

EarthShapes: Potential for Place-based Teacher Learning between the Virtual and the Actual

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Abstract

This contribution investigates a recent research project involving in-service teacher learning as experienced through an online/offline art studio in which common experiences of relationships to particular local landforms generate imaginative and collaborative processes and practices of teaching and learning. EarthShapes Studio is both a pedagogical strategy and a methodological tool for teacher learning that acknowledges an emerging view that the tangible, material effects of relating to places and others are central to learning and can generate anticipation of alternative futures. This paper analyzes EarthShapes through Mellet-d'Huart's (2006) model of (en)action which is based on the work of Francisco Varela and includes three co-existing and overlapping spheres of potentialization, virtualization, and actualization.

Résumé

Ce texte examine un récent projet de recherche impliquant des enseignants en apprentissage pédagogique vécu dans un studio d'art interactif/autonome dans lequel des expériences communes de liens à une forme terrestre locale particulière suscite des procédés et des pratiques imaginatives et collaboratives d'enseignement et d'apprentissage. EarthShape Studio est à la fois une stratégie pédagogique et un outil méthodologique pour le perfectionnement des enseignants, qui reconnaît un nouveau point de vue, que l'effet matériel, tangible de se rattacher à des lieux et autres places est central à l'apprentissage et peut permettre d'anticiper différents futurs. L'article fait l'analyse de EarthShape Studio par le biais du modèle en action de Mellet-d'Huart (2006) lequel est basé sur l'oeuvre de Francisco Varela et comprend trois sphères qui coexistent et se chevauchent : la potentialisation, la virtualisation et l'actualisation.

Keywords: teacher education, relationality, collaboration, artmaking, place

Our relationship to the land is an intense one, but it is often only over time that we come to see how particular places and landforms influence us and change our ways of living and communicating with others (Ellsworth & Kruse, 2005a). The fact that all learning happens in bodies and in places with others supports an emerging view that the tangible units of knowledge are primarily material and are experienced through movement and sensation in

ways that are transphenomenal, yet only one of an infinite set of possible conditions of experience. Conceiving of experience in this way extends Marcia McKenzie's (2008) argument for learning that takes place between what is thought and what is sensed through the relational aspect of active engagement.

A recent and growing awareness of the nature-culture continuum (Davis, Sumara, & Luce-Kapler, 2008; Massumi, 2002) looks across nonsensual qualities of experience in sociocultural and natural world learning systems and considers relation as scientifically fundamental and as embedded in the observable data of classically empirical assumptions and modes of research. Although our relations with place are nonsensual in that they lack recognizable form and structure, experiences that work to increase these connections extend potential for movement towards a belief in our belonging to each other and to the physical world. In this theory, the particularities of our own and others' relationships to places offer an interrelatedness that initiates a collective sense of the world prompted by and through experiences. These experiences are not so much about any quality of personal feeling, but rather, concern a virtuality that is larger than any quantity of personal feeling and which continues on, preceding other experiences of relation. Consequently, environmental education may be best benefited by seeking to foster this ethos of attending to the virtuality of a community still to come through the materiality of our relationships to places.

This paper will discuss *EarthShapes*,¹ an online/offline communication and relationship studio which is simultaneously a methodological tool and a pedagogical strategy for teacher learning, and its use by a group of teachers in rural Saskatchewan. The teachers involved in this project were already involved in a monthly supper group that initially formed voluntarily to discuss art's potential for enabling creativity in teaching methods. When presented with the *EarthShapes* idea, they were enthusiastic about working through the process in the second year of their meetings together. The participating teachers came from a variety of schools in various small towns within the school division and had to drive many kilometres on country roads to meet. In my work as a curriculum consultant, I had an interest in helping to make it possible for teachers to gather together around issues that mattered to them.

EarthShapes was formed out of the collaboration between two media artist/educators: Elizabeth Ellsworth and Jamie Kruse, with my involvement being in the role of exploring its use in working with in-service teachers. As both a Canadian and American non-profit organization, *EarthShapes*' intent is to make use of difference and distance to connect people. Designed for students, teachers, parents, artists, and other designers, it aims to bring those who are interested in inventing innovative learning environments, experiences, and events, into creative and practical collaboration in formal and informal education settings. *EarthShapes* is based on the premise that no matter

who or where we are, we have one thing in common: we live in intimate relationship with powerful landforms that generate mysterious forces intertwining self, place, and others. This commonality serves as a base for identifying new processes and practices that inform educators' and artists' approaches to teaching and learning about difference and tolerance.

