Bastions of Mechanism, Castles Built on Sand: A Critique of Schooling From an Ecological Perspective

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Abstract

The realization of the goals of environmental education may involve a critique and transformation of the dominant model of schooling. Specifically, a greater emphasis on second-order change is necessary in order to address the mechanistic structures and dynamics of schooling that may frustrate environmental education. Several of the mechanistic practices that define the dominant model of schooling and that may inhibit the adoption of holistic or ecological thought are systematically identified and discussed. The paper is primarily a critique, pointing to future work needed in reconceptualizing schooling so that it is more compatible with the goals of environmental education. The piece concludes with the suggestion of revisiting the deschooling movement for what it may be able to contribute to the questions at hand.

Résumé

La réalisation des objectifs de l'ERE peut exiger une critique et une transformation du modèle scolaire dominant. Plus particulièrement, on devrait accorder plus d'attention aux changements de second ordre afin de s'attaquer aux structures et dynamiques mécanistes du système scolaire qui frustrent les efforts de l'ERE. L'article identifie systématiquement plusieurs des pratiques mécanistes qui définissent le modèle scolaire dominant et qui freinent l'adoption d'une pensée holistique ou écologique. L'article est essentiellement une critique qui indique le travail à accomplir pour que le système scolaire soit reconceptualisé et, ainsi, plus compatible avec les objectifs de l'ERE. La conclusion incite à renouer avec le mouvement de déscolarisation pour ce qu'il pourrait apporter aux questions qui nous occupent.

In *The New Meaning of Educational Change*, Fullan (1991) suggests that school reform initiatives can be classified as either examples of first-order or second-order change. First-order changes are those that "improve the efficiency and effectiveness of what is currently done, without disturbing the basic organizational features, without substantially altering the way that children and adults perform their roles" (p. 29). Alternately, second-order change seeks "to alter the fundamental ways in which organizations are put together, including new goals, structures, and roles" (p. 29). The history of school reform is rife with examples of the former (as any schoolteacher will tell you), and, conspicuously, almost devoid of the latter. There is ongoing discussion about

what books to teach, what topics to include in the curriculum, where field-trip funding should come from, what report cards should look like, and whether or not to adopt the semester system. Missing, or going relatively unheard, by way of example, is debate on the merit of the entire age-segregated grade system, the worth of a mandated, as opposed to emergent, curriculum, or the value of classroom-based learning in general. The underlying assumption at work here is that we need only "iron out the kinks" or perfect the details of how we currently deliver education, for the way we school, or the macro model of schooling that we have embraced, is somehow inevitable or at least infallible. The proposition that our schooling model could be either of these things is, of course, nonsense.

As an environmental educator, I want to suggest that if schools are to be effective in realizing the goals of environmental education and addressing the ecological crisis, greater emphasis on second-order educational change is required. Specifically, schools will need to find ways to move beyond the mechanism that currently defines their practices (practices which therefore run counter to the goals of environmental education), and will need to embrace a more organic, systemic, holistic, or ecological approach to education. Paradoxically, this may mean looking beyond formal education models to see what elements schooling can borrow from the deschooling movement—a movement that is potentially highly compatible with holistic thought.

To cut to the chase, what are the goals of environmental education? While the wording of the answer to this question varies, the two refrains that I see over and over again in environmental education statements of purpose are, on the one hand, the development of an awareness or an understanding of the environment, and, on the other, the development of a willingness to act towards it in a positive manner. (These are obviously related, for one would be hard-pressed to act positively toward something if one did not understand what was in its interest.) These are general goals, to be sure, but I think they are commonly shared, or are the common denominator between the multiple strands or possible conceptualizations of environmental education. So what, then, do we mean by "the environment" and what can it teach us? The environment can be understood as being composed of ecosystems that have developed practices of organization that sustain a web of life. Capra (1999) summarizes these practices this way:

> The ecosystems of the natural world are sustainable communities of plants, animals, and microorganisms. There is no waste in these ecological communities, one species' waste being another species' food. Thus matter cycles continually through the web of life. The energy driving these ecological cycles flows from the sun, and the diversity and cooperation among its members is the source of the community's resilience. (p. 1)

What is already becoming apparent with this description, through words such as "communities," "cycles," "flows," "diversity," and "cooperation," is that an

atomistic way of thinking that focuses on static objects and separateness, rather than a holistic one that explores relationships and embeddedness, may prove insufficient for an understanding of the environment. Put another way, perhaps only by embracing systems thinking, which "implies a shift of focus from objects to relationships" (Capra, 1999, p. 4), can we learn about ecosystems, and learn how to live sustainably from them. Understanding the environment, and acting towards it in a positive way involves, at least in part, being able to think in a holistic manner.

