

# Culturally Disruptive Design | ITLS

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## Culturally Disruptive Design: USU researcher studies the importance of culture in children's learning technology



Dr. Breanne Litts

Breanne Litts had an "academic crisis" when her research excluded Indigenous storytelling, but this didn't stop her from building technology for children to learn together.

Litts, a UW alum and assistant professor at Utah State University (USU), spoke at the [UW Design Use Build \(DUB\)](#) seminar on how educational technology can be more culturally inclusive. In her research, she has worked with Indigenous organizations to understand how people learn in cross-cultural contexts.

For more than 10 years, Litt developed a tool called "Augmented Reality Interactive Storytelling" (ARIS) that was tested with students of varying age groups. The goal of ARIS is to enable "place-based storytelling," which empowers children to tell stories in different locations.

"A lot of the things we did were Pokemon Go but for history classes or field collection," Litts said. "Kids make their game on the web and play them on their iPhone."

Litts and her team implemented ARIS into the curriculum of 47 camp students who were learning about the

Indigenous community. In one activity, students had to visit outdoor sculptures and translate their experience onto the digital platform.

However, they struggled to finish the work because the criss-cross narrative of Indigenous storytelling was not compatible with the linear format of ARIS. As a result, students had to go back and forth between the sculptures to collect their data.

"I realized that this translation required an incredible amount of expertise in order to execute on the ARIS platform," Litts said. "Or required you to have a particular knowledge system that supported the way you want to design your story."

Litts recounted that students felt frustrated having to redo the story "over and over again." If they were given a story that had a beginning, middle, and end - similar to the Western style of storytelling - the task would've been straightforward.

"It really showed us that storytelling is a cultural practice, which is obvious but not something we thought about before," Litts said. "ARIS, itself, supported a particular type of story structure that prohibited this group of kids from telling the way that they wanted."

In addition, students also struggled to use digital maps to locate themselves in their exploration. They preferred the alternative that had mountains and geographical indicators.

"There's a cultural construction of maps which is a very obvious insight," Litts said. "It's not something we weren't aware of, [but] we haven't mapped that onto the technology that we were using."

For Litts, this experience was a revelation to "culturally-disruptive design." She realized that the technology was a "cultural artifact" of her team's collective identity.

"[The developers and I] are all white and we all ascribe to a similar knowledge system," Litts said. "This was our effort to invite kids to become creators of something, but actually ... make them feel that they weren't able to express themselves culturally."

ARIS' backfiring prompted Litts to be more aware of the cultural "tensions" and "self-discoveries" in research. It also allowed her team to ideate new ideas that are culturally-driven and innovative.

But what does this mean for design?

Litts proposed that culturally-disruptive design is about making privilege visible. Design processes have to recognize the tension between the creator's knowledge systems and the people who engage with the product. By being transparent, Litts hopes that culture-based design can eliminate the "black box" problem, which is the invisible process of algorithms and machine learning.

As technology becomes an educational tool, "learning scientists" like Litts have to be critical of the way design is shaping the student experience. Her research has found that refocusing design as a culture-driven process can help break inequitable education.

She ended her seminar with three guiding questions that address culture in design.

"It's about asking the 'why,' broadening the 'who,' and blurring the 'how' in our design work," Litts said.

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