EarthShapes offers opportunity to consider our relationships to places and others. By considering and inventing these relationships anew, its "events" invite creative manipulation of local experiences towards the anticipation and activation of future alternatives. It offers a response to the already-determined climate of reform in educational institutions that are embedded within current social economies and their environmental and ecological consequences. In the face of so much "inevitability," teachers often view themselves as powerless to question the current course of action and unable to create or effect any change. This paper will describe *EarthShapes*' pedagogic experience as it offers deeper connections to place as well as impressions of nonlocal linkages that reenergize a collective belief in a shared material world. It will also include samples of teacher work in each of the *EarthShapes* events.

Make a Learning Event

In discussing the process of *EarthShapes*, the terms *workshop*, *process*, *model*, *framework*, *activity*, and *event* could all be interchanged, meaning respectively, a meeting for concerted activity, a course of action, a particular design of a structure, a basic system which can be built on or changed, or a condition for being active. In this discussion, all of these references indicate the event of an encounter or experience where we meet by chance in what is really a singular occurrence of processes. For the sake of consistency in this paper, the single term *event* will be used. The term is in no way meant to indicate a best practice or an already set and determined teaching and learning model. *EarthShapes* might best be called "a connection machine," as it invites teachers to participate in tracing and reflecting on new and old senses of self in connection to places and landscapes. It provides a structure for considering and making something of the mysterious forces that intertwine self, place, and others, and how these forces and interconnections shape our lives, senses of self and of others, our dreams, and our feelings of belonging and difference (Ellsworth & Kruse, 2005b).

Participants begin with *Make a Place*: creating images and writing that communicate how a local landscape or a particular place shapes their experience of something important to them. This can be anything from true stories, fiction, photo essays, journal entries, poems, maps, or diagrams. In the second event called *Make a Connection*, these "places" are exchanged with someone else, enabling connection through inventing an imaginary place that somehow combines one person's landform and story with that of another. New stories

are then written or told about the imaginary life forms that their collective new place would shape, including new cultural considerations such as traditions, slang, styles of architecture, clothing, music, or forms of transportation. Subsequent to this, the third event, *Make it Happen*, involves creating multidisciplinary projects that teachers design from their own questions that arise from their imaginary place. The process is simple and, in fact, is also designed for students in K-12. Experience with it has shown, however, that it can have profound impact on the ways in which teachers think about their connections to particular landscapes and their everyday teaching practices.

Embodied experiences of place and landscape are rarely included in professional development experiences for practicing teachers. The felt primacy of places is so immediate that it has become “immaterial.” Opportunities for teacher learning tend toward experiences with the logical, well-defined, represented, and already anticipated (Varela, 1992). New forms and processes of connection, process, and relation that are responsive to emerging social and cultural difference are typically not considered important. In contrast, Ellsworth (2005a) describes how experiences with people and places are “profoundly material, composed of flesh, neurons, cells, chemical interactions and electrical charges” (n.p.) and how they have significant impact on how and what we come to know. An emphasis on the importance of reconnecting to specific experiences of place is not suggested in order to locate or fix people in particular places, or to link people to local embodiments of ideology, but is intended rather to enable them to experience and create places they can feel connected *to* and move *from*, with a sense of their own “becoming.”

Francisco Varela (1992) writes that cognitive science is beginning to realize the complexity of just “being there”: Experiences of the present involve intensive movement back into and out of an abstract space of previous experience, in which every one of our virtual specks of previous awareness, still very much present, will have already potentially modulated every other. Ellsworth (2005a) maintains that the effort of pulling one of the strands out of this intense multiplicity is where learning occurs. Therefore, the movement before something actually “makes sense” to us is what constitutes the learning. Ellsworth (2005b) examines the conventional conception of the look of learning in the “aha!” moment and argues that rather than emergence, this instead indicates the end of a learning process. She describes an alternate face of learning that involves simultaneous self-absorption and self-presence signalling the “presence of complex occurrences in excess of and elsewhere than at the surfaces of cognition or awareness” (p.16). This is the work of being at the “fringes of what we already know” and sensing the movements, intensities, rhythms, and passages of our “full bodied experiences of coming upon things, people, and ideas in ways that we don’t completely know or have language for beforehand” (Ellsworth & Kruse, 2005a, n.p.).