Yet what we find when we examine the dominant model of schooling that our society employs is not a system based on ecological principles or one with much apparent interest in holistic thought. Rather, schools, as we now know them, appear as bastions of mechanism, or monuments to mechanistic thought. The spirit of mechanism permeates them entirely—elements of reductionism, separation, and specialization can be witnessed at every level in their operation, and, not in the least bit surprisingly, as a result they perpetuate mechanistic thinking or a mechanistic worldview. Our fanatical though perhaps unconscious devotion to mechanism in how we school makes nearly impossible the adoption of any ecological thought. Yet, as already discussed, this type of thought is one of the goals of environmental education. The pertinent question to ask, it seems, is can a holistic message be conveyed through a mechanistic medium? If the oft-quoted McLuhan (1965) line holds true and "the medium is the message" (p. 7), then our model of schooling is in desperate need of some second-order change before the goals of environmental education can be met.

As it will form the foundation of my critique of schooling throughout this piece, before proceeding it is worth clarifying what is meant by mechanism, and a mechanistic worldview. Mechanism refers to understanding through compartmentalization and using an empirical or objectivist approach to make sense of isolated information. When coupled with a worldview—a "set of values, of conceptual structures, of implicit assumptions or presuppositions about the nature of reality" (Elshof, 2001, p. 11)—we end up with an understanding of the world in which:

- The whole is the sum of its parts.
- Phenomena and events are viewed in isolation.
- The observer is separate from what she observes. Complete objectivity is achievable, especially as the observer can isolate facts from values.
- Rational knowledge and cerebral thinking are separate from and superior to the emotional, the intuitive, the spiritual.
- [There is] a preference for analysis, reduction (understanding phenomena by reducing them to their separate parts) and convergent focus.
- Problems are seen in linear problem/solution and cause/effect terms. A "technical fix" is possible.
- Knowledge is divided into separate subjects/disciplines and into separate modes of experience (economic, environmental, political, social, etc.).

- Humans are distinct from the natural world and natural systems; they can control and dominate both.
- The fragmented nature of reality—and our own physiology and psychology—occasionally requires the knowledge and skills of experts upon whom we can rely. (Pike & Selby, 1988, p. 29)

When comparing these tenets with the principles of ecosystems outlined by Capra (1999) earlier, it is obvious that the discord between the two is extensive. Throughout one we find the themes of reduction, separation, atomism, and domination, and throughout the other networks, systems, flows, relationships, wholeness, reciprocity, and synergy. It is because of this discord that a mechanistic worldview cannot ensure an understanding of organic systems. And because schooling, as we know it, is grounded in this mechanistic worldview, it can be thought of as anti-ecological.

It should now be apparent how a mechanistic worldview contrasts with ecological or systems thinking. What remains is to work through the dominant model of schooling and unmask the mechanism that defines it in order to support the charge that schools themselves are anti-environmental. This is not hard to do if we examine the distinguishing characteristics of this schooling model and look to see how the themes of reductionism, separation, and specialization are played out in each of them. The numbered items below represent several of the typical characteristics of traditional schools (Farrell, 2001). What follows each is a discussion of the mechanism inherent in this characteristic. (I should state at this point, before the charges of hypocrisy are raised, that the mechanism involved in my own method here has not eluded me. That this manner of presenting the topic seems most appropriate reveals just how deep the problem runs!)

1. One hundred to several hundred children/youth are assembled [often compulsorily] for a period of time in a building called a school. Perhaps what is most obviously mechanistic about our conception of schooling, if we are watching for the theme of separation, is the general requirement for a separate "building called a school." This aspect of our schooling model is so basic that it may be frequently overlooked, yet it also has important implications and is central to the argument being made here. Namely, if people are being educated in a school, then they are not, at least during that time, being educated elsewhere. Students are being "separated-out" from other environments that they may find themselves in where they would have the opportunity "to grasp and live out their interdependence" (Smith, 1992, p. 94) with others, and with their local built and natural environments. They are centrally located in school buildings that exist for the purpose of educating them. This necessarily has to limit their opportunity to directly experience the world beyond school, and to learn from this experience, a fact that has not gone unnoticed by those writing on education and the environment:

