



Learning Frameworks

Ethical Deliberation and Decision-Making in Socio-Ecological Systems Framework

Why is engaging in ethical deliberation and decision-making in socio-ecological phenomena important?

Human communities have always made socio-ecological decisions. From choices about what to eat, where to live, how to get around, to whether water is safe to drink, amongst many others. These choices are shaped by our values and cultural practices and fundamentally reflect what we call *construals of nature-culture relations*. Nature-cultural relations are the ways human communities construct their ways of thinking and being (everyday, institutional, legal, etc.) with the natural world. Importantly, these relational construals have changed over time for different communities, and are often shaped by the technologies and uses of energy that have become central to human life in some parts of the world. Since the industrial revolution there has been global scale change to practices of extraction and large scale agriculture, amongst other things. These changes significantly impact nature-culture relations in many places in the world, but are having heightened impacts in what is known as “climate change hotspots”. These changes have a pronounced correlation with the development of nation-states, capitalism and the histories and power dynamics that created them - and continue to.

These factors have led us to an unprecedented time in human history—what has been named the Anthropocene. The Anthropocene is a new geological era in which human activity is fundamentally reshaping earth processes—and unfortunately in ways that are having devastating and cascading effects for the social and ecological arrangements of life on earth. However, these impacts are heavily mediated by powered differences across history. For example, many climate change hotspots are not places or communities that are reflective of the technologies or societal structure and uses of energy that created the Anthropocene. While humans have entered this era perhaps unintentionally through development, inventions, and a range of other factors, there are many critically important lessons to be learned. A key skill for coming generations will be to engage in forms of sensemaking, deliberation and decision-making about social-ecological systems that can hold the complexity of the challenges and possibilities in front of us to restore and develop just and sustainable nature-culture relations that support our collective adaptive capacities in the changing earth.

This is an incredibly complicated space. This framework is intended to help support educators, learners, and their families develop important ways of thinking about –or deliberating–and making socio-ecological decisions. The dimensions are reflective of not only child development and learning but also the current state of decision-making in science as well as recognizing how power and historicity are always at play. It is important that learners are supported to develop resilient capacities to live thriving and healthful lives in the face of uncertainty, and at the same time prepare them to be knowledgeable, skilled and powerful actors and leaders in the world. We cannot hand them only damaged earth stories. Incorporating learners’ lived experiences and ways of knowing, as well as creating opportunities for them to ask questions and make decisions, positions them as change-makers with the agency to affect the places and communities that are important to them.

How to use this framework

Learner Sense-Making: Use this framework to design learning activities that purposefully scaffold learners' sensemaking across key dimensions of socio-ecological sense-making, deliberation and decision-making.

Collaborative Practice: Use this framework to support field-based science practices and seasonal summit sharing that help learners communicate about their deliberations with their peers and families by presenting questions, evidence, and decision-making.

Planning and Implementation: Use this framework to guide your planning, implementation, and reflection of your own practice. Consider the types of sense-making that you plan for, or have made space for, in your learning environments (indoor or outdoor), and whether it includes engaging learners in authentically deliberating about decisions regarding socio-ecological systems.

Educator Reflection: Use this framework to reflect on your own decision-making, the values that guide it, and your relationships with socioecological systems.. How do these shape your relationships in place and science? How do your own values, identity, and history shape your perceptions along the key dimensions? For example, how does your own knowledge base and positioning impact what you view as viable socio-ecological options? How do your experiences, values, and knowledge base shape your instruction and interaction with learners and families? Consider your own thinking with respect to socio-ecological deliberation and decision making.

Co-Design and Assessment: Use this framework to reflect on how the design of your lessons and assessments supports socio-ecological deliberation and decision-making.

Connections to expert thinking:

Scientists constantly navigate ethical deliberations when starting, engaging, and sharing research. Their values, the values of the scientific community more broadly, and the impacts to and from local communities are (or should be!) central to conducting studies. How the research is disseminated, and the implications of their findings, can have profound impacts on policies and institutions on a large scale. Field-based scientific research is no exception. For example, consider a scientist studying migratory bird populations. In order to track bird migration, she may have to conduct research in remote areas where the values and ethics of different (human) communities may differ from the scientist's. This may impact or inform the type of research that the scientist will conduct. More importantly, the scientist, and the scientific community more broadly, have a moral responsibility to work with communities to incorporate multiple perspectives on research strategies and implications for policy and planning.

