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Motivation

- Being able to effectively explain complex research outside academia is incredibly important—for networking, collaborating, teaching, and leading
- Graphics can help, yet graduate education in STEM focuses on data visualization designed for academic