> Nearly all school instruction occurs in classrooms cut off from the natural environment. Within four walls, the world is generally studied at a distance, from books or behind glass, or from the images of films and videotapes. The contact with the earth, animals, plants, and weather that would have been the stuff of the education of children in pre-modern societies is mediated in contemporary schools. (Smith, 1992, p. 61)

Of course, the problem with separation in this context is not only that it removes people from the beyond-school world for certain periods of time, but also that, because of the dualistic thinking that accompanies mechanism, it validates certain forms of learning over others, namely school learning over any other forms. To return to Smith again: "With the exception of the rare field trip, children only go outside to play. We teach them, by inference, that real learning happens inside and is composed of something other than their own natural observation" (p. 61).

2. The age of these children/youth ranges from approximately 6 or 7 to between 12 and 18. More will be said about age grouping shortly (see point 7), but at this point we can identify, and wonder at the reasons behind, the mechanism inherent in selecting this age range for schooling. Clearly a mechanistic rationale must underlie the belief that those between 6 and 18 years must be schooled—the age boundaries are clearly delineated to sort these people out from the rest of society. What is it that starts when a child is 6 and ends when he or she is 18 that makes him or her an obvious candidate for schooling? I suspect that this has something to do with ideas about a child's sufficient independence from parents (although this logic would not explain daycare) at the lower end, and ideas about the start of adulthood, and therefore gainful employment, at the upper end. Regardless of the reasons for it, what is obviously mechanistic about this point is that a clearly defined age-bracket is being singled out of the entire possible age range as the population needing schooling. Because this schooling is to occur, as we have already discussed, in a site separate from the rest of society (that is, a "school"), this age group is to be separated from other people of other ages.

3. Students are at school for 4 to 6 hour per day. By separating out 4 to 6 hours of the day for formal education or official learning, the other 18 to 20 hours come to be understood to be time when learning does not, or need not, occur. This is simply an extension, as pertains to the issue of time, of the Smith quotation above that identified the perception of "real learning" happening in the physical school place. This is a separation or reduction of the day into certain periods of time that are given over to certain functions.

4. At school, students are divided into groups of 20 to 50. The population has already been divided and separated, and here we have the further reduction of students into "manageable" class allotments. First a student group has been

selected out of society as a whole, and then this group is further broken down into more specialized units revealing an example of how mechanism works on multiple levels within our schooling model.

5. Students work with a single adult [a "certified" teacher] in a single room. Here we have language that illustrates specialization pursued until there is an achievement of the individual unit, as evidenced by the word "single." One adult, or "teacher," is placed "in-charge" (I use the phrase consciously) of a class or course. This practice is rife with mechanistic and dualistic beliefs: adults govern children, adults teach and children learn, adults direct and children obey, and each adult controls one grouping of students or directs one subject (see point 6). (These beliefs are admittedly not acted upon universally. There may indeed be classrooms where children do some of the teaching. However, I think this is a generalization that holds true in terms of the tradition of schools.) The final aspect of this point, the emphasis on learning "in a single room," is further evidence of the approach to place discussed in point 1. Point 1 identified the need for a separate building called a school; this one identifies the need for this single school itself to be broken down into separate single rooms.

6. Especially at the "upper grades," students work for discrete periods of 40 to 60 minutes, each devoted to a separate "subject." Of all aspects of our model of schooling it is perhaps the specialized structure of the disciplines that has garnered the most criticism in print to date. Indeed the notion of integration in which "the curriculum is more appropriately organized around broad themes or issues, through which the knowledge and skills of traditional subjects are taught in interconnected ways" (Pike & Selby, 1999, p. 20) as an alternative to the structure of the disciplines has achieved fairly common currency, although it too remains largely unrealized to any great degree in a practical sense, particularly at the high school level. At root here is the construction of a curriculum, or the division of a curriculum into a course list that would sound familiar to all of us, but that seems highly artificial when compared to, and in fact does not resemble in the least, the life that it expects to prepare students for. It should be noted that this is in no way a new complaint. Almost 90 years ago, Whitehead (1929) wrote the following:

> There is only one subject-matter for education, and that is Life in all its manifestations. Instead of this single unity, we offer children—Algebra, from which nothing follows; History, from which nothing follows; a Couple of Languages, never mastered; and lastly, most dreary of all, Literature, represented by plays of Shakespeare, with philological notes and short analyses of plot and character to be in substance committed to memory. Can such a list be said to represent Life, as it is known in the midst of the living of it? The best that can be said of it is, that it's a rapid table of contents which a deity might run over in his mind while he was thinking of creating a world, and has not yet determined how to put it together. (p. 18)

