants in both their own learning and the learning of others, including that of the teacher. Furthermore, that *all* children are capable and have varied and unique perspectives to offer. Such a shift in thinking opens up manifold possibilities and relations to explore in terms of children's learning.

Learning as knowledge creation

The desire to explore the notion of 'learning as knowledge creation' arose from engagement with complexity theory. Complexity theory, with its roots in domains such as: physics, chemistry and systems theory, is supporting *insights* (Davis and Sumara, 2008, p.35) within education. Complexity theory moves beyond representational epistemologies by engaging with an *inter-objective* (Davis, 2004) view of the world, which re-connects human activity and subjective understandings with the objective, or *natural* world. Complexity theory situates itself between and amongst other theoretical frames and boundaries therefore avoiding the constraints of set frameworks or methods. Instead it *listens* to diverse ideas and theoretical traditions. This transient nature supports the intersection of extreme objective and subjective world views, opening up the relational space between the lived experiences of learners and the natural world. This space crucially allows for a shift in thinking concerning the very nature of knowing and what is considered to be legitimate knowledge. Knowledge need not simply be acquired but can *emerge* through a process of collective knowledge creation, involving children in sharing their ideas and experiences of different phenomena they encounter.

Phenomenology, as a philosophical approach concerned with the study of *essences* (Merleau-Ponty, 1945, p.vii), things as they are prior to any scientific explanation or objectification of phenomenon, offers further helpful insights at this juncture.

Akin to complexity theory, human and natural worlds are said to be *interwoven* and therefore cannot be separated or objectified (Moran, 2000). Further to this, the intersection of these worlds occurs through our *embodied* dialectical experiences with the world; our *'being in the world'* (Merleau-Ponty, 1945, p.xiv). In phenomenological terms, we therefore know ourselves in relation to the world, including *others* (Matthews, 2002). It is through our action and the action of others that we can begin to know ourselves; who we are, what we believe and value at a moment and space in time. Self is therefore dynamic and evolving in response to encounters, interactions and experiences.

Phenomenology places experience, rather than abstract logic, at the heart of thinking (Anderson, 2003). Furthermore, through its concern with the embodied human experiences of the world and the phenomenon encountered, phenomenology values subjectivity as a significant factor in our understanding of the world. Our *perceptions* of the world are composed of our ideas, experiences to date, interpretations and values (Alvesson and Sköldberg, 2009). Phenomenology therefore offers a philosophy which understands that phenomena and beings are inseparable, they co-exist. Our *perceptions* of the world are relational to it; changing and responding in response to our interactions and *reflections* on our experiences.

Due to the *continuity* between self and the world, phenomenology can '*give voice to our unreflected experiences*' (Varela, Thompson and Rosch, 1996), phenomenology values subjective experiences and provides a platform through which to recognise this type of reflection.

Phenomenological reflection is concerned with inviting descriptions of the world, as perceived by people who are part of reality, as a starting point for understanding the world in which we live (Matthews, 2002). This proposition is significant because it stands in contrast to scientific traditions which aim to explain the world objectively, exploring causal relationships and making generalisations, free from a subjective starting point.

Phenomenology therefore legitimises children's rich and varied experiences and perceptions as 'knowledge'. In relation to classroom dynamics, this is a crucial shift when supporting children with varying and changeable experiences and needs. We do not need to begin from an outcome, which in itself represents and maintains constructs concerning what constitutes 'normal' in terms of child development (Davis, 2004). Rather, we begin from the children's experiences and support their meaningful interactions with the world, moving towards a more inclusive pedagogy of 'knowledge creation'. But how, in practical terms, may emergent knowledge creation be brought about?

Within a complex framework, '*conditions*' for emergent knowledge creation have been explored (Davis and Sumara, 2006). While it is not necessary to outline each condition in technical terms for the purposes for this paper, it is important to capture the essence of the conditions that support emergent learning. Firstly, control cannot be imposed or *'centralised'* in the context of a knowledge producing

community, it must be *distributed* throughout the learners. Further to this, a degree of instability or *disequilibrium* is required (Davis and Sumara, 2006). A state of 'disequilibrium' brings about the continuous need for progress, change, creativity and flexibility. To balance this level of instability, there must also be cohesion within classrooms, common grounds and understandings that support the groups' interactions and sharing of ideas.