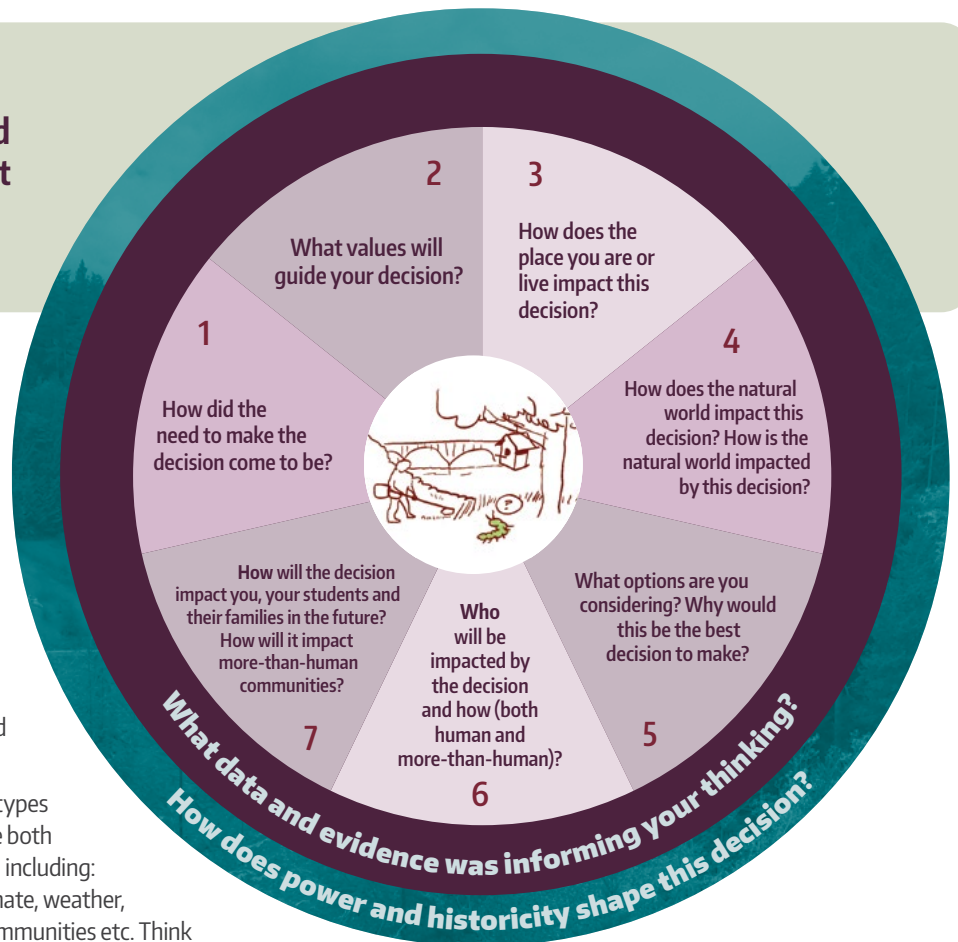


7 Dimensions of Ethical Deliberation and Decision-Making Framework about Socio-Ecological Phenomena

The socio-ecological deliberation and decision-making framework involves sensemaking across seven dimensions. These dimensions include making sense of both human and more-than-human values, needs, and behaviors across multiple temporal and spatial scales. Further, both implicitly and explicitly, deliberating about power and historicity are foundational across the dimensions. Importantly, the framework guides learners towards designing actions or making decisions for making change in adaptive and resilient ways. This is an important aspect of ethically engaging learners in the grand challenges and opportunities of our times.

Use the following framework to help you, your learners, and their families deliberate about a “Should We” question or a big decision.

