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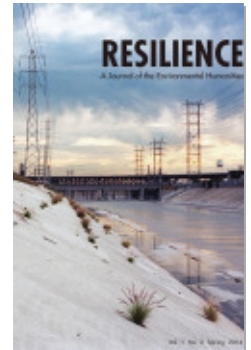
Educable Futures?: Managing Epistemological Uncertainties in Sustainability Education

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Educable Futures?

Managing Epistemological Uncertainties in
Sustainability Education

HANNA SJÖGREN

In times when phenomena such as climate change, environmental degradation, increasing inequalities, weather extremes, and rapid and uncontrollable spread of toxic chemicals become apparent to many of us, education can be understood as an important means to create new paths, and to make future knowledge practices more sustainable. As an illustrative example, the United Nations Educational, Scientific and Cultural Organization (UNESCO) is currently heading the Decade of Education for Sustainable Development (2005–2014), which aims to implement education for sustainable development on a global scale in all levels of education. In this way, education for more sustainable futures has become an important global matter of concern.

However, it still remains a challenge to think about how and in which ways education for more sustainable futures would work. Which futures are we to imagine and create through education? Who is educable in and for such futures? And which challenges to *knowing* are addressed through these matters of concerns? I suggest that some of the matters of concerns in education today demand a recognition of the educable subject—and more precisely subjectivity—that goes beyond an anthropocentric focus on humans and human activities for more sustainable paths. As a consequence of this demand, educational practices need to address sustainability issues by acknowledging the possibility of embracing positions of both knowing and unknowing which move us away from anthropocentric notions of subjectivity. My argument is in-

formed by feminist materialist scholars such as Stacy Alaimo and Rosi Braidotti who, in different ways, argue for the importance of rethinking the notion of the knowing subject within an epistemological framework that takes into account the complexities of our time.¹ Following an introduction of the educational-political context of this paper and the problem of epistemological challenges in the case of climate change, I present some key insights of posthuman critical theory, and relate these specifically to education, and discuss what it might mean to know in a posthuman sense in relation to sustainability education. In addressing many emerging questions that shape our common futures, I discuss the tension between *unknowability and the mutual necessity of knowing*, and how this tension might be both useful and potentially dangerous for education.

Teaching in a Transforming Educational-Political Landscape

Climate change has been a part of the formal political agenda in Sweden since 1960, and climate change deniers have had almost no impact on the dominant political discourse. There is a broad political consensus about finding solutions to the current overconsumption of carbon dioxide emissions, although the suggested solutions differ among various political actors.²

The Swedish educational system has recently been reformed by the current liberal-conservative government through the introduction of a new curriculum, a new School Act, as well as a renewed teacher education program, to name just a few of the reforms. The new Swedish curriculum emphasizes environmental sustainability, whereas the new teacher education reform hardly mentions it.³ In light of this somewhat paradoxical governance of sustainability education, I have interviewed focus groups of teacher instructors (faculty and staff involved in the initial teacher education at Swedish universities) about how they deal with sustainability while teaching in this transforming educational-political landscape. The interviews were conducted at eight different universities in Sweden with teaching faculty from a variety of disciplines and subject areas, all instructing the next generations of Swedish teachers at all educational levels. Throughout the interviews, many participants brought up the difficulty of countering some students' claims in the classrooms that climate change research and output is based on myths,

lies, and uncertainties. This conundrum poses an epistemological challenge in teacher education.

Epistemological Challenges in a Time of Environmental Distress

What has sustainability education become and what should it become in a time of environmental distress where scientific knowledge practices are interwoven with popular culture, new technologies, and educational discourses in complex ways? Climate change is often addressed under the umbrella term of sustainability. It is a multilayered, material-semiotic object that pulls together, and changes with, assemblages of discourses, material worlds, humans, nonhumans, and various knowledge practices in our society. Thus climate change is one example of how science has occurred as an intertwined social-material practice. As an epistemological and a political concern, it becomes a target for questions and doubts. Below is an excerpt from one of the focus groups, in which a group of teacher instructors from different academic disciplines discuss a dilemma that they have encountered when teaching sustainability in the teacher education:

Goran: The problem is that with some issues there is some critique based on prejudices and unjust arguments, but if it's been reported by mass media we're expected to handle it in some way, to reflect it [in our teaching]. For example in the debate on climate change, there have been many unjust arguments. From the so-called climate change deniers, who I find to be irrelevant, because these are not scientific arguments but arguments which are taken up by mass media, so I find it hard to account for such perspectives.