While occasioning for both stability and instability seems like a contradictory demand, the important shift comes from employing a relational, rather than an opposing view of order and disorder, to occasion for the delicate balance between: stability and emergence, and coherence and creativity (Doll, 2008). Doing so opens up new possibilities in terms of classroom activity:

> *'As I have said, I would not claim a cause-effect relation between studying complexity theory and teaching...I will, though, state...the study of complexity has opened my eyes to that which I did not see before (to a new and livelier sense of method, one based on seeing more and seeing from multiple perspectives)'* (Doll, 2008, p.205).

Through complexity theory a very challenging role for the teacher is implied: balancing levels of order and disorder, initiating learning without directing, *and engaging* learners to create new understandings. It is therefore important to take time to outline how a teacher might be when trying to support emergent learning. At a classroom level, without pre-set goals the teacher's role consequentially becomes concerned with creating, or *harnessing* opportunities for emergent, goal-free learning to take place (Davis, 2004). Within this construct, the teacher would *participate with* the children; learning with them both as an individual and as part of the collective group. Further to this the teacher has a critical and challenging role of *occasioning* (ibid, p.170) for the conditions required for emergent learning to take place, including: building on common ground, supporting creative and diverse responses, distributing decision-making responsibilities, and supporting but not controlling interactions. Such insights were critical to the development of a methodological approach that would allow knowledge to emerge between us as a group of learners, as will be described.

In the process of re-framing of what constitutes knowledge through the lived-natural world relationship, both complexity theory and phenomenology draw attention towards the relational space between self and other. An awareness of otherness is primarily an ethical concern. Otherness extends well beyond notions of understanding or knowing the *other*, both in terms of oneself (Other) and *an*other (other) (Mayama, 2010). The other/Other is a stranger who should be welcomed. The 'other/Other' questions impulses and actions of the 'I' (self) thus creating an ethical *conversation* between self and the other/Other (Levinas, 1969). Language therefore plays a critical role in supporting the children to engage in each other's worlds, broadening opportunities for learning both about themselves and the world.

> *'An attentiveness to language and the personal voices of the participants...allows us entry into their practical world. Language shapes and is shaped by meaning. Voice...suggests the individual's struggle to create and fashion meaning, assert*

> *standpoints, and negotiate with others. Voice permits participation in the social world. Through the alterity of the speaker, voice affirms one's relationship to the world and to others'* (Britzman, 2003, p.34).

Pupil voice methodology:

Pupil voice is defined broadly as the opportunity given to children to express their ideas or opinions (Whitty and Wisby, 2007). This, as a practice, sounds relatively simple, however 'pupil voice', as a pedagogical approach and as a method, brings with it many complexities and caveats that must be explored.

Over recent years 'pupil voice' has become an extremely popular tool within schools for varying purposes and under numerous guises. Indeed, its implementation within educational settings is seen as an indicator of 'good practice'. The UN Convention on the Rights of the Child (UNICEF, 1989) makes numerous references to the need to *listen to* and *act upon* the voices and wishes of children (article 12) across all aspects of their lives (article 29), and is thus is said to be one of the factors which has stimulated pupil voice trends. The ability to make existential choices and to be heard distinguishes us as human beings:

> '*Arguably, this is the quintessential characteristic of humanness, the characteristic underlying the quite amazing, creative powers of humans*' (Hart, 2002, p.251).

The development of pupil voice within educational circles has also been encouraged by wider political trends (Whitty and Wisby, 2007). Pupil voice arrived in schools as a product of neo-liberal ideas about consumer input and power within public services. The implementation of pupil voice practices for the purposes of policy focuses largely on individual children, ignoring the collective, *inclusive* voice (Lewis and Porter, 2007).

In their study of the implementation of pupil voice within schools in England, Whitty and Wisby (2007) found that pupil voice was employed at a restricted level. Most of the decisions children were successfully involved in making were made with regard to the physical school environment and resources within schools. Additionally, work done to enhance pupil voice through pupil councils often neglected the participation of a large proportion of the school. The findings of this study leave a feeling that pupil voice strategies could be employed at a far deeper and more meaningful level so they may impact on children's experiences of school beyond the tangible environment. The truly participatory element of pupil voice practice seems to be missing.

Dialogue or '*dialogic encounters'* (Fielding, 2004, p.305) provide an alternative take on pupil voice, involving speaking *with* children in a mutually reciprocal act. By engaging in such shared dialogue, '*trust and creativity are most likely to grow*' (ibid, p.308).

