

Water-sharing experiment suggests people put their own survival first

July 8 2019, by Lori Bradford



Major ecological zones and cities in the Saskatchewan River Basin. Credit: Xiaolei Yu, The Spatial Initiative (TSI), University of Saskatchewan, open source data from the Government of Canada, USGS, and Esri Inc.

There's been talk lately about [empathy, its components and its general decline](#). A [decline in empathy](#) concerns me as an assistant professor in the University of Saskatchewan's School of Environment and Sustainability: I study [how people cope with water problems](#) or learn to share scarce resources, like water, gas, oil and energy.

In the last decade, [water](#) scientists have focused on modelling how much water is available, and where it is. Water management is a matter of life and death for people, species and even languages and cultures. Yet whether or not [real-world decision makers take up what scientists know about water scarcity and vulnerability depends not on the truth of findings](#)—but rather on how well we communicate and share them.

It isn't necessarily commonplace to look at how scientists' interactions with communities could help participants build [relationships with one another, and thus lead to social and political action](#). There is even less focus on how these interactions could be making matters worse.

The source of power

Enter the experimental decision laboratory (EDL). EDLs are [computerized games used to see how people would solve a problem if they were given decision-making powers](#).

As a [part of larger research](#) about [water security in the Prairie provinces of Canada](#), our team travelled around the Saskatchewan River Basin running EDLs on allocating water with water managers. The basin traverses the three Canadian provinces of Alberta, Saskatchewan and Manitoba, treaty and non-treaty territories of Indigenous groups, and the U.S. state of Montana. The Saskatchewan River Basin is home to three million people.

We held five different EDL events between January and April 2015 in

Canmore and Medicine Hat in Alberta, two in Saskatoon and one in the Northern Village of Cumberland House, Sask. Thirty-seven people participated who were water managers in municipal and [provincial governments](#), agriculture, [private industry](#) and in Indigenous communities.

We were interested in seeing how people allocated water in times of flood and drought, and whether taking part in the EDL affected the way the managers related to each other. We wondered whether we could build empathy around water resources through EDL activities.

With gaming, empathy decreased

Through asking participants to fill out a scale that measures empathy (the [Interpersonal Reactivity Index](#)), we found that, [surprisingly, most participants' reported levels of empathy decreased after the EDL.](#)

Things became complicated when we looked more closely at how the EDL influenced what researchers consider to be four different components of empathy. Empathy is made up of three "affective" (or feelings-based) components related to others' plights, plus a fourth component related to our abilities to see from new perspectives.

In our study, we saw that people reported having *less feelings* for others' needs for water after the EDL. They were more polarized, showing greater concern for their own plights and protection of their own water rights. This was true for agricultural water users, urban water users, government workers, people from private industry and four water officers who worked in Indigenous communities that participated.

Women reported changed perspectives

Notably, there was one group of individuals who reported having less feelings for others' needs, yet the way they looked at problems was enhanced. Among 16 non-Indigenous and two Indigenous women that took part, all their scores in "perspective taking" went up: the women believed that after playing the EDL game, they were better able to think about how they would be affected if flooded or if others starved them of needed water resources.



Participants in an experimental decision laboratory activity in Camrose, Alberta.
Credit: Graham Strickert, Author provided

Other interesting results were that water researchers thought they were a little bit better able to imagine what it would be like to be working on the land during water crises after the EDL. The small group of government workers who also participated reported having more feelings of compassion for those who lost out —yet, their overall empathy scores

went down too.

We also asked the participants about their EDL experience a week later in an open-ended survey. The survey results revealed that participants believed the EDL *increased* their abilities to empathize with others across the large river basin. They mentioned things like: "After being a water decision maker, and having to decide for other sectors, after, I felt more sympathetic to irrigation and industry."

And:

"I also didn't ever really understand how much upstream users affect downstream users."

So, why the difference in empathy between the Interpersonal Reactivity Index results around the EDL, and the reflection a week later? And why is a decrease in overall empathy seemingly brought on by the EDL?

Real acts of caring

First, there may be problems with the scale we used. Researchers have shown that [people will do what they can to reduce their own feelings of personal distress](#). They will convince themselves that their own plight is worse to protect themselves from guilt. This personal distress part of affective empathy may [actually measure protection of the self, not empathy](#).

Second, the EDL might not be very effective as an empathy-building tool. Autism researchers have shown that although screen-based games can help some people with autism to recognise facial features identifying others' feelings, the [real acts of caring that are expected when empathising with others can't be taught using a screen](#).

The computer-based EDL and the fictional consequences of allocation decisions made using it might not transfer to actual feelings for others or actions taken in response.

Need for interpersonal connections

We discovered that to improve water empathy in a holistic way, EDLs and other screen-based activities are not enough.

As researchers, we need to promote interpersonal connections. This matters so that stakeholders communicate with each other about real consequences of poor allocation decisions and work together on solutions.

The EDL was also designed as a game. Not much emphasis was put on real consequences of allocations. The EDL could be improved by adding narratives from people who have actually been affected and opportunities for participants to talk about their decisions.

Our work had limitations, including being a pilot study with a small group of water managers. For now, researchers should keep being imaginative, and not rely too much on screen-based activities to build [empathy](#) in resource-sharing contexts.

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