Abstract
In this narrative essay, I explore some fundamental assumptions in my understanding of environmental education. Questions are raised concerning the nature of perception, experience, and the interplay between the world and ourselves. The narrative is based on a recent trip down the Coppermine River in the Barrenlands of Canada’s Arctic. The discussion is built around metaphors of burgeoning life, the discovery of copper, the different meanings of the word “mine,” and the challenges these pose to our perception. I reflect on the implications of my experience for the teaching/learning process. The hope is that this paper opens a space for discussion within the field, asks some questions, and offers some answers to questions that we did not know we were asking.

Résumé
Dans cette dissertation narrative, j’analyse des hypothèses fondamentales de la compréhension que j’ai de l’éducation écologique. Des questions, sur la nature de la perception, de l’expérience et de l’interaction entre le monde et nous-mêmes, surgissent. L’histoire est basée sur un récent voyage sur la rivière Coppermine dans la toundra de l’Arctique canadien. La discussion se déroule autour de métaphores sur la vie bourgeonnante, la découverte de cuivre, les différents sens au mot «mine» et les défis que cela pose à notre perception. Je réfléchis aux implications de mon expérience pour le processus de l’enseignement/apprentissage. On peut espérer que cet article débouche sur un forum dans le domaine, pose des questions et propose des réponses aux questions que nous ignorions que nous posions.

Keywords: environmental education; outdoor education; Arctic; perception; paddling

Introduction
I have been a paddler for years and have had the good fortune to explore diverse eco-systems around the world. There are periods of my life where I have been on the water for more than 200 days in a year, and for many of those days I have had students with me. Those students have ranged in ages, abilities, interests, and histories, and together they represent a rich cross-section of humanity. No doubt as a result of my experience, and despite the fact that I try to avoid either being labeled or labeling myself, I began to complacently see myself as a skilled, open-minded, and thoughtful outdoor and environmental educator.
I realized last summer, when I encountered the Coppermine, that I had lost sight of the humility necessary to recognize the limits and structures of my own perceptions and the patterns into which my thinking had fallen. I know that there is much that I have gained from my experiences on trail; I have been profoundly influenced, indeed shaped, by the earth, and regard it as my greatest teacher. Yet, like any good teacher, the world was able to challenge me this past summer, shake me out of my inertia and into that anxiety and delight of the incipient sense of deeper understanding. I was reminded of my potential for self-deception and of the need for what Michel Foucault (1981) called “hyper-active pessimism,” the distrust of the taken-for-granted, without which I lose the possibility for ongoing learning offered to those who accede.

This paper is, in several ways, an experiment. It is a thought experiment, one that focuses on perception at several levels. It is an eco-research experiment, an attempt to engage the reader into a discussion that rejects the objective viewpoint and invites her/him to become a partner in the research, thereby obliging him/her to abandon the role of passive spectator. Lastly, it is an experiment in language and scholarship. If one accepts the notion that language (as symbol, form, and content), including notably academic language, is a key vehicle for the communication/transfer of a culture, and also accepts that a particular culture is responsible for the degradation of the planet, then it follows that a great deal of imagination is required, when using that language, to avoid implicit paths of understanding. Thus, this is an attempt at an academic discourse that will engage subject and object, speaker and listener, as active participants in a dialogue of discovery.

This narrative arises from a recent canoe trip down the Coppermine River in the Barrenlands of Canada’s Arctic, and is shaped around metaphors formed from experiences and thoughts that occurred in the course of our journey down the river: burgeoning life, a discovery of copper, the suggestive potential of “mine,” and the challenges all of these experiences create for perception. The hope is that this paper opens a space for discussion within the field, asks some questions, and offers some answers to questions of which we might not have been aware.

The Coppermine River

The Coppermine River carves its way through the Barrenlands of Canada’s Arctic, its focus firmly fixed on reaching the Arctic Ocean. It rises near the town of Yellowknife in Canada’s Northwest Territories and follows a generally northerly route before pouring through Bloody Falls, past the tiny community of Kugluktuk and into Coronation Gulf. In the course of this journey, the Coppermine drains the lakes and swamps upon which the tundra rests and makes several magnificent sweeps across the compass in order to
find its way through several resolute mountain ranges. The river is the source of life, the communication network, the artery that brings life, the vein that cleanses. It is also the place where this environmental educator encountered a possible answer to the question of perception that I didn’t remember having asked.

The Rich, Precarious Life of the Coppermine

In the Arctic Barrens, one inadvertent step, a footprint left behind, can mean the end of a life. Why did I not remember this? How did I come to not know it?

