

Thinking Outside: Design Principles for Online EE Programs

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Link to the recording: <https://youtu.be/YQts5RWeU7Q>

Visit the webinar page to view the slides, notes, and the recording:

<https://naaee.org/eepro/learning/webinars/webinar-design-principles-online-ee>

Highlights of the chat transcript:

Let us know who you are and where you're from.

- Rachele Brown from Feiro Marine life Center in Port Angeles, WA
- Michelle Youngquist, PLT, Idaho
- Jamie Repasky from Oregon Metro Regional Government,
- Elizabeth Lee, Lake Champlain Maritime Museum, Vergennes, VT
- Gabrielle De Meillon, Rhode Island Division of Fish and Wildlife Outreach Program
- Julia Fregonara with the Nisqually River Foundation in Olympia, WA
- Jason Robertshaqw, humid Sarasota, FL
- Hey everyone! I am Chrissy Cochran - education specialist and ambassador animal coordinator at the WNC Nature Center, Asheville, NC
- Lisa Ward, Toronto, Ontario, Canada, Toronto and Region Conservation Authority
- Jason Robertshaqw, Mote Marine Laboratory
- Kimberly Clark from Asheville NC- Former Zookeeper and Science Museum educator- staying in the loop for the future
- Rosie Wilson-Briggs (she/her) with the Environmental Science Center in Burien, WA
- Cheyenne Palmo, Olympic Coast National Marine Sanctuary, Port Angeles, WA
- Katey Nelson, Annapolis Maritime Museum & Park in Maryland
- Kate Ward, Pinery Provincial Park, Ontario, Canada
- Hello! Lisa Eadens with the Colorado Alliance for Environmental Education
- Hello! Holly Morin, Inner Space Center (University of RI, Graduate School of Oceanography)

- Shannon Holton, Montreal, Quebec, Canada. English Montreal School Board.
- Lindsay Brandt (she/her) from the Bureau of Land Management at Yaquina Head Outstanding Natural Area in Newport, Oregon
- Sarah Johnson from western Colorado
- Mary Gannon, Hi everyone! from Rhode Island here

What have been your biggest online learning/education challenges?

- Sarah Falkowski: Reaching JEDI audiences
- Candyce Johnson: Slow moving internet; & computer freezes; heavy video
- Bob Powell: Active engagement is challenging but we have seen great examples of ways to do it!
- Marc Stern: This work was sponsored by NAAEE. Always supporting important work!
- Bob Powell: Many of the active programs have challenges and tasks that require students/participants to do something (often together) so also promoting social learning
- Marc Stern: Different platforms allow for different forms of interaction -- ranging from direction to go outside and do something to direct question and answer or autonomous exploration of a virtual space.
- Bob Powell: Some of the programs we reviewed were based in NZ!
- Sarah Johnson: I would imagine these design principles are relevant to all learners, not just k-12.... thinking about designing adult education too
- Ana Leirner: Yes, I agree Sarah. I think it does!
- Marc Stern: I think so, Sarah, good point, but their application might look different of course.
- Sarah Johnson: Model My Watershed is an incredible tool... I use it regularly... highly recommend it!

What do you see in these images?

- Claire Fackler: receding glacier
- Trevor Christianson: Glaciers have shrunk overtime
- Jason Robertshaqw: More color in the last one
- Candyce Johnson: receding of ice
- Bridget Prescott: melting glaciers
- Nora DiChiara: glacial retreat
- Lisa Maloney: The glaciers are melting!
- Sarah Johnson: the white snowy glacier is much smaller in the 2006 photo
- Stacey Heffernan: smaller glacier

- Thea Van Goor: The ice is receding...
- Global climate change
- Bridget Prescott: climate change
- Nora DiChiara: humans
- Elizabeth Lee: These are all inferences, but there isn't actual evidence...
- Marc Stern: Right! The program around this would have to connect the dots!
- Sarah Johnson: @Elizabeth - good point... there's a lot of work that would need to be included when teaching with images like this

Design Principles

- Marc Stern: Great points. None of these principles will stand on their own.
- Bob Powell: Yes, all principles are components of a more successful program.
- Sarah Johnson: sounds like the Learning Cycle...
- Marc Stern: Yes. We've been examining Kolb's experiential learning cycle in all of our recent work. The question for everyone would be whether you can (in your specific context) complete the learning cycle within a single program, or whether that program needs to be embedded within a broader set of engagements.
- Trevor Christianson: Beetles has a great learning cycle
<http://beetlesproject.org/resources/for-program-leaders/teaching-and-learning/the-learning-cycle-explained-3/>
- Jason Robertshaqw: A list of research resources available here:
<https://www.cilc.org/Resources/Explore-Research.aspx>
- Eileen Merritt: Glad so many of you are fans of Robin Kimmerer too!
- Marc Stern: Yes, Emily! Absolutely. The passion of the educator always seems to float to the top in our empirical work.

Platforms, Tools, & Resources

- Jamie Repasky: Group sticky note discussion on Google Jamboard works great!
- Marc Stern: I use breakout rooms regularly in Zoom.
- Mary Gannon: I absolutely LOVED "Gathering Moss." Such a beautiful book with great narration.
- Jason Robertshaqw: We use Flipgrid a lot as a follow up to our online programs <https://flipgrid.com/seatrek>
- Marc Stern: We've seen many groups using Flipgrid successfully.