Within educational contexts, where achieving measured outcomes is the ultimate goal and schools are held accountable for the children's success in doing this, then it is difficult to foster mutual relationships (Fielding, 2004). The other barrier to quality dialogic encounters lies in the lack of space, physically and metaphorically speaking, that equally belongs to pupils and staff; spaces where children can meet with teachers as people at the same level.

Enacting human-human, human-world relations:

How might it be possible to occasion for children's being in the world, moving learning beyond 'acquisition' of knowledge? And how might spaces for 'voice' be created, which support mutual relations and the coming together of voices?

> *'...but we don't need to sit still to learn'* (boy, aged 5, November 2010)

I propose that the acts of walking and drawing can open up rich conversational spaces between learners, and learners and the world, that allow for knowledge to be created and new roles and relationships to emerge. Walking and drawing are common features of classrooms, especially early years' classrooms. Children are regularly engaged in drawing pictures, pictures on their own, pictures to accompany a story. Equally, class walks to arrive at a significant place or walks for exercise are not uncommon activities. Walking and drawing in the context of this paper take on a different form. As I will illustrate by engaging with a range of theoretical insights, both walking and drawing can support children's engagement with their embodied relations with the world, calling their attention to the entangled web of human and non-human materials, objects and activities that *make* their experiences.

Walking is a research methodology which can be linked to the *mobilities paradigm*, a paradigm concerned with opening up new constructs of sociological enquiry. The *mobilities paradigm* creates new research possibilities within the realms of social enquiry through recognition of everyday *mobilities* or *immobilities* (Büscher and Urry, 2009).

> *'...it is not just about how people make knowledge of the world, but how they physically and socially make the world through the ways they move and mobilize people, objects, information and ideas*' (ibid, p.112).

Walking, as a methodology, succinctly engages with and enacts the preceding theoretical discussion concerning the nature of knowledge in terms of subjective understandings, lived experiences and knowledge creation. As I will outline, walking opens up to the temporal, inter-relatedness of people, place, society and culture, and welcomes emerging ideas, roles, possibilities and understandings, and through walking the notion of embodiment is also introduced and explained.

Walking is an embodied act which supports the body's *'intelligent interaction with the environment'* (Morris, 2010, p.237); cognition, thinking, intelligent activity is not reduced to the activity of the brain. At a pragmatic level, walking in a place, through time, begins to appreciate the sensory embodiment of a person or group of people who themselves affect and are affected by the places and spaces they inhabit. Identities are formed, understandings are created – one cannot be separated from the other, this relationship is described as '*constitutive coingredience'* (Casey, 2001, p.684). It is in the crux of this relationship that knowledge and meanings can be created and understood.

> '*Over and above the brain, the morphology, dynamics and temporality of the body, and our evolved, moving attitude to the environment, shape and lurk in our acting, perceiving, speaking, learning, remembering and conceptualisation'* (Morris, 2010, p.239).

The impact of walking on the meaning making process, as people and places – the social and natural - come together, engages with a rich and dynamic space for exploration. Walking offers fluidity and engagement of the rhythm of body with the world, allowing for encounters, dialogues and horizons to emerge (Moles, 2008). Over the evolutionary course of time, the perceived dominance of the head and hands in thinking has disregarded the role of our feet as we engage *in* the world (Ingold, 2004).

> *'...walking is a highly intelligent activity. This intelligence is not located exclusively in the head but is distributes throughout the entire field of relations comprised by the presence of the human being in the inhabited world'* (Ingold, 2004, p.332).

Walking also supports reciprocal, learning relationships, providing a means through which teachers (as learners) and learners can participate together in collective activity. Within the context of research methodologies whereby researcher-participant relationships may mirror teacher-learner relationships in terms of power and control, the very nature of walking, i.e. side by side, promotes a more mutually reciprocal research-participant relationship (Ronander, 2010). Walking therefore offers a practical means of decentralising the control of the group, as is necessary for emergent knowledge creation to occur.

Embodiment can be achieved for the researchers and participants as they experience together arising events through '*participation in the ebb and flow of everyday life*' (Lee and Ingold, 2006, p.67). Such shared experiences and emerging relationships can support new and complex interactions, opening up learning possibilities, even revealing previously unspoken knowledges (Anderson, 2004).

In my awareness of the breadth of 'voice' (Mazzei, 2009), the arts, specifically drawing, can offer another avenue through which children reflect upon their relational engagement with the world. Within this context, drawing is not a means through which children 'represent' the world, but live their embodied connection to our '*shared*' world (Ross and Mannion, 2012).