In attempting to explore the profound experience of being in simultaneous relation to the known and the unknown, it might be helpful to consider Daniel

Mellet-d'Huart's (2006) three domains of activity that include potentialization, virtualization, and actualization. They comprise a model, termed (en)action, based on the work of Francisco Varela, Evan Thompson, and Eleanor Rosch (1991) and Varela (1994), which Mellet-d'Huart uses to provide a conceptual and theoretical base for designing virtual learning environments, but which I use to consider the activities in the *EarthShapes* events. He proposes that these three co-existing and overlapping spheres or sets of connections occur in any process and recursively couple a living system to its physical environment. The three spheres are part of the visible, invisible, internal, and external components of action and organization of a human being—moving humans from one behavioural moment to the next.

In Mellet-d'Huart's (2006) model of (en)action, he describes the domain of *potentialization* as “dealing with decision-making, mobilizing and engaging the vital energy that is required to carry out an action” (p. 255). This is similar to Ellsworth's description of being at the fringes of what we thought we already knew, sensing both the materiality of self evolving situationally in a particular place, as well as a plurality of that experience and movement whose overspillage cannot be contained. Potentialization is responsible for both the change aspect of action and the interest in change in the feeling of anticipation before any of the alternatives are identified. In the domain of this process, there is a definitive sense of choices being augmented.

Virtualization, as the second component of the model, simulates the interplay between living beings and their environments. It stores the excess of everything we have experienced, fused in abstraction ready for useful reaccess: It is both real and abstract. Virtualization uses what has been actualized and transforms it into future anticipations or predictions. Virtualization is what offers the possible coexistence of degrees or nuances, and despite its core of differentiation of itself, it never abandons the local and particular.

Third, the domain of *actualization* focuses on action that recursively loops, modifying the environment and also modifying the human being, triggering new cycles of action. Human perception requires motion to enable sensation and these perception-motor loops then provide information to the domains of virtualization and potentialization

Mellet-d'Huart's (2006) dynamic spheres of activity are useful in undoing somewhat the active, oscillating moment of self-absorption and self-presence that Ellsworth (2005b) writes about, as well as the active engagement occurring between what is thought and what is sensed that McKenzie (2008) stipulates, so that we can follow their ideas into relation with the *EarthShapes* process. Mellet-d'Huart's model helps us appreciate the body's high-level monitoring of the relational dynamics that change us. It also anticipates how we might set learning in motion again once it has formed, through its proactive encounters in virtuality's potential that runs ahead and underneath experimental activity. Although each domain in Mellet-d'Huart's model is integral

in each of the *Earthshapes* events, the purpose of this paper will be to provide only an introductory exploration of each. Therefore, in a somewhat arbitrary fashion, potentialization will be discussed in connection with *Make a Place*, virtualization with *Make a Connection*, and actualization with *Make it Happen*.

Make a Place: Potentialization

Paying attention to the materiality of bodies, relations, landscapes, and forms is at the heart of grasping what potential is. Massumi (2002) differentiates potential from possibility as, “between conditions of emergence and re-conditionings of the emerged” (p. 10). Possibility is a variation of what something can be whereas potential is unprescribed: “It only feeds forward, unfolding toward the registering of an event; it is the immanence of a thing to its still indeterminate variation, underway” (p. 9). In most professional learning opportunities, teachers are encouraged to expand only what is already thought to be possible. In contrast, *EarthShapes* invites an appreciation of how our collective relation to place both precipitates new ways of responding to places, others, and curricula, and serves as the nucleus around which creative reorganization evolves.

The first event of the *EarthShapes* process is *Make a Place*. This entails photographing or designing an image of a particular landform or place, and telling a story of an experience with it, thereby creating a “place capsule.” Using a camera, or art materials, or even just pen and paper during day-to-day routines, or perhaps with other teachers in a new landscape, teachers experience the pedagogy of this event that puts inside and outside into relation and self-experience in motion. Experiences of place and our social interactions with each other are ones we have not only as thinking, but also feeling, sensing beings. These experiences are not just about making meaning, recalling memories, imagining, symbolizing, or representing. Varela (1992) describes these encounters with one’s environment as sensorimotor-coupling. As couplings, they constitute a compelling power that repeats the events of what individuates us. Instead of passively receiving intuition, that is then shaped into meaningful experience by the synthesizing activity of understanding mediated by imagination, our embodied experiences are *already* an interconnection and activity of feeling or synthesis that is in process (Robinson, 2005), moving us forward into what is always yet undetermined. Coming to an awareness of this experience involves an aesthetic response that prolongs its sensations.