This sort of curriculum construction is completely consistent with a worldview in which the whole is the sum of its parts, phenomena are viewed in isolation and understood through reduction, and knowledge is divided into separate subjects or disciplines. In a more recent passage that much more directly connects the phenomenon of a reductionist curriculum to environmental issues, Orr (1994) writes the following:

> We have fragmented the world into bits and pieces called disciplines and subdisciplines, hermetically sealed from other such disciplines. As a result, after 12 or 16 or 20 years of education, most students graduate without any broad, integrated sense of the unity of things. The consequences for their personhood and for the planet are large. For example, we routinely produce economists who lack the most rudimentary understanding of ecology or thermodynamics. This explains why our national accounting systems do not subtract the costs of biotic impoverishment, soil erosion, poisons in our air and water, and resource depletion from gross national product. We add the price of the sale of a bushel of wheat to the gross national product while forgetting to subtract the three bushels of topsoil lost to grow it. As a result of incomplete education, we have fooled ourselves into thinking that we are much richer than we are. The same point could be made about other disciplines and subdisciplines that have become hermetically sealed from life itself. (p. 11)

But not only is the curriculum reduced to separate, "unrelated" subjects. The further one progresses through school, or the higher one climbs on the grade ladder, the more specialized the study of these very same subjects becomes. Students are likely to take the same courses each year (for example, math, science, social studies, or language arts), but the concern of each subject in each year is likely to be material of greater detail, or more minute focus, that builds on the more general information of the previous year. Again, multiple layers of mechanism exist throughout the model. Separation and specialization are to be found around every corner.

Finally, because it is related to the mechanism of the structures of the disciplines approach, while on this topic it is important to at least acknowledge the dualism of the sciences-humanities divide that still defines most curricula. As Selby (1999) has written, "the science-humanities segregation in curriculum at all levels reflects the nature-human divide spawned by mechanistic science" (p. 135). While the two different elements of this dualism are understood as separate ways of knowing and are therefore rarely explored in concert, they are also valued differently. Where science is commonly assumed to be demanding and important work, the arts are all too often seen as a lax and fanciful pursuit. This perception can be traced directly back to Enlightenment thinking and the valuation of certain forms of knowledge over others. We have Galileo to thank for the belief that that which is measurable alone is omnipotent, and this belief necessarily limits the role played by the arts.

7. This subject is "studied" and "learned" by a group of young people of roughly the same age. Here we have further specialization according to age. Not only is a certain segment of the population identified as needing to be schooled, but once youth are there, they are further classified by age. As with their separation-out from society at large, their ability to learn from those outside their same age peer group has once again been limited. There has recently been a resurgence of talk about multiple-age classrooms which are designed specifically to address this problem. The justification behind them is that they will allow students to share learning opportunities (including leadership and modeling opportunities) with other children of different ages. It is important to note that mixed-age groupings do not represent a new phenomenon, but rather a return to an old practice in order to address newly arisen concerns. Additionally these same-age groups may be further divided and categorized by the mechanistic educational practice of "streaming"—determining class groupings from a pool of same-age peers based on some judgment of ability level. (As will be discussed under point 11, testing, such as that used to determine this student capability is also often strongly mechanistic in its approach.)

8. Students use supporting learning materials (e.g., books, worksheets, chalkboards, and often more "sophisticated" equipment) and, in technical/scientific areas, use laboratories, workbenches, and practice sites. These learning materials again distance students from beyond-school experience and reduce or compartmentalize this experience. Again we see the hegemony of certain forms of knowledge—if something is written down or recorded or explored in objective or empirical fashion it is of greater worth than, say, an imagined or felt or lived experience which, it is implied, is not to be trusted. As with the incremental specialization of distinct subjects at each grade level, these learning materials also become increasingly specialized. A topic is understood by working with books and worksheets that explore it in finer and finer detail.

9. This learning is determined by a standard curriculum, which is set by an authority level much above the individual school (normally the central or provincial/state government) and which all are expected to "cover" in an "age graded" fashion. A standard or centralized curriculum is profoundly anti-ecological in that it ensures that everyone in the affected area learns, or is presented with, the same information. This type of curriculum, by definition, limits the potential for regional variation. This is particularly worrisome for, as Capra (1999) reminds us in his discussion of the principles of ecology, "diversity assures resilience" (p. 6).