Almost as soon as the plane dropped us on that golden beach, this land and landscape, in which I was now immersed, challenged my perceptions. The pre-formed notion of a flat, barren, and ecologically simple world was simply wrong whilst, simultaneously, my immediate interpretative skills, based upon years of experience, were found to be insufficient to appropriately make sense of and encounter this new world. The perceptions of depth, distance, and time were all disrupted as my habitual and, for the most part, unconscious points of reference were either providing conflicting information or were non-existent.

The Arctic is not flat, barren, and simple; it is a riot of life and history. A brief window for fecundity opens as the snow and ice recedes and every species of flora and fauna springs immediately into action. Plants race from brilliant colour to seed dispersal at a pace directly related to their particular micro-niche. The same flower growing on opposite sides of a swamp tuft could be in completely different stages of the reproductive cycle simply because of their position with respect to the prevailing winds. For animal life, timing and situation is both critical and fortuitous; too early, and a nest is ripped away from the bank by an ice floe with the power to sculpt any shoreline; too late, and all the young die from the onset of an early winter. And in this land of limited decomposition, those young bones will remain bleached for years to come.

Here where life is drawn into the corridors formed by the river like so many hungry cells searching for nutrients, what of that alien species, that antigen called humankind? There are few other places I have ever been where my presence has had such an obvious effect. It becomes quickly apparent that we humans are the incompatible in this world. A single footstep may lead to the death of some animal or plant. A lunch on the banks of the river interrupts, at best, and more likely destroys moments of burgeoning existence. A Lesser Yellow Legs chick is crushed and killed when a willow branch, under which it is cowering, is bent by the foot of a passing paddler who is just looking for a flat spot for lunch and an elevated view of the river. A mother duck is stressed into vacating her clutch by a fire made to provide warmth for suffering humans unused to 12 days of continuous drizzle and temperatures hovering
at 4 degrees Celsius. The river is the conduit of life, but it is a life that always hovers on the brink of disaster. Any disruption to the delicate balance is probably fatal. Here life is complex, brutally simple, delicately balanced, and deeply interrelated. I discover, more explicitly than I ever have anywhere, the impact my very presence has on this planet. The shore birds and waterfowl of the world may in fact be better off if I am not there.

But we are here, all of us, and expect to remain for a while. In order to find a solution to this challenge, Gary Snyder has argued for an ethic of least harm, and to sustain this argument, he brings together eastern metaphysics and Aldo Leopold’s idea of a land ethic. Snyder (1990) argues for a recognition of the intrinsic value, based upon interconnectedness, of all living beings and an ethical requirement for humanity to make decisions based upon what action will have the least effect upon the diversity and complexity of any particular ecosystem. The response to the challenge of my presence, in light of Snyder’s argument, needs to begin with my perception. It needs, paradoxically, to be more focused and more expansive. I need patience as my understanding, in conjunction with perception, is shaped by the Arctic. I need the humility to recognize that I am an ignorant alien in a world where, for the most part, I know not what, what I do, does. And I need the strength to allow myself to be open to learn and learn again.

For the educator, the challenge is to allow the student to experience her/his own influence and ignorance. It is important to recognize that each step, literal or metaphorical, we take has repercussions, and that responsibility for those steps is ours. And then, much as the Arctic reminded me, the educator must provide the student with the opportunity to discover the limits of his/her own perception and support the humility necessary to learn from that discovery.

Copper, the Conjurer

It was on the tenth day of the trip that I discovered my first piece of copper. Throughout the trip I had been consciously looking for it without success, since I had heard that there were rich finds of copper along the banks. On this day, as I returned from scouting Musk-ox rapids (so called because Franklin and his men had slaughtered a herd of 12 musk-oxen at the site), my eye was caught by a flash of green. I am unsure what it was that initially drew my attention to this tiny seed of iridescent green. Maybe it was a flash of green in an unlikely spot, or maybe I was becoming more perceptive and less cerebral; perhaps it was just an accident. Anyway, when I bent to pick up the green object, I found I had in my hand a stone far heavier than I had anticipated. There was a moment of surprise, a shock to the senses, a tactile non sequitur indicating that something was wrong, like that experienced by a child lifting a styrofoam boulder. The unexpected weight of this tiny green rock told me that I had found copper. All teaching has these moments of surprise discovery,
when an unexpected flash catches a student’s attention and tears a hole in the fabrication of her/his perception, when the “familiar” idea encountered anew is suddenly charged with unexpected weight, a potentially seismic change opening new realms for thought and imagination.