The event of *Make a Place* is infused with the potentiality of a “not yet activity” because the press to action and expression is not the kind that can be directed toward practical ends in a world of already-constituted objects and aims (Massumi, 2002). Instead, nothing is prefigured in the virtuality and

I was traveling with my sister in NE Vietnam and we stayed the night in the small town of Ninh Binh. In the morning we got up at 5 am and rode bicycles to Tam Coc (Three Caves), one of Vietnam's many natural wonders. In Vietnam, the streets are alive with sound and bustling with activity at 5 am because this is the coolest part of the day. By the time we arrived it was 7 am and I could already feel the heat beginning to press down on my body. You can hear the heat in Vietnam, as the day gets hotter, the cicadas get louder. By mid-day people have retreated into shaded places and the sound of the cicada's song reigns all open space.

Tam Coc is a body of water that weaves itself through karstic mountains and feeds into three deep and dark caves. It is a popular destination not only for enthusiastic tourists like myself, but also for many Vietnamese. The day we went was right at the beginning of school vacation and the water resonated with the sound of jubilant Vietnamese students. We hired a rowboat and descended down the water with the chants of students at either side.

Tam Coc has two of my favourite qualities in a sound space: the bright and buoyant acoustic reflections of water and the round expanding reverberance of stone. The limestone walls of the mountains on either side created a tunnel of sound, a space for the students' shrieks and the sweeping trickle of water to mingle symbiotically. There was a constant rising up of sound; a drifting upward into the ether until yet another sound took hold. When we entered the first cave, I could feel the sound closing in around me. I closed my eyes and I felt as if I could almost hold the sound in my arms. It was very intimate. Everyone eventually stopped rowing and just listened. There was only the space of sound.



Figure 1. Kevin's Place ²

unbiddenness of enlivening the senses. Waking up to where we are in the world writes experiences in divergent ways and in the process, possibilities are multiplied to infinity: pure potential.³ The not-yet of this activity is an openness to emergence of whatever will be, an active state of suspense. In this active process of sensorimotor coupling the event infuses its own uniqueness. In creating his story, Kevin (Figure 1) had opportunity to sense the multiplicity of potential connections in the singular connection that he was already engaged in. As his story dissociated itself from previous recollections, it situated what had been only virtual about his relation to the caves, in other words, his story actualized as it dissociated itself.

Make a Place is not a testimony to a yearning for the real and then not actually achieving it; instead, the artmaking involves creating what has never been known (Irwin, 2004). Differences, that can later be made to “mean” something in an identifiable way, are suspended. Ellsworth (2005b) compares this sensation of learning as being at the edges of who we have been and who we are becoming, where we sense our incompleteness, our limits, as bare potential. Both Kevin’s place capsule and Maria’s (Figure 2) are examples of the potential that is immanent in their recollections. Their writing indicates that they are directly experiencing more to their relation with particular places than the limits of their perception; there is a pending feeling of the inexhaustibility of their experiences.

Participating teachers enjoyed this open opportunity for making something of remembering and imagining the significance of the landscape in their day-to-day lives. One teacher reflected, “I learned that my relation to this place