Gert: Yes, you don't want to present arguments from the oil industry. [*Laughs.*]

Goran: Yes.

Gert: Such arguments you don't want to account for.

The teacher instructors claimed that rejections of climate change had reached the students mostly through mass media, and that they themselves as instructors felt pressure to treat these perspectives as somehow

equal to those of scientific findings. The students indirectly referred to in this example seemed to be using the popular notion of the limits to science in order to question whether climate change was a reality. The unease expressed by the teacher instructors shows that the students' doubts presented a difficulty—how to handle the students' denials of scientific claims to truth. The teacher instructors are facing a problem of epistemological uncertainty that they somehow have to deal with. This uncertainty makes it unclear what it is to know in relation to a complex issue such as climate change. If the knowledge practices we rely on to proclaim sustainability are uncertain to some extent, how are we to convince students of the importance of this issue? David, another teacher I met in one of the focus groups, expressed a similar dilemma when his students asked him about the truth of climate change:

David: It [sustainability] sounds like something static, but it's actually a process that is happening, which often disappears in the course readings, so it's a challenge for the teacher to raise knowledge. But still many students ask, "But what is the truth, then?" But there is no truth in relation to climate change, it's what our knowledge says today; I can guarantee that in three or two years, when the next report is released, then nothing I said two years ago will be the same. . . . Take climate change that is so up-to-date—what does science say and what does mass media say? And there I think the students are fifty-fifty or something: some believe, and some don't want to believe in what science is convinced of, so it's a challenge for us teachers to try—I don't know—to break it down on a basic level, and then to bring up this question: What are the believers saying and what are the deniers saying?

David points out a number of challenges connected to unstable and uncertain knowledge practices. David's explanation of the role of unreachable truths in relation to climate change points to the problematic question of what it means to actually know something in a time of environmental distress. Claims to both knowing and not knowing have, and will continue to have, effects on all of us on this planet. Not believing in climate change both reinstates an idea of a superior humanity and denies that the human species affects processes in the environment. This position is potentially devastating for both humans and nonhumans.

Despite the necessity for recognizing our current ecological situation, it is crucial to address and acknowledge the limits of science and

the incalculability of the future. However, scientific findings are both helpful and necessary in order to face the current ecological crisis.⁴ The tension between unknowability and the mutual necessity of knowing is exemplified by David's experience. The tension itself can be seen as crucial for education dealing with sustainability. Therefore the tension between knowing and not knowing needs to be addressed and managed in order to tackle the many emerging questions that shape our common futures. Rethinking subjectivity in sustainability education might embrace more inclusive ways of knowing.

In Search for More Inclusive Subjectivities

To find more inclusive notions of subjectivity where human and non-human bodies are entangled with the stuff of the world, and to fully account for the risks and dangers that our knowledge practices produce, scientific methods are crucial but insufficient.⁵ Stacy Alaimo argues that it is necessary to understand that human and nonhuman bodies are *transcorporeal*, that is, interconnected through flows of chemicals and other “stuff” that can never be separated or considered other to those bodies. Alaimo writes that there is an unknowability to what is happening in the world, yet there is no option not to care for this unknowability in which human subjectivity is always limited, entangled, and distributed. What could the recognition of the loss of control do to education? Living with uncertainties puts teaching and education in a different light. We certainly need to find ways to practice and produce knowledges that recognize that knowing is always entangled with the very stuff of the world. Education is often seen as a means for raising and disciplining a future in which anthropocentric subjectivity—the accountable and educable subject—is in focus.⁶ The educable subject responsible for more sustainable futures needs to be rethought in light of theories of entangled humans and nonhumans. Our knowledge practices demand a recognition of knowing and not knowing, as well as a recognition that every knowledge practice is dependent on various nonhumans. This affects how we can understand the aims and objectives of education. I suggest that educational theory and practices of teacher education need to be further informed by theories that seek to challenge the seemingly sharp distinctions between nature and culture, knowing and unknowing, and theory and practices.