Shortly after my first discovery I found more pieces, a flood of discovery caused by a tiny pebble. I packed the largest piece of copper away into my gear; the other six or seven granules I put in my pocket. I carried those seeds of the earth for the rest of the trip. There was something comforting about their presence. I found myself again and again reaching to touch them, rolling them in my fingers as I scouted a rapid or wandered on the upper expanses of the Barrens. I weighed them gently in my hand, savouring them, and felt strangely more grounded. They responded to me by becoming more brilliant, as the green of time was replaced by brilliant gilding, the burnished hue of copper. These tiny seeds gained for me significance far beyond that of mere copper fragments; they brought with them a mysterious history and memory in which I now shared and of which I had only the faintest notion. Martin Buber (1974) called the process “hallowing,” the process of making sacred.

But what is the history of this copper that lies exposed to the world? Were other eyes caught by it, and were those people drawn to gather it, and what quirk of fate coupled with presence of mind allowed the potential in this dense green stone to be released? I have always wondered how many discoveries or key insights I have missed, because I overlooked or failed to recognize something that was lying right in front of me. What are the possibilities that have never been realized, the creations that have never even been envisioned? I cannot believe that that initial discoverer was able to see the range of possibilities those first seeds of green held in store for humanity. How long was it before those tiny grains were used to capture reflections, or threaten enemies, or carry electricity, or become Rodin’s Thinker?

I am struck by how often we assume that infinite potential is immediately manifest, as though we were omniscient and as if, at first touch, an object’s entire potential folds open like a map. No culture can perceive all the uses, or misuses, of an initial discovery, and yet we stumble blithely forward with faith in our own teleology. But it is our culture that creates and limits our perceptions and provides the significance and meaning to those seeds upon which we stumble.

The Meanings of “Mine”

This river journey is only half about copper; it is also about “mine.” If we accept that in shaping copper we are, within the limits of our own cultural imaginations, changing its character and significance while simultaneously doing the same to ourselves, then it follows that there must be a “me” and an “us” that can be changed. After its first discovery, copper became some-
thing we had to deal with; our world now included copper, and we had to give it meaning.

I wonder if early creators knew that, in the process of shaping the copper, they were in fact shaping themselves and their culture as well. A flash of green is not merely something to arouse curiosity, it becomes a source of meaning, or of wealth, or power. To paraphrase Hans-Georg Gadamer (2004), did they know that as they molded the copper it would in turn mold them? Did they realize that, as they formed that meaningless substance into a spear, they would gain advantage over their neighbours, or that a knife that could be shared in the community would make easier the harsh life of the Arctic? Or maybe they fashioned it into a decoration in order to appreciate the magnificence of that dense green material or, perhaps, demonstrate their superiority.

As I carried those granules of copper in my pocket, I wondered what I might have shaped them into, what that might have said about the range of my own and my culture’s imagination, and what effect that might have had on me and on my world. This thought leads me to consider discoveries being made at the present time, to think about the limits of our collective consciousness and imagination, and about the ways in which we are being influenced by the meanings instilled in us by our culture.

Our students bring with them their limits in terms both of the possibilities available to them for making meaning and of the ways in which they attempt to shape their environment and are shaped by it. Remember, too, that we tend to assume that any experience we provide them will be beneficial or, at least, educative, but this is not necessarily so.

Since landscape plays an essential role in shaping how we understand our world, influencing our very perception of it, then we must foster that synergy between ourselves and the environment. As environmental educators we need to allow ourselves and our students to recognize these perceptual surprises, these “copper moments,” because they are the point of convergence where the evidence of our senses and our previous understanding do not exactly align. These moments bring us face to face with the limits of our acquired learning and offer a glint; for me it was an iridescent green glint of new realms to explore.

When I fingered those pieces of copper in my pocket, gave them meaning and history, I made them “mine.” The person who first discovered copper on the banks of the Coppermine River and perceived some use for it, began also to make it “mine,” and hence to give it meaning within society. This moment of inspiration, when spirit or meaning is implanted into a natural object, marks the height of creativity and of learning.

There is another meaning of “mine” that, within the field of outdoor education, has a tendency to reconfirm the prevailing worldview, which implies depth and hiddenness, something which needs to be dug up with difficulty and exploited at much cost. To reach this “mine,” masses of obstructive, valueless material must be removed, entailing an often irreversible destruction.
of the environment in order to get at that which is valuable. What is it that we seek through all this digging, and why and for whom is it valuable?

Too often, I think, we environmental educators insist on excavating through what we believe to be useless rubble in order to get at those nuggets of value, and my guess is that we overlook those thousands of little seeds of green waiting to attract our attention, to be gathered up and rolled in our fingers, to offer inspiration and to reveal the depths of their burnished gleam.