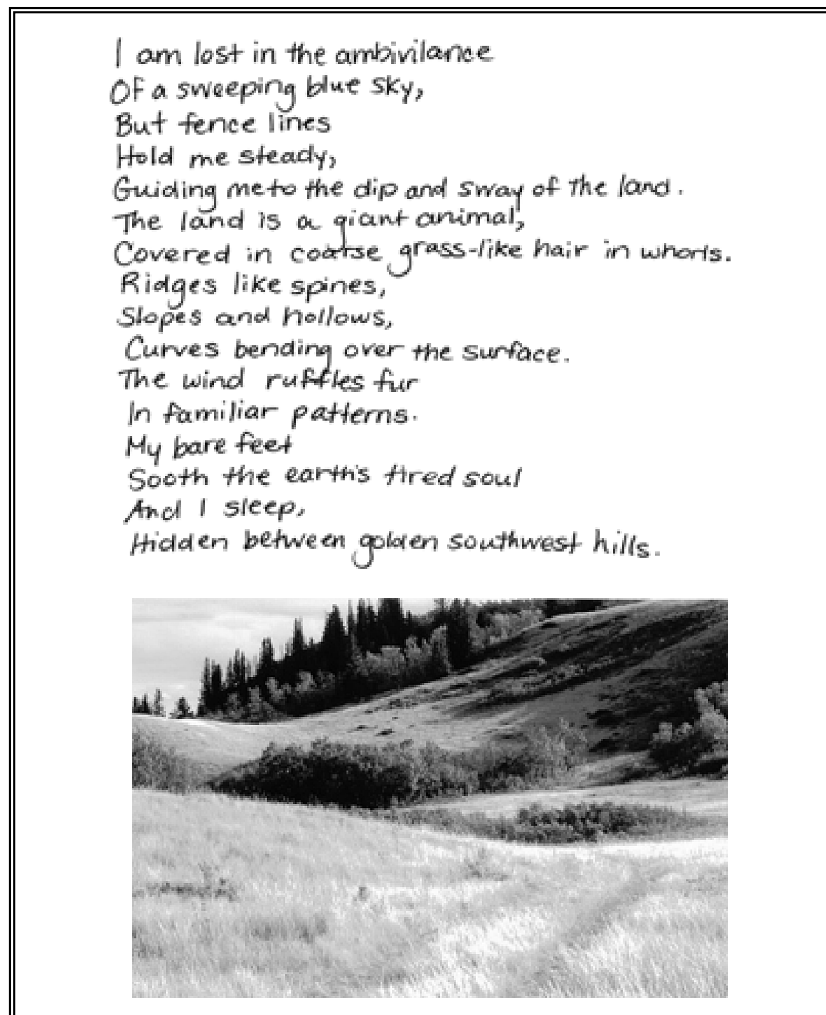


Figure 2. Maria's Place

is much ‘bigger’ than I had imagined. It’s something that crosses time, space and area” (journal entry, October, 2005)

Other teachers (journal entries, October, 2005-March, 2006) wrote:

I learned that I have a PERSONAL connection to this place—which is different than anybody else’s relation to it.

I found actually that I was looking at the land through a new lens as I drove here tonight. I find myself looking for things that I’ve never seen before.

I realize that I don’t understand everything about my place or my relationship to it and, I realize that I want to know things about this place—What makes it what it is? What are the names of the plants?

The *Make a Place* event initiates what Noel Gough (2003) claims is important in helping develop a capacity for transnational knowledge through the creative work of finding ways for different local knowings and experiences to coexist.

Make a Connection: Virtualization

In the next event of the *EarthShapes* process, teachers’ individual place capsules developed in the previous stage are posted at the *EarthShapes* website in a gallery of other places, along with an invitation for anyone worldwide to make a connection to their landform and story. Teachers are also invited to answer the call of either someone in attendance at the same educational workshop, or across a distance with a stranger’s place online. Once two teachers have connected, their place capsules are considered side by side, and in the space between them, real experience repotentializes as teachers collaboratively invent an imaginary place that somehow combines their stories and landforms.

In this connection, teachers are asked to consider the most memorable or intriguing qualities from each place and how they might put these qualities together to create an entirely new place as in, “What happens when a Vietnamese cave in which sound echoes meets Saskatchewan prairie hills?” or “What happens when a homemade clubhouse in the Vermont woods meets the fast-moving vibrancy of Taiwan?” This activity is intended for artistic collaboration between two people who invent and design a new place together, however, it has also been used individually to combine two posted place capsules without consultation with the other person. Once the new place has been invented, teachers use play and imagination to inhabit their new landforms with the imaginary life forms that it could shape. For example, they may ask, “What traditions might emerge on a moving bubble city in a prairie valley?”, “What slang might people invent in a Bed and Breakfast sand castle?” or “What myths, technologies, economies, daily

routines, animals, or music, might living on a spiral bridge bring into being?” In the midst of building in the space between self and other, boundaries between people get blurred and new identifiable forms of connection and exchange across difference are generated (Ellsworth and Kruse, 2005b). Teachers experience an attitude of “making the familiar strange,” where alternatives are realized in what we thought was already decided.

Revitalizing alternatives moves us into the realm of virtualization from which actions emerge (Mellet-d’Huart, 2006). Gilles Deleuze (2004) explains that what “differentiates itself [in actualization] is first that which differs from itself, in other words, the virtual” (p. 43): virtualization is the core, the genuine beginning. Instead of being abstracted from what has been made real, what is real is abstract first. Considering the domain of virtualization gives us an infinity of choice embracing all of the degrees of variation between the usual poles of any opposition. Virtualization is synonymous with an unleashing of potential, rather than a subtraction from potential, causing us to think in terms of what Deleuze (in Rajchman, 2000) calls multiplicities, rather than identities or propositions. Individual choices are made, yet they do not diminish the experience of the virtual that continues to evolve with each new situation.