- Eileen Merritt: Jason- I have found Flipgrid to be useful, too.
- Jamie Repasky: <https://jamboard.google.com/>
- Marc Stern: We've seen student contests lead to positive outcomes in online EE programs too.
- Eileen Merritt: Emily- Yes, student-designed artifacts/projects is a great way to allow student autonomy.
- Elizabeth Lee: Games like kahoot can be really engaging for kids and give real-time formative assessment.
- Marc Stern: Our systematic review focused on K-16 (kids through late adolescents). However, I'd posit that many of these same principles could be adapted to adult audiences.

Questions for the speakers:

- Sarah Johnson: did you all look into the effectiveness of online learning in higher education frameworks? curious to learn more from that world
- Kelley Anderson: Did you find any evidence to suggest attention span may be shorter or longer in an online environment vs outdoors? How would this influence the structure of an online program?
- Marc Stern: We did find an article suggesting that attention span drops precipitously online after about 9 minutes. Change it up when you can!
- Marc Stern: We have read quite a bit about university level education. The outcomes overlap, but are often a bit different from environmental education programs. Therefore, the lessons are a little different there.
- B. Troy Frensey: Yes Elizabeth! Game-based approaches with feedback (e.g., badges, rewards, points) can be effective. One study had students making choices on invasive exotic species in a wetland through a game. Students could dive underwater, see the changes, etc.
- Eileen Merritt: Sarah- We did not include those in this review. We wanted to focus on K-12 since most of our work focuses on those ages.
- Jamie Repasky: Tips for effective educational videos - <https://cft.vanderbilt.edu/guides-sub-pages/effective-educational-videos/>
- Biret Adden: Have you uncovered any indications about how approaches might have to differ for younger vs older students? Is there evidence that this can be effective for both?
- Ana Leirner: Will the learning network be focused on K-12 students? Or also educator PD?
- Eileen Merritt: This particular network is focused on grades 5-12.

- Marc Stern: Learning networks are focused on ages 11 and up (5th grade and up).
- Mollie Behn: All the distance learning tools (flip grid, pear deck, jam board, etc) are amazing yet could be challenging for K-2 students to either use or interact with. What DL peer interaction practices have you seen that work best for our younger learners?
- Marc Stern: The learning network would involve existing programs.
- Jane Hurley: love the idea of learning Exchange!
- Anne-Marie Runfola: for formal education only, or for informal?
- Marc Stern: Both.
- Jamie Repasky: How does any organization sign up for the learning exchange?
- Marc Stern: If you are interested in the learning exchange, please email Eileen. egmerritt@vt.edu
- Marc Stern: Our work primarily focuses on ages 10/11 and up. We don't have much evidence regarding younger kids. Sorry!
- Candyce Johnson: Yes, a compilation of tools would be awesome
- Nora DiChiara: Thank you! This is great. Yes, very interested in a learning exchange also.
- Gabrielle De Meillon: I would definitely be interested in learning more about the pros and cons of online tools
- Mary Gannon: What do you suggest for virtual field trips?
- Elizabeth Lee: I would like to see each of the tools demonstrated, not just compared by their features.
- Marc Stern: I recommend nuhop because the platform is super simple, and the possibilities are very broad. <https://nuhop.org/outdoor-education>. If you play around on this website, the structure is interesting and has high potential. I'm less familiar with the specific content they share.
- River DiLeo: we do a windowsill nature journaling lesson in NYC - no backyards here but it works well!
- Jamie Repasky: Oregon Metro Distance Learning landing page - <https://www.oregonmetro.gov/tools-partners/education-resources/resource-conservation-and-recycling-education/distance-learning>
- Bob Powell: Everyone should check out Nina Simon's work
- Kayley Fowler: <https://johnmuirlaws.com/journaling-curriculum/>
- Sarah Johnson: teaching online using so many of the cool tools, I'm getting so much 'data' from student activities; data that I've never had before

teaching online. Any suggestions on what to do with that 'data' that would actually be useful?

- Kayley Fowler: Thanks everyone for all the amazing resources and ideas!
- River DiLeo: I would love an event where we are briefly introduced to different online learning platforms.
- Elizabeth Lee: How are you defining outcomes across ages?
- Lauriel Amoroso: When you were looking at successful online EE programs, were you using your prior research on EE Outcomes as the measure?
- River DiLeo: I love making content on tiktok for students. Super accessible on their phones because many students don't have laptops.
- Lauriel Amoroso: The EE21 is a great resource! Thank you for creating it.
- Anne-Marie Runfola: glad to know we're in this together and learning and sharing. We'll be more resilient and flexible and hopefully reach and serve larger, more diverse audiences
- River DiLeo: Thank you all! This discussion was really fantastic.
- Nora DiChiara: This was very helpful, and inspiring. Keep up the great work everyone!
- Marc Stern: Yes! We will keep in touch through NAAEE and other ways as well. You may be sick of us by the end of this!
- Judy Braus (she, her): Thank you all so much! And thanks for the great discussion in the chat! Great closing thoughts!
- Lisa Maloney: Thank you so much for sharing your research findings and for the encouragement as we go into this next school year!! :)
- Elizabeth Lee: Thank you to for reading all those studies! Very affirming to know we intuitively have come up with design that includes a lot of the high-impact elements.
- Eileen Merritt: Thanks for your engagement, thoughtful questions and resources that you all shared!
- Bob Powell: Thanks everyone!
- River DiLeo: Yes! I feel like remote learning helps me build better relationships with students. I can see their homes, their preferred pronouns, their pets. Virtual learning has been a really great opportunity.
- Shannon Holton: Best webinar I've done so far. Thank you!!