> '*The arts are a way of enriching our awareness and expanding humanity*' (Eisner, 2008, p.11).

Like walking, drawing is an embodied activity (Schneckloth, 2008) that broadens avenues for communication; supporting phenomenological reflection and interaction between learners. Through the arts it is not only possible to call attention to feelings and emotions but to knowledge; knowledges and knowings, which cannot always be reduced into words and sentences for logical, *sensical* communication to others (Eisner, 2008). Drawing therefore complements and adds further detail to our relational perceptions of the world.

The arts do not provide clear, unquestionable answers, but what they do is create an opportunity for rich, intricate conversations which will centre round the '*complex subtleties'* (Eisner, 2008, p.7) that exist in people's complex and tangled perceptions of the world. To this end, issues concerning intentionality in relation to artistic ability are overcome; the aim is to open up dialogue around perceptions, an 'accidental' marking can only contribute to the richness of the dialogue. Limited artistic experience (which may be true for some children, as it is equally true for adults) can impact positively on the research experience as mistakes and lack of technical accuracy can add to the richness of a drawing (McNiff , 2008).

The use of drawing, as a pedagogical approach which engenders knowledge creation, lies in its embodied nature. Through a similar process to walking, thinking and bodily action become interwoven in a dynamic moment of expression. Drawing brings together both the physical impulsive gesture of the body with the conscious intentionality of conveying meaning within this act (Schneckloth, 2008).

> *'In a drawing, I express a moment marked by a polyvalent connection between seeing, moving and making....a conversation of marks unfolds more over time' (*ibid, p.278).

Learning from, and for, all:

As I walked and drew with the pupils in my class, we engaged in the world situated immediately outwith the school grounds. This engagement allowed us to share in our locality in a way we as a group had never done before, and create new meanings and *knowledges* together.

The children were proactive in suggesting which way we might turn next and what we might explore. During our first walk together one of the Primary 1 boys asked what way we might turn as we left the school gates:

15	G;	Which way are we going that way or that way?
16	Me;	What way do you want to go G?
17	G;	That way.
18	Me;	Okay
19	S;	Yeah. That way.
20	?;	That way
21	G;	(hhh)

Table 1 1.'G directing our route' Monday 16th May, 'Walk 1: what is old in our community?'

G giggled (hhh) (line: 21) and beamed with pride when the class walked in the direction that he suggested. This simple act empowered this boy who from this point played a pivotal role in our emergent learning.

Again, during our first walk as we walked through a residential area beside the school, two of the Primary 2 girls suggested what we might want to see next:

109	Me;	The ↑what ↓Darlin'
110	E;	The [↑do::g]
111	S;	[the dog] The dog that died down there-
112	Me;	=Aw: the statue, well let's go and see ↑it.

Table 2 2.'E and S directing us towards a local statue', Monday 16th May. 'Walk 1: what is old in our community?'

Their suggestion was met with my delight and enthusiasm (line: 112). We went to visit the statue 'B' who became a focus of our dialogue. The children's enthusiasm about 'B' even extended outwith the context of our walks:

> 'While on the bus en route to the farm we passed B, and the children in my class were so excited...'there's our statue, there's B'
>
> *(3. 'engaging with B', Thursday 16th June, reflective journal)*

The children had made a connection to 'B', perhaps in a way they had never done before. The significance of the word 'our' in the children's calls of '*there's our statue'*, suggest that their shared engagement with the statue was very powerful and affective.

Following our engagement with B, a fascination in 'rust' then emerged. Momentum built in our engagement with rust through further walks and taking time to reflect on what rust is in the classroom, using drawing too to support our reflections. This momentum enabled our on-going learning as the children (and I) had opportunities to explore our collective interpretations by asking questions about the artefacts we encountered as we walked:

224	Me;	↑I thought it might have rust on it. Does ↑it?
225	Choral;	No
226	S;	Yes=
227	M;	=Me↑tal. ↑Look, there's a metal bit on ↑it.
228	Me;	°But has it gone ↑rusty?°
229	Choral;	No:
230	?;	↑Yeah.
231	S;	No it's not went rust but it definitely ↑is

Table 3 4. 'no rust', Friday 24th June 'Walk 3'

The lamp post we stopped to study here was interesting to us as the children and I believed it should have been rusty; it fitted our conclusions to date about the types of object/materials that go rusty: it was metal and was not protected by paint, giving rise to an episode of shared pondering.