10. "Adults," assumed to be more knowledgeable, "teach" and students "receive instruction" from them. We touched on this point earlier in our discussion of the one "certified" teacher per classroom phenomenon. What is most important

to mention here is the obvious asymmetrical dependence that is cultivated between teacher and pupil, as opposed to a symmetrical dependence between co-learners (Gough, 1992, p. 63). One would be justified in wondering, if the goal is to have students become strong learners, would the best model for them not be another learner (as opposed to a "teacher")?

11. Teachers and/or central exam systems evaluate students' ability to repeat back what they have been taught, and provide formal recognized certificates for "passing" particular "grades" or "levels." This point speaks to the empirical or objectivist evaluation of student learning. Have students learned the pieces of information that they are required to "know"? Standardized evaluation, or central exam systems, ensure conformity with the standard curriculum already mentioned. Assessment of this type tends to be mechanistic in that it depends highly on quantitative methods (such as multiple choice questions, the results of which can be easily computed). Standardized testing of this sort continues to predominate as it is seen as accurate and objective—witness the emphasis that is still placed on the SATs in the United States. The mechanistic construction of advancing on to certain grades or levels has also already been referred to above. Ultimately, this structure could leave students with the false belief that at some point they will have "completed" their education.

What is emerging quite clearly here is a picture of schooling as a thoroughly regimented world—basically a model of school as factory. Is it surprising that students would develop a mechanistic worldview after 12 or 13 years in such a system? I am not suggesting that schools alone share the blame here, indeed the same lessons are taught in the world beyond school walls. But what are schools doing to challenge the formation of such a worldview? In fact, I would ask are schools, as we know them, even capable of producing students with an alternative, in this case holistic or ecological, worldview? What could be called elements of holistic education have certainly been making inroads. We hear more and more often the call for a greater emphasis on discovery-based learning, on emergent curriculum, on cooperative learning, and on critical thinking. As already mentioned the practice of integration especially has been gaining ground or enjoying increased attention. The strength of integration is that it stresses the "inters"—interaction, interconnection, interdependence, and interrelationships. These are all good things, no doubt, and are key if our goal is to aid in the development of a more holistic worldview. However, we have to ask, does classroom integration go far enough? Does integration sufficiently address a mechanistic approach to schooling, or is it simply one more tactic that can be worked into our model of schooling that will leave unchallenged its current form? Will any of the novel methodologies mentioned earlier in this paragraph have the desired effect if they are simply slotted into the overall mechanistic structure of schooling?

Consider for a moment a situation where a group of twenty 13-year-old grade 8 students are cooperatively engaged in a problem-based learning project that they have chosen for their "Soils" class, say, on how to prevent bank erosion in a stream that runs through their school's property. Sixty minutes into the class a bell goes off and the children drop what they are doing and happily move on to their next class, "Studies of Population." According to many in the environmental and holistic education movements, we have here a highly agreeable form of education. It is emergent—the children themselves have decided on a project that they are interested in; it is integrated—the classes are "Soils" and "Population" rather than Math, Science, and Art (but would include elements of all of these); it employs critical thinking skills—they are solving a distinct problem; and it is cooperative in that they are working on this issue as a group. But now consider how little this scenario actually varies from the model of schooling outlined earlier, and it becomes obvious that mechanism continues to influence it heavily: Groups of 20 same-age peers are artificially lumped together and cut off from other community members, of all ages; even though it is highly integrated, having a class on soils reflects reality about as much as a class in math or English; learning is still confined to a distinct school site, and not situated in or spread throughout the entire community; and, perhaps most damning of all, the school day is still governed by the school bell—the enemy of unhindered, self-determined, and self-directed investigation everywhere. And yet this would count as a model of education that many in the environmental education movement recommend moving towards.

We have stuck so far to a discussion of the form of schooling in this piece and have not dwelt on its function. Space limits a lengthy discussion of this topic here, however it deserves to be noted that if the function of schooling is primarily economic, then the model that we have discussed in this piece is entirely appropriate. The economic rationale of schooling that Aronowitz and Giroux (1993) are referring to when they suggest that schools treat students as "future participants in the industrial-military order," and that schools are "merely training sites for occupational positions in the corporate order" (p. 220), is highly mechanistic in that it is esteemed above and beyond other possible purposes of education. To concentrate on an economic rationale while denying an ecological one smacks of mechanism; it is to attempt to separate the inseparable. Ultimately I think a key question here is: if our economic system is one that views the earth as "exploitable for profits" (Merchant, 1992, p. 42) and has, in effect, wrought the ecological crisis that we face, and indeed continues to cause this crisis to worsen, then by educating students to fit into this system, are we not preparing them for a system that we know is broken?