Education beyond Anthropocentrism

Issues raised under the umbrella term sustainable development invoke both promises and threats to unknown futures that entangled human and nonhumans are a part of. It becomes clear that nonhumans must be recognized in sustainability education:

Gisela: We mustn't forget that it's both the humans and the nature that will determine our future.

Gert: Yes, I think like this sometimes; I have said to the students a few times that we actually believe that we're omnipotent and we believe in ourselves way too much; we believe, for example, that we're able to extinguish all life on earth, but I actually don't think that's possible—there are way too many life forms that don't exist exactly the same way we do that always will have a chance to survive even if we kill everything living, such as sulfur fixing and [*laughs*] a number of strange [things].

As we can see in this exchange, it is crucial to find ways of understanding entangled environmental processes. This might be necessary for the survival of humans as well as their various companions—be they non-human animals, bacteria, or trees. To understand human-nonhuman relations in educational practices, which theories do we need? Cary Wolfe defines posthumanism as opposing “the fantasies of disembodiment and autonomy inherited from humanism itself.”⁷ As Wolfe points out, the human—too—is a creature “that has coevolved with various forms of technicity and materiality, forms that are radically ‘non-human’ and yet have nevertheless made the human what it is.”⁸

To avoid anthropocentric assumptions of education requires challenging the trajectory of modern Western knowledge production, in which nature and culture have long been divided and considered each other's opposite. Either nature has been seen as a cultural construct, or culture has been seen as driven by the forces of nature.⁹ Challenging this division implies a focus on nature-culture continuums with an opening for the inclusion of nonhuman dimensions such as the environment and other natural forces.¹⁰ The challenges faced by teacher instructors in sustainability education demand the recognition of subjectivity and responsibility that go beyond a sole focus on human agency. Rosi Braidotti provides this example of how the subject can be rethought:

“The new knowing subject is a complex assemblage of human and non-human, planetary and cosmic, given and manufactured, which requires major re-adjustments in our ways of thinking.”¹¹

It is productive to think of subjectivity and knowledge in education in terms that transcend the divide between humans and nonhumans. As poststructuralist and posthumanist encounters suggest, the idea of the subject can never be seen as an isolated or static entity. To understand who counts as a subject, we need to see subjectivity differently from the modern liberal construction of an autonomous individual. Subjectivity is not something someone can have; it should be seen as produced in different relations. To see subjectivity in a posthuman sense implies that the subject cannot be understood as limited to humans, nonhumans, or the environment. Jane Bennett offers a theory that focuses on the agency of assemblages of humans and nonhumans, and she challenges the idea of political agency and subjectivity as solely human affairs.¹² We need to see both teaching and knowing subjects in education as relational—in between nature, culture, technology, human, nonhuman, and the environment. This is a tremendous challenge worthy of the teaching profession marked by the necessity of managing uncertainties. Deborah Britzman writes that for teacher education to matter for future teachers, the teacher instructors need to be “taking responsibility for the discomfiting fact of our dependency on the unknown.”¹³

In the context of sustainability, the issue of more inclusive subjectivities points to the question of *who* should achieve a sustainable development. When subjectivity cannot be understood as something someone can *have*, the issue of responsibility becomes complicated.¹⁴ To think about these issues in more complex terms goes against conventional ways of imagining education in which humans are always at the center.¹⁵ It is essential to think of sustainability as an assemblage that is transformed through relations of knowing and unknowing where non-humans and natural forces are always part of what can be known.