The *EarthShapes* connection place brings together two (or more) experiences of landforms and place, not so that they can be made compatible with each other, but instead, to “enter into unprecedented forms of creative collusion” (Casey, 2005, p. xix). The resulting composition is entirely unpre-determined and filled with the potential of every other option that was not actualized. The virtual gets missed unless we use the imaginative mode of thinking to carry images constructed by virtualization, to the point of transformation. The *Make a Connection* event gives sufficiently powerful attention to experiences with place that are removed from any practical purpose, to permit an embrace of all of the dualities of our history in undivided form. This is of utmost importance because it is only through virtualization that we can come to sense the relational capacity of holding thousands of possible tensions simultaneously. For example, in Maria’s place capsule (Figure 3), rocks willing their own transformation and wind turning into fabric are sensed concurrently with other knowledge about rocks and wind. Similarly, in regards to experiences in caves in a karstic landscape in southeast Asia, and rolling prairie hills on a short grass prairie on North America’s Great Plains: How can we hold recollections of seemingly opposite places in our mind together? Experimenting with new relations can engage intuition for subtle differences, as well as a feel for the kaleidoscopic diversity and local dependency of human concerns.

Tangible Sound

There is a place amongst the hills that only a few people know about. Luckily, I am one of these, and can share it with you. The inside of one of the hills is missing; you can look right through it to the golden field on the other side.

But the hollow hill isn't the only mystery here - the sound is what baffles us the most. The unique formation of the surrounding hills and the hollowed out hill (involving complicated mathematical figures and calculations) create a most amazing space in which wind flows constantly through and amongst, touching the curves and shadows of land and grass, flowing over forgotten rocks and plants, sometimes pools of water seeping through the prairie floor. As with most winds, this constantly blowing hill-wind makes a whooshing and a flowing sound as it passes over and through the hills, but sometimes it becomes more.

On wild wind-whipped days in early spring, the sound whooshing past you becomes fabric...sky-coloured fabric that brushes against you and reminds you of people who care about you. In August, the sound of the wind wants stillness in the heat of the day; if you stand on the dark red ridge of the hollow hill, you will see it turn itself into stones. You can see these piles of stones lying on the earth. Eventually the wind's restlessness will crack them open and the wind will return to the hills. On dark blue moonlit nights, in late autumn before the first snow has fallen, the wind becomes a path, flattening the grasses until you see a way through. When you follow the path, you feel light and hopeful. The path takes you to views that you never saw before from the tops of the hills. And then just when you feel filled, you look behind and the path is gone...the wind has retreated into its hideout.

But those are only three possibilities, the three I have seen. I have heard it is different for everyone; the way that sound becomes physical.



Figure 3. Maria's Connection to Kevin's Place

One of the difficulties that teachers experience in the *Make a Connection* event is the actual engagement with something that is not "real." Various teachers (journal entries from September, 2005-February, 2006) wrote:

I don't know why this has been so difficult for me but I just can't come up with anything. I know it doesn't have to be something real but I think that this is what is troubling me the most.

As I was writing about my place, I wondered if it would sound foolish to someone else? I found it very, very hard to think outside the box. I needed my connection to be a real place and found it really difficult to come up with something imaginary.

While I was in the process of creating both the words and the images, I wanted to keep them hidden until they were complete, feeling a bit ridiculous since my thoughts were wandering in so many disorganized patterns, wanting to put them together into a comprehensible whole before someone else viewed them.

After completing my connection picture, I continued to struggle with whether or not this was what was expected of me or if I was out in left field.

These demonstrate, among other things, education's belief in the ability of both art and language to represent the real and the anxiety associated with a move away from what has become commonsense. Gaston Bachelard (in Rajchman, 2000) believes that breaking away from previous codification and conceptualization is how knowledge always starts. The development of new knowledge would thus not be possible if there were no virtuality: there would only be only one position outside of actual reality and that would be the "off" position on an on/off switch, consisting of nonactuality (Norton, 1972). Virtualization is a logic that is not a public sense of determining concepts or ideas, but exists in abstraction as well as actually residing in the body as process. It emerges as the unfolding of the unpredictable in moments of indeterminacy in which the borders of what we thought we previously knew are interrupted by something new (Rajchman, 2000). Perhaps it can suitably be called "non-sense." Ellsworth (2005b) asks us to think of pedagogy in non-representational ways by developing "non-examples," examples that have never been offered before. Non-examples offer a chance to think experimentally about possible and impossible pedagogies and could be catalysts to arouse a desire in the public for new and better ways of relating to each other (Ellsworth, 2005b).

Not all teachers find breaking out of set ways of thinking difficult, and in fact, some welcomed it as is evident in the following journal entries (teachers' journal entries, October, 2005-March 2006.):

I've just come to realize that we have trained ourselves to believe that everyone else will evaluate our thinking and our presentations and our "difference," that in traditional assignments I am worried about "acceptance." In creative assignments, I am still worried about this—though not as much since we've begun this process.