1. Think about the social and/or ecological factors or events that led to this “Should We” question - the socio-ecological histories of place (See Questions framework and socio-ecological histories of place framework). Why is this decision important for you, your learners, and their families?
2. All decisions are guided by our values. Think about what is important to you, your learners, and their families and communities. How do these values guide deliberations, and ultimately decisions?
3. The place in which we are/live impacts what types of decisions we can make. “Place” can include both social and ecological structures and systems, including: infrastructure, population, communities, climate, weather, land and water forms, more-than-human communities etc. Think about the affordances and constraints of the place you are in related to your wonderings and questions.
4. As you begin to identify possible decisions to help answer your questions, think about how this connects to the natural world. Impacts to/from the natural world can include factors such as: accessibility, fuel/energy consumption, relationships with more-than-humans, and many others.
5. Careful consideration of multiple perspectives is the essence of deliberation. This may be a long process that unfolds as you gather more data, talk with other learners and family members, or conduct community-based research or field-based investigations.
6. Socio-ecological decisions impact human and more-than-human communities. Think about the different social and ecological communities that are related to the questions you are asking and investigating, and how the decisions will impact them.



7. Some impacts may be more obvious than others. For example, there may be some immediate (“primary”) impacts that are easy to identify. There may also be “secondary”, “tertiary” or other cascading effects that take more time to see and understand. It is important to consider the different layers in deliberations and decisions.

There are many different ways to engage with **data and evidence**. Not all evidence is the same. Making sure to engage with multiple forms of data and evidence is important. Our storylines ask you to collect data with both people and the natural world.

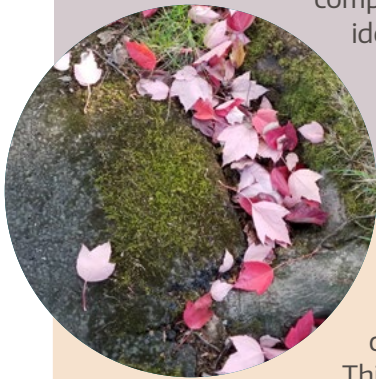
Ethical decision making requires that we must all carefully consider how **powered dynamics and historicity** shape socio-ecological phenomena as well as our decisions, and the impacts our decisions will have for different peoples and places. Decision making that fails to this enables the perpetuation of unjust systems.

Connections to the Learning in Places Rhizome:

Complex Socio-Ecological Systems: Complex socio-ecological systems refer to the interactions between human systems and ecological systems. These systems can also be thought of as factors and relations - including natural, socioeconomic, and cultural factors - whose flows and uses are shaped and regulated by a combination of ecological and social systems. The underlying premise is that humans are part of the natural world, and all of our systems (e.g. social, political, institutional) are always in relationship with ecological systems. Research has shown that cultural variations in worldviews impact how people deliberate and make decisions about socio-ecological systems.



Nature-Culture Relations: Deliberating and making decisions regarding complex socio-ecological phenomena is impacted by family and cultural knowledges and practices. There is evidence that when people reason about humans as part of the natural world, they are more likely to attend to complexity. Learners must have opportunities to think about how the various facets of their identities, cultural practices, and community values intersect with ecological systems in ways that are relevant to them as well as to others. These considerations must be central in making decisions for just, sustainable, and thriving socio-ecological futures.



Field-Based Science Learning: Emerging research demonstrates that there is cultural variation in the coordination of attention in observation practices, and this variation could serve as a resource for more equitable and expansive field-based science learning. This suggests that learning outdoors in places that matter for learners and their families, that is, in complex socio-ecological systems, enhance reasoning and decision-making.

Power and Historicity: Making ethical decisions about socio-ecological phenomena are political, contested, and intimately linked with cultural histories, relationships, and ways of knowing and being in the world. Supporting learners in ethical deliberation practices, such as perspective taking and reasoning through contradictory histories of places, allow for multiple and diverse stories to be told, honored, and incorporated in science learning. Considering multiple perspectives and possibilities is critical in order for learners to understand the powered and historical layers of social and ecological systems, and opens the space to engage in creating sustainable and just futures.



Appendices

The following appendices provide examples and other supports to help educators use and then deepen their use of the Ethical Deliberation and Decision-Making Framework over time. Appendix A is a vignette that showcases one example of how an educator used this framework in a kindergarten class. Appendix B provides an example of learner sense-making related to socio-ecological deliberation and decision-making. Appendix C provides example prompts, questions, and scaffolds that educators can use to support learners' deliberation and decision-making about socio-ecological phenomena that incorporate multiple ways of knowing and doing. Appendix D is a self-assessment that educators can use to reflect on their thinking over time about socio-ecological deliberation and decision-making and their use of these ideas in instruction.