Educable Futures in a Posthuman Time

Education is said to be a crucial arena for the future of the human species. Questions of who can and should be part of the future are highly political. As discussed by Jane Bennett, we need new ways of thinking about politics that move us away from the idea that humans act upon passive objects. It might seem desirable to think of politics in anthropo-

centric ways when our survival is at stake.¹⁶ However, Bennett's posthuman political project seeks to decenter the human subject in political theory, and her effort deserves attention also within education. Bennett does not give up on democratic projects that prioritize human well-being: "the political goal . . . is not . . . perfect equality . . . but a polity with more channels of communication between members."¹⁷ Thus her attempt to understand and develop political thought that includes nonhuman forces is far from an anthropocentric approach. Her theory is an acknowledgment that many things might be hard for us to grasp, even though they always matter. As Karen Barad has noted, practices of knowing cannot ever "fully be claimed as human practices."¹⁸ Acknowledging that our knowledge practices are dependent on nonhumans opens up the question of what it is to know in education and teaching.

Unknowing as a Mode of Knowing

Inspired by the philosophy of Emmanuel Levinas, Sharon Todd argues that there is a significant difference between knowing *about* the Other and knowing *from* the Other.¹⁹ Knowing about the Other represents a colonizing notion of embracing the Other by erasing difference. Knowledge can not be seen as a basis for a sustainable and ethical relation to the Other. Instead, "ethics might be considered in terms of those *moments of relationality that resist codification*."²⁰ Resisting codification—that is, refusing the attempts to classify, categorize, or universalize the Other—can be interpreted as the ethical possibility of unknowing.

By proposing a pedagogy of unknowing, Michalinos Zembylas suggests that unknowing would mean the necessity of "giving up our position as knowers."²¹ He claims that unknowing has always been neglected in favor of rationality and knowing. In our current neoliberal state of educational politics and practices, the quests for standards, measurements, grades, and control move us further away from embracing unknowability. A pedagogy of unknowing does not claim to know about the Other, but acknowledges unknowability in relation to the Other.

Zembylas's and Todd's proposals are useful when thinking about sustainability and education together, because they highlight the value of acknowledging unknowability in education. Unknowability represents a humble understanding that no human practice can ever be said to be only human. Not knowing does not mean ignoring or neglecting the Other, but rather acknowledging the importance of ethical relationships

to what we will never be able to fully know. It is perhaps these kinds of modest epistemological claims that should guide sustainability literacy in education. Acknowledging unknowing as an important part of different modes of knowledges might be crucial to developing respectful and humble relations to various others in sustainability education. This makes antiscientific knowledge claims about climate change difficult, because such claims rest on an idea of clear and maintained separations between humans and nonhumans. Scientific knowledge production engages with the nonhuman world, and every scientific claim involves a modest mode of unknowability. Unknowing is therefore always part of knowing.

A concrete example of the mutual aspects of knowing and unknowing can be glimpsed in the exchange below:

Didrik: But how is it, David, that there are still chunks of ice cut from our North and South [poles]? There seems to be a complete silence, one doesn't hear a thing, how much ice is left then?

David: Hey, you, we have to wait until September.

Didrik: Is that when you receive a new report?

David: That's when we can see the biggest loss.

Above, David and Didrik rely on scientific reports and seasonal changes to grasp the development of the melting polar ice that affects the ways in which they can know climate change. What becomes clear in this example is that the transcorporeality of human and nonhuman lives create entanglements of knowing and unknowing. These entanglements show how knowledge constantly changes and shifts in relations that make humans, ice masses, and scientific instruments inseparable. Didrik's question about the public silence regarding recent developments concerning the ice caps clearly shows the entanglements of scientific knowledge with other modes of knowing. Knowledge about climate change through scientific measurements and reports is important, but it also includes uncertainties. Addressing the issue of unknowing in this case has the potential of opening up the question of what it means to be environmentally and scientifically literate. More ethical positions might emerge from the insight that knowledge is always mediated, situated, and partial. Rather than an undermining factor that discredits the very

knowledge at hand, unknowability is an important part of every knowledge practice.

Unknowability and Ethics

If sustainability education becomes equal to unknowability, however, we might actually face a double-edged sword. If we look again at the focus group conversations above, the teacher instructors say that they felt trapped in an educational discourse in which they needed to address and account for antiscientific claims.