This episode also illustrates the role I took on as a co-learner, participating with the children in order to both support our collective knowledge creation and harness opportunities for the children to share their perspectives and learn from one another.

Through my experiences of undertaking this research with my class I engaged in reflection about the nature of curricular design and whether alternative possibilities may support children, in playing a more active role in their own learning *and* the learning of others.

Reflections on curricular design:

Through this paper I have argued that curricular guidelines can serve to simplify and even limit children's engagement with the world adhering to *representational epistemologies*. The detrimental effects of such assumptions, on *all* children, were then discussed with regard to assessment practices, which aim to measure the capabilities of children in relation to curricular outcomes.

In order to move away from simplistic, cause-and-effect notions of learning I then explored complexity theory, as a theoretical 'arena' that acknowledges the complexity of learning. Both complexity theory and phenomenology propose that children's internal worlds and subjective understandings are a legitimate form of knowledge, creating a more engaged and inclusive learner-knowledge relationship.

Walking and drawing were then presented as means of translating the theoretical insights of 'knowledge creation' into practice; facilitating human-world action, interaction and reflection. By taking a broad and inclusive view of voice and engaging in children's multiple and varied perspectives as a starting point for shared meaning-making, the possibility for new forms of knowing can be enacted.

The epistemological shift proposed within this paper raises questions concerning curricular design and the possibility of conceptualising a curricular design that may support a drive for a more inclusive form of curriculum centring on our lived and shared experiences.

For the purpose of this discussion, and in my endeavour to explore 'curriculum' in terms of the coming together of learners in their world, I will discuss the notion of '*curriculum making'* extrapolated by Ross and Mannion (2012) from Tim Ingold's '*dwelling perspective'.*

> *'...curriculum making can be seen as a process of living in the world rather than one of representing it*' (Ross and Mannion, 2012, p.305).

Tim Ingold's (2000) *'dwelling perspective'* serves to remove assumed dichotomies between mind and body, biology and culture. He takes the view that meaning is created through active participation (or inhabitation) in the world by the many, and varied members; echoing phenomenological notion of being *in the world*. The dwelling perspective stands in contrast to a more traditional *'building'* perspective, which take the assumption that meaning presupposes inhabitation, akin to meta-physical thought.

Thus Ingold concludes that '*such processes as thinking, perceiving, remembering and learning have to be studied within the ecological contexts of people's interrelations with their environments*' (ibid, p.171). Further to this, Ingold emphasises the role *relationships with others* play in our emerging social being. Learning with and from others is a process which Ingold describes as '*an education of attention*' (ibid, p.37); we become *enskilled* through our ability to *tune-in* the world; attend to the details and textures of the environment as we *perceive* and act within it, as part of it.

Working from Ingold's dwelling perspective, curriculum-making is described as *'...precisely the process of the coming together of teachers, learners, generations, materials and places, in order to remake these relationships'* (Ross and Mannion, 2012, p.312). Curriculum making therefore supports the enactment of new roles within the learning process (Ross and Mannion, 2012). Children, for example, can embody a role which supports the learning of others; the teacher, other members of the community.

The question then lies how such a curriculum might look in practice:

> '*From a dwelling perspective, the necessary alternative is to consider that a curriculum can only be lived as an ongoing process, an improvisation, a response to a context inherent in the relations among people, places, materials and activities. In the absence of the capacity to represent or construct the world, curriculum texts and plans can only be directly experienced in and of themselves*' (Ross and Mannion, 2012, p.307).

It is a curricular view that is incompatible with traditional 'representational' notions of learning, and constructs such as: curricular plans, learning outcomes and objectives. It is a curricular approach that is instead focused upon a child's ability to notice, perceive and act within their world (Ross and Mannion, 2012).

Opportunities for curriculum-making, by the learners or teachers must therefore be harnessed; occasioned for and improvised. I would argue that acts of walking in a place provides a platform to engage all learners (including the teacher) in the shared act of perceiving and reflecting, supporting a model of 'curriculum making' as an alternative to re-representing an existing curriculum. In my view, the notion of 'curriculum making' draws school activity and children's lived experiences of the real world into alignment. The world of preconceived outcomes and learning objectives creates an artificial space between school life and reality, separating and disembodying learners and learning from the world as they perceive it – in their many unique ways.

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