

# Bringing Augmented Reality to Education | CEHS

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Have you ever wanted to design your own video game? Many people are enthusiastic about augmented mobile games such as *Pokémon Go* and just need a place to start. The Augmented Reality Interactive Storytelling (ARIS) platform is an easy way to begin and create an impressive video game for free.

Dr. Breanne Litts, an assistant professor in the Instructional Technology and Learning Sciences (ITLS) department, introduced ARIS to Utah State University, where she runs workshops for elementary and middle school students. ARIS incorporates GPS, so the video games are location based. Students spend three weeks developing their own games using a simple coding structure. “Kids are thrilled when they realize they can design a game that people can use,” said Litts. “They build stories with scenes, characters, and conversations that can lead diverse outcomes.”

By tying the flow of the game to certain locations, ARIS can also be used to create a narrative about the history or significance of a place. “ARIS affords a new perspective on history and place by connecting these stories to a location, so you have to actually be in the location to experience it,” said Litts.

For example, Dr. Litts and her colleagues recently partnered on an ARIS project with American Indian communities in the southwestern United States. As part of a National Science Foundation grant, nearly 50 American Indian middle school students went on guided tours with their community leaders and learned about history, art, and economic development.

From these experiences, students created their own location-based narrative games. One group, for example, retold stories they had learned about local sculptures and re-created that tour in ARIS, incorporating the new technologies with cultural storytelling practices.

Dr. Litts’ research, especially her past work in Northern Ireland, has helped her to recognize the power of creating digital versions of stories. “Stories affect how we see the world, and they can bring people together across divides and inequities by humanizing ‘the other,’” said Litts. “There’s value in opening ourselves to constructive, meaningful interactions with others by listening to their stories. With ARIS, our students get to design these compelling interactions.”

In recent USU workshops, students were challenged to build a game in ARIS centered on local plants and animals. Students first design and storyboard their ideas on paper and then move to the ARIS platform to build it digitally. As they learn design and computational skills, students also study indigenous animals such as bears, buffalo, antelope, and moose. One student’s curiosity led him to archive the entire food chain in Cache Valley. “These kids love the fact that they can make a game and push it into production through the ARIS app so their friends and family can play,” said Litts.

Students sometimes get stuck as they develop the flow of the game. Stephanie Benson, an ITLS graduate who worked with Dr. Litts, observed: “Many of these kids are acquiring animals in digital form, such as a black bear—so they might go outside to test the game and see that they have 75 black bears around them, and they only wanted one.” After identifying the glitch, students go back to the lab and reconfigure their programming, and then go outside and test it again. The problem-solving and debugging process helps these young scholars build computational thinking skills; they also gain an increased appreciation for the world around them as they learn outside the classroom.

The ARIS platform ([arigames.org](http://arigames.org)) is open-source and free; currently an iOS operating system is required to play, but a team is working to create an Android version. “If you download the ARIS app on your iOS device,” said Litts, “you can search for and play a nearby game that someone has made, or you can make your own. Anyone can create and publish games through the ARIS website.”