The teacher instructors stated that their students seemed to have a mandate for questioning that climate change, for instance, was a serious matter in education. The notion of a pedagogy of unknowing is therefore far from innocent. It might be used to further a relativist agenda in education, where it would become impossible to make ethical claims about the relationships we are a part of in the entangled worlds of sustainable presents and futures. With an argument for unknowing I wish to move away from precisely these kinds of relativist, nihilist arguments that the teacher instructors find difficult to handle. Such relativist, antiscientific claims depart from an anthropocentric point of view in which the health and survival of nonhumans are ignored. Unknowability is a possibility, but, it is not a possibility without risk. Teacher instructors Lisbeth and Lisa discuss the importance of not becoming paralyzed by the complexity of sustainability:

Lisbeth: I think teaching is about seeing complexity and then handling this in some way. If one only deals with the complex, one becomes paralyzed.

Lisa: Yes.

Lisbeth: There is no point in doing something if everything is complicated, but you have to dig in before finding something which can be an acceptable solution for me as a person. That doesn't mean that I deny complexities, but I believe one has to. . . . I can't just leave the students in a state of thinking, "Oh, this is so complex."

To counter the fear of being paralyzed, it is crucial to turn to posthuman encounters of entangled subjectivities, where the idea of unknowing might make possible a pedagogy of mutual knowing and unknow-

ing without favoring one over the other. The complexities of our time demand the hard work of refusing binary positions and avoiding simplistic stories and single positions.²² This ambition can be met with creativity and hope. Braidotti is hopeful when she writes that she sees the posthuman turn “as an amazing opportunity to decide together what and who we are capable of becoming, and a unique opportunity for humanity to reinvent itself affirmatively, through creativity and empowering ethical relations.”²³

Jane Bennett states that we cannot know for certain what is wrong or right, and ethical considerations need to be situated, rather than universalized.²⁴ Situated ethics have also been suggested by feminist philosophers of education.²⁵ It is necessary to understand that there are never any win-win situations, as much as it is necessary to understand that human well-being is always dependent on and entangled with the well-being of forces, things, and creatures other than human.²⁶ My argument for knowing-unknowing is therefore ethical. We should embrace both knowing and unknowing in education in order to be able to think and act for more sustainable futures. Relations beyond the human species need to play a greater role in education, through both micro-politics and everyday practices. I hope that these more inclusive yet risky positions could open up for more ethical considerations regarding what it is to know in a posthuman sense.

Conclusion

I have discussed the broad question of what sustainability education becomes and should become in a time of environmental distress. The practices of managing sustainability issues in education, and more specifically climate change, are far more complex than either/or practices. In times of epistemological uncertainties—when scientific models can be questioned, tomorrow is unknown, and futures dubious—science and other knowledge practices are still necessary. The necessity of mutual knowing and unknowing challenges conventional educational agendas of disciplining and raising the future, while also creating new possibilities of what it might mean to be human. This leads to a necessary recognition of the loss of (human) control in many practices that have traditionally been understood from an anthropocentric point of view. By embracing that *knowing always also means not to know*, educa-

tional researchers and practitioners can begin to acknowledge that educational objectives, practices, and theories are always already tied up with other-than-human forces, things, and creatures.

Herein I have dealt with sustainability education within the Swedish educational-political context. I want to stress that my argument is geopolitically situated in Sweden, and it should not be mistaken for a universal claim. However, I maintain that knowing-unknowing can be equally useful in other educational contexts when discussing the limits and the possibilities of knowledge practices to learn about issues such as climate change.

Returning to the teacher instructors who discussed the difficulty of countering some students' claims that climate change research and output are based on uncertainties, myths, and lies, I have argued that working with posthuman critical theory in education is helpful in managing epistemological uncertainties in sustainability education. This also challenges an anthropocentric focus in much of today's education. The only thing we seem to know for certain is that we need to deal with these issues. We will never be able to fully understand and control the processes that surround us, and by acknowledging it we can open up to questions about what it means to know in a posthuman sense.

ABOUT THE AUTHOR

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NOTES

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