Changing Perceptions

What do you think of when you think of the Arctic, when you consider the Barrens? I realized that, as we flew out of Yellowknife and turned north, what I had previously believed was wrong all along. As I watched the shadow of the twin otter race us across the ground, I saw that this was not a flat, barren, desolate land. As spruce and willow clutched at the shadow plane that followed us on the ground, it was forced to manoeuvre up and down over ragged lines of glacier-broken cliffs, across swamps criss-crossed by the steps of generations of ungulates, and across deep crystal lakes. I suddenly recognized that my understanding of the Barrens (one wonders who was responsible for that name) was a construct of my culture and of the limits of my own perception and experience. That discovery was only the first. Abilities I have always relied upon, my sense of direction, my sense of time, my judgment of distance and size, all had to be re-evaluated in this vast land of the midnight sun. I could no longer lean on those skills as on a comfortable old staff, the crutch of complacency.

There is a story, possibly apocryphal, about Ludwig Wittgenstein who, at one time, was wrestling with the notion of perception, of how we come to make sense of our world and the sometimes troublesome difference between our empirical understanding of the world and the “objective” knowledge of science. Wittgenstein burst out of his Cambridge University office, hair all awry, and accosted several undergraduates in the hallway, demanding to know whether there would be a difference if the sun really did go around the earth. Somewhat bemused, his students had no time to answer before Ludwig returned, presumably muttering, to his lair. What happens if the empirical is thrown into doubt? What does one make of the Arctic sun that no longer sets or, rather than traveling across the sky in some fellow’s golden chariot, is stuck on a conveyor belt like an abandoned piece of luggage forced to eternally circumnavigate the sky, at least in summer?

There was a constant state of perceptual disquiet for me as we paddled our way north. Estimates of distance and size were shown to be wildly inadequate. Time and again a distant esker was reached in 15 minutes and a remote musk-ox turned out to be a basketball-sized rock. But a line of hills in the distance, rising from what should have been the Coronation Gulf, appeared
to get no closer even after a full day of paddling. We are the creatures of our environment and culture. Our bodies and senses are habituated to our familiar physical environment, while our minds are fashioned by our culture. Lawrence Durrell (1969) claims that culture rises from the land, and that if you were to remove all the Italians from Italy and replace them with people from somewhere else, in two generations the culture of Italy would be back because of the influence of the land. My experience of the Arctic told me immediately and insistently that my habitual points of reference were inappropriate and, as a result, there is a flexibility, both possible and necessary, to begin to learn about and be shaped by a whole new world. Now I am not sure I agree with Durrell completely, especially based upon the kind of global hegemony market economies are currently trying to exert, but to be fair he does mention that he thinks one of the reasons for the profound alienation he sees in the U.S. is because they are trying to live “perpendicularly” to the land.

I ask myself how much of what we do as educators in trying to help our students understand their experiences is, on the contrary, perpetuating those habits of thought and ways of seeing that pertain to our own culture and an often-obscured landscape. It is possible that we are indeed limiting their potential for learning. In the land of the midnight sun, our cherished thoughts of dawn and twilight, never mind spring and fall, are incomprehensible, if not downright insane.

I have paddled for years and I still think of myself as an outdoor and environmental educator, but now I carry with me several green seeds to explicitly remind me of how the land, my situation, and my culture influence, limit, and shape my perceptions and understandings. There is tremendous possibility remaining to be discovered. Education is the communication of the power and ability to make meaning of one’s world and to interact with it. We need to recognize the significance of those “copper moments” for our students, acknowledge our own limitations as interpreters, and be thoughtful about our role as guides given the perceptual and cultural blinkers that we inevitably wear.

In this paper I have attempted to describe the layers of our perception and the fact that it is shaped by ourselves, by the “copper moments” we encounter, by the significance we give to them, by our culture and the limitations it imposes on us, and finally by our own habitat. As environmental educators we need to be continuously aware of who and what we are, as well as where we come from, so that we can be open to the shock of the unfamiliar and the delight of new learning, both for ourselves and for our students.

Notes

1 Educator Kurt Hahn (1959) has described this phenomenon as “spectatoritis.” Ecopsychologist Theodore Roszak (1969) sees it as compounding the individual’s alienation.
This is a phrase from Annie Dillard (1998).

For more information on how Foucault frames this question and the ongoing discussions, a good place to start is Foucault (2003).

For more information on the rich history of the Coppermine River, see Jenkins (2005) and Gutteridge (1973).

I have heard this story several times but am unsure of its source. For more stories of Wittgenstein, see Edmonds and Eidinow (2001).

Notes on Contributor

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References