How is this mechanism to be addressed? How can schools begin to work towards producing students more capable of ecological thought? Previous attempts to have schooling address the environmental crisis have included

the introduction of this issue into the curriculum, usually within the realm of the sciences. It should be obvious at this point why this approach has not been, and cannot be successful. It is a mechanistic solution that saw this subject fit into the existing dominant model of schooling and that demanded no transformation. As Berry (1999) has written:

> The difficulty cannot be resolved simply by establishing a course or a program in ecology, for ecology is not a course or a program. Rather it is the foundation of all courses, all programs, and all professions because ecology is a functional cosmology. Ecology is not a part of medicine; medicine is an extension of ecology. Ecology is not a part of law; law is an extension of ecology. So too, in their own way, the same can be said of economics and even the humanities. (p. 84)

We need to look beyond these piecemeal, "band-aid" solutions. Clearly, change on a larger scale is required.

A movement that stands apart from formal schooling, and in many ways is diametrically opposed to it, and one that could be a powerful ally here is the deschooling movement. As Weston has observed in this journal (1996), little connection has been made to date between the deschooling and environmental education movements. Environmental education is struggling for legitimacy in schooling, but continues to be interpreted as an extreme, or fringe, special-interest field. Deschoolers, on the other hand, are also seen as a fringe group in that they are fighting against schooling as a whole. But these two movements have much to offer each other, and it is odd that this relationship has yet to be developed. (I imagine this is because one group is trying to work itself into the schooling model, and the other is working to get away from it.) They would both be, for example, committed to an education that finds people outdoors more often, and should both be, for the reasons outlined in this paper, opposed to the mechanism inherent in schooling as we know it. It is precisely the (potential) lack of structure inherent in the deschooling approach, and the possibility of a limitless number of individual approaches to education that is of interest to us here. The mechanism in a mandated system cannot hold sway over an individual who creates an alternative to this system. With less required structure, we will likely find that mechanism enjoys less of a hold.

More specifically, what practices are possible with deschooling that the schooling model can learn from if it seeks to weaken the role played by mechanism? First off, and most notably, deschooling offers the potential for a high dosage of experiential outdoor education—education, unlike our schooling model, that puts people in regular and intimate contact with the natural world and would allow them to more easily witness, and act in accord with the principles of ecology. As Orr (1994) puts it, "I am proposing a jail break that would put learners of all ages outdoors more often" (p. 52). After all, "we are not likely to fight to save what we do not love" (p. 46), and we will not love what we do not know. Indeed, deschooling allows for learning experiences that are

spread across the community, including both the natural and built environments. People, using this model, have the opportunity to learn in a variety of "real-life" situations, rather than be cloistered in a highly constructed, regimented environment. Deschooling improves on the practice of integration in that, rather than study a "reality-based" theme using a conglomerate of separate disciplines, there is no difference between what students are learning and the world beyond this schooling. This approach also allows for the creation of opportunities to interact with a variety of community members—people of different ages, of different cultural backgrounds, of different socio-economic classes—that a student may never encounter through traditional schooling due to the number of other competing pressures. Finally, and this is key, deschooling creates an opportunity for self-directed learning and so strips certain establishments of the ability to consciously or unconsciously promote a specific worldview.

Schools, as we know them, can be understood as castles built on sand. As impressive as they are, these stalwart and timeworn bastions are built on shaky foundations and may not be much help in facing the challenges of the future. But this is not a piece entirely against the idea of schools. I do not think deschooling alone is the answer, just as any one solution alone cannot be the answer. Rather, I am suggesting that because schooling tends to be defined by mechanism, and deschooling offers some potential insight into ways around this mechanism, our schooling model would do well to pay attention to the deschooling movement and glean what it can in order to strengthen itself. It is time to ask, what could a "deschooled school system" look like? How could such a system improve schooling? How might it strengthen environmental education in particular, and what would its limitations be? The task ahead in terms of reforming schools in this manner is immense. But if the best we can do is tinker around with first-order changes to the system, then we run the risk, to borrow from Fullan (1991) again, of simply getting "better at a bad game" (p. 347).

Notes on Contributor

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