When I was designing my imaginary connection, I felt like I had a licence to do whatever I wanted. No idea was out of the question. Everything was acceptable.

I enjoyed the freedom to learn, to explore, to just be me!

I liked designing my connection because I knew that it would create something unusual and unpredictable.

The invented places that teachers make in the *EarthShapes* events are places that have lost something of both participants' previous experience and smudged something of their futurity. These temporal dimensions are both suspended and propelled by aesthetic sensing and artful making. The idea that the world is simply a source of information to be represented, disappears (Ellsworth, 2005b). As teachers design places and ways of being that blur the boundaries between themselves and others, they make and experience new senses of self. In *Make a Connection* there is opportunity for an awareness of the ever-surplus signification in everything that we experience.

Make It Happen: Actualization

While the *Make a Connection* event stretches and breaks the boundaries of what we thought we already knew about ourselves and our relationships to places and others, as Massumi (2002) argues, it is the "edge of virtual where it leaks into the actual that counts" (p.43). The Make it Happen event, as exem-

Educational Ideas for Hollow Hill

1. Research wind energy –environmental impact, public opinion, statistics, mechanics and workings, economics, etc.
2. Create your own device for harnessing the wind's power at Hollow Hill. You will need to calculate the average annual wind speed at this site, so you can determine how much power will be generated annually. Include diagrams of the device as well as graphs to display your information.
3. Create an instrument that uses wind to create sound.
4. Write your own account of what you have seen sound become at Hollow Hill. Include what you did with the physical creation of the sound (What you made out of the fabric, etc.). Consider the time of day and year.
5. Create a historical account of what people have seen in the past.
6. Write a myth or legend that speaks of what happens at Hollow Hill.

Figure 4. Maria's Make It Happen

plification of Mellet-d'Huart's (2006) "actualization," is the place where learners continue their connections by designing multidisciplinary projects and collaborations about their real or imagined places (Figure 4). These might involve science projects studying the force and motion needed to make a hovercraft from a vacuum cleaner motor (as the transportation service for moving urban centres traveling through prairie river canyons), or they might

research the role of civil engineers in their construction of a new community, or perhaps design a comic strip about a hero living on a spiral bridge. The *Make it Happen* event invites learners to ask their own questions that arise out of the activities of collaborative imagining and making. “What if?” questions reopen the body of established knowledge, and make the existence of each individual learner matter. Henri Nouwen (1986) briefly refers to education when he suggests one of its greatest problems is that solutions are continually offered without the existence of a question.

The reality of teaching includes curriculum objectives and outcomes. Although the intent is not to bring *EarthShapes* back into any normalizing curriculum discourse, the self-designed activities can cohere with curriculum aims and objectives. Some of the teachers involved in *EarthShapes* actualized projects related to a particular curriculum that they taught. In this way, *Earthshapes* as professional development experience offers opportunity for an ongoing renewal of curricula focused more on repotentializing the movement of learning than on snapping experiences into place with predetermined aims and goals. Ellsworth and Kruse (2005a) suggest that framing potential “outcomes” as open and unprescriptive will offer us the indeterminacy that allows room for experimentation. If, in the current educational quest for controlling outcomes, we retrospectively reduce potential to what is already made, we deny any virtuality left in what has been actualized. Controlling the future means making it knowable and this is only possible if it resembles the present (Cilliers, 2005). Alternatively, actualization occurs at potentialization and virtualization’s intersection; it is an effect of their ongoing meeting, mixing, and re-separation (Ridgway, 2004), always leaving an excess in what we make and do. Actualization in *Make it Happen* is not a repetition of what we already know but an unfolding of the singular, the contingent, and the surprising, leaving the virtual in the actual.

Make it Matter: Implications for Environmental Education

The pedagogical strategy and methodological tool of *EarthShapes* is offered as a means of inviting us to think differently about teacher learning and professional development through places that have meaning for us, both as teacher educators and as teachers. *EarthShapes* is not merely an example of using experience as a pretext for getting to somewhere already known. It is offered instead as a departure to some relationship with place and others and curriculum that we have not encountered before. It is one example of how we can respond to the current narrowing of teacher participation and experimentation in learning outcomes and aims. It is offered here as a methodology to be used by both researchers and teachers, with its accessibility via posting invitations and responses online for others. However, educators and researchers might also use Mellet-d’Huart’s (2006) concepts of actualization, potentialization, and virtualization in connection with other sensorially-rich

events (Davis, Sumara, & Luce-Kapler, 2008) such as *Manhattan Stonehenge: The Grid Becomes Else* (<http://www.smudgestudio.org/smudge/projects/henge/henge.html>). In this event participants were invited by Ellsworth and Kruse (2005b) to engage simultaneously in photographing their experience of the last fifteen minutes of sunlight as it set on the centreline of cross streets in Manhattan's street grid. Each participant chose a location either precisely aligned with the grid of Manhattan's streets or in a position obliquely related to the grid. The images and sensations of the streets, buildings, and river views that their images released were installed as a public exhibition.

These events are experiences that make it necessary to engage in our relationships to place, that offer collaborative experimenting with emerging rules and ideas about new concepts and places, and finally, that have potential to move forward the refreshed curricular perspectives that emerge from these activities. In these ways, research and pedagogy are no longer merely applications of philosophically expanded notions of themselves, but aspects of actual experiences of research and pedagogy.

In an instrumental conception of what pedagogy might be, a teacher learning experience might be considered inadequate if it cannot fundamentally rely on stimulus/response, input/output, active/passive research frameworks or classic assumptions that sense-data link together to form perceptions. Such a notion of teacher learning typically gauges success based on immediate changes in teaching practice. Alternatively, *EarthShapes* considers that we are not selves who have experiences that must subsequently be measured, at least not within the current limited range of scientific and sociocultural realities of empiricism. Instead, as George Herbert Mead (1938) noticed by attending to other biological systems, we *are* our experiences and what happens in relation is already the edge of our radically changing futures. It might be, as Massumi (2002) theorizes, that over long periods of history, "the mode of human sense perception changes with humanity's entire mode of existence" (p. 222). In the meantime, inhabiting constructions for self and relational experimentation might revitalize our optic and nervous systems in undetermined ways, which may spill over into teachers' relations with students.

Because teacher learning opportunities are often constructed to provide instruction on an already-determined curricula, few chances are provided for what Deborah Britzman (2006) calls aesthetic time, in which the past is invited to mingle with present feelings. Aesthetic time prolongs the thought path through noticing actualization's failure to capture reality and by placing the virtual in the gap between them. Aesthetics is what Deleuze (1994) calls a "superior empiricism" (p. 57) because it is both creative of reality and adds to reality, keeping alive the very possibility of imagining a future that could be radically and structurally other. All too often it is possible to become mesmerized or terrified by dire predictions regarding the future of our environment. What would happen if we were to instead encourage aesthetic and virtual responses, allowing a loosening of the demanding search for

solutions within the limited field where one already knows the language for things? *EarthShapes*' philosophy in action responds to David Gruenewald's (2008) call for balancing critical pedagogy with a sense of relationality. Its transferability for environmental education suggests opportunities for taking pleasure in experimentation with, and composition of, those relations. In a time when a multiplicity of potential solutions are more important than ever, creating a faith with the open character of the future might be of most benefit for environmental education.

Notes on the Contributor

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Notes

- ¹ The idea of pure potential moves away from positionality, the view of the body as "linked to a particular subject position" (Massumi, 2002, p. 3) which dominates contemporary cultural theory. In cultural theory's uncomplicated view, gender, class, ethnicity, and sexuality are preconstructed social discourses that inscribe themselves on bodies in the form of practices such as particular postures, acts, habits and desires (Turner, 1996). The body is defined by beginning and endpoints of change rather than by its nonpresent, virtual potential to vary. Massumi argues that instead, one's cultural position is secondary, in excess to movement wherein one occupies each of the infinity of points between any predetermined position. Although there are alternative positionings of countercultures, even positions not recognized by dominant signifying schemes often reinscribe static and discriminatory identity (Wincapaw, as cited in Bryson, MacIntosh, Jordan, & Lin, 2006). Education has a responsibility to respond to regularizations of discourse, institution, and truth in which things are at last properly named and disciplined to have specific meaning and action. Williams and Lester (as cited in Williams, 2008) argue that a more appropriate action for education than the pursuit of knowledge would be that of "actually moving people...to action" (p. 434). If the sensations of our relations to particularities of places get forgotten and become invisible to us, the only perceptible activities in the world are the regularizations of experience and action.
- ² *EarthShapes* is a Smudge Studio project (see reference list): <http://homepage.mac.com/ellswore1/>. In 2005, *EarthShapes* was awarded a partnership with Oracle Educational Foundation's think.com. George Lucas's

- Edutopia listed EarthShapes on its “Hotstuff” list, November, 2006. Everyone
2006. Everyone is invited to participate!
- 3 The sounds of Kevin’s place can be heard in the Make a Place section of the
EarthShapes website: <http://homepage.mac.com/ellswore1/>.

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