APPENDIX A

Vignette: Ms. Bryant

PLANNING FOR INSTRUCTION:

Ms. Bryant, a white educator teaching in a spanish immersion kindergarten class, has engaged her learners and their families in a set of wondering walks and wondering walls and has noticed that they are interested in the leaves falling. At the same time they have noticed that, during the fall, there is someone outside of their classroom blowing the leaves off of the courtyard with a leaf blower. Ms. Bryant invited families to also take these kinds of walks in their neighborhoods, and he noticed that many families took note of the “p-patch” community garden and noticed that it looked like many people had deliberately covered their garden plots with a layer of leaves. Ms. Bryant decides that this would be a great opportunity to explore with her learners some questions about whether they should clear the leaves off of the ground or leave them to cover the ground during the fall and winter. She thinks about who the learners could talk to in the community about this question. The landscaper who blows the leaves from her classroom’s courtyard and maybe someone who gardens in the p-patch come to mind. She looks at some data collection protocols on the internet and also in her Earth Science kit and sees that her class can do some soil investigations to possibly understand the effect of leaf covering on the soil. She also looks information up on the internet about leaf litter and is pleased to see that different sources disagree on whether it is better to rake leaves or not. This means that there will be rich deliberation about this issue amongst her learners and hopefully their families.

LAUNCHING INSTRUCTION:

Ms. Bryant decides to launch the day’s lesson with a review of the focused wonderings from both class and family walks. While there are many wonderings that the class and families recorded, she chooses to highlight the wonderings about leaves falling, the observations from families about the community garden, and the observations and wonderings from the class about Jose, the landscaper who blows the leaves from the courtyard. She says, “look at all of the ways that we were wondering about the leaves. LaShawn’s group wondered about why they fall, Mimi’s group wondered about what Jose does with the leaves when he takes them away, and Ngi’s family wondered about why some garden plots in the p-patch down the street were covered with a blanket of leaves. It seems like, as a class, we’re really interested in the leaves and some decisions we can make about leaves in the fall! Why don’t we spend some time thinking about that together?” She presents the “Should We” question, or a question that invites deliberation and decision-making: **“should we remove leaves or keep them on the ground?”** and explains to the class that they, along with their families, will be doing investigations outside, talking to people in their community, and doing some research in books and on the internet to explore this question.

The next week, Ms. Bryant sets up some interviews with community members. Jose, the person who works around the school grounds, tells them that leaves get slippery when it rains, and also they clog the storm drains around the school. He also says that if the leaves cover the grass, that will cause the grass to die because it can't get any light. Maria, who has a garden plot in the community p-patch, says that she covers her garden with leaves because it helps keep the garden moist, helps feed the critters who live in the soil, and also helps to keep the soil healthy by giving it nutrients as the leaves decompose. After these conversations, Ms. Bryant discusses the findings of these interviews with her class and asks what questions they have now. Miguel says, "It seems like they said two different things. It's good and bad to clear leaves." Penny says, "I wonder if the leaves really make the soil healthier?" As the class discusses, she organizes their wonderings into groupings that fall under "book research" or "field-based research". Ms. Bryant says, "I'm so glad you're thinking about what you heard from our interviews! I am excited that you are asking questions that we can investigate so that we can respond to Miguel's comment with some evidence from our investigations!" She ends the session by saying, "I bet your families would also give us some ideas about where to go next in exploring our question about whether or not to clear leaves. Let's ask them tonight and see what they say!" She hands out a family tool that encourages families to discuss what their children learned from the community interviews in class today and asks them, "what kinds of investigations do you think we can do together to help us explore the question of "should we clear leaves or leave them on the ground?"

CONNECTING TO FAMILY AND COMMUNITY KNOWLEDGE AND PRACTICES

The next day, as she gets the family tools back from learners, Ms. Bryant notices that families had all kinds of questions that the class could add to the list they generated yesterday. They ask questions about why leaves are important to the ecosystem, whether leaves ever hurt the soil if they are on the ground for too long, whether it matters how thick the blanket of leaves is, whether it is better to mix the leaves into the soil or just let them rest on top, and whether bugs, rats, or mice will be attracted if there are too many leaves around. Will our neighbors be annoyed if the leaves blow into their yard? Is there another good use for the leaves if they get taken away? She is so glad that she asked for families' questions, because they are more varied than what she would have come up with on her own! Also, she can see from this list of questions that there are a lot of aspects of this decision besides just soil health that they can be thinking about, such as attracting more rodents or bugs, considering the neighbors, and other uses for the leaves.

REFLECTING ON INSTRUCTION:

Upon reflecting on the beginning of her class's exploration of their "Should We" question, Ms. Bryant realizes that exploring "Should We" questions is complicated and also rich in opportunities for both community and field-based research. She realizes that there are many dimensions to consider when exploring a "Should We" question, including collecting evidence from field-based investigations, considering the multiple relationships within socio-ecological systems that could be affected, and what values drive all of our decisions. She also realizes that families are always considering a wider variety of aspects to questions than she could ever come up with on her own, and decides that they need to be an important part of how her class explores their question. Families' values will be an important aspect of how the class explores the "Should We" question. She reflects on how community interviews were a great way to help learners think about the multiple dimensions of their question, such as the impacts to/from multiple human and more-than-human communities, as well as natural systems. Additionally, Ms. Bryant also realized that she probably missed a good opportunity to talk about power and historicity with her learners as they talked to Jose and Maria. For example: Why do we have community gardens? Who are the people who are usually in positions such as Jose's and why do they think that is? Ms. Bryant decides that she will think more about how to introduce these topics while they are exploring their Should We question.

In this vignette, Ms. Bryant uses family and learner wonderings and observations both in the class and in the community to come up with the class's Should We question. She realizes that community interviews were a great way to get learners involved right away in exploring their Should We question and also thinking about the multiple dimensions of the decision. An extension of the community interviews was the family tool she sent home, that allowed her and the class a much more complex picture of the question they were asking. Finally, she differentiated between questions that learners asked that could lead to field-based investigations, and questions that could be answered by exploring books so that the class could decide on next steps.

APPENDIX D

Self-Assessment for Educators

Use the following self-assessment to reflect on the educational practices you currently use related to the Ethical Deliberation and Decision-Making Framework, and to identify those practices that you want to begin to use. Return to this self-assessment periodically to continue to reflect on your educational practices as a way to deepen them.

Dimension of Practice	I do this well!	I do this but want to get better.	I have not yet tried this.	If I have done this, what worked particularly well? What challenges did I encounter?	What supports might be helpful to me as I continue to deepen my practice?
I incorporate multiple perspectives - from learners, families, stakeholders, and communities - when deliberating about big questions or decisions with my learners.					
I consider who will be impacted (human and more-than-human communities) when deliberating about big questions or decisions with my learners.					
I think about how my values may differ from the values of learners and their families.					
I support learners and their families in incorporating their values in deliberations and decisions.					
I reflect on the role of place when deliberating about big questions or decisions with my learners.					
I consider impacts to and from the natural world when deliberating about big questions or decisions with my learners.					

self-assessment continued next page...

Dimension of Practice	I do this well!	I do this but want to get better.	I have not yet tried this.	If I have done this, what worked particularly well? What challenges did I encounter?	What supports might be helpful to me as I continue to deepen my practice?
I consider multiple options, and incorporate data and evidence from a variety of sources (including field-based investigations and research) before making a decision. I model this for learners.					
I support learners in imagining their futures, and the futures of more-than-human communities as part of socio-ecological systems.					
I build relationships with families and others in my local communities so we can collaboratively deliberate and make decisions about big questions or decisions.					
I research the histories of the places where we will be considering big questions and decisions.					
I recognize the role of my own power and position in decision-making and interactions with learners and their families.					

Suggested Citation

Learning in Places Collaborative. (2020). *Framework: Ethical Deliberation and Decision-Making in Socio-Ecological Systems*. Bothell, Seattle, WA & Evanston, IL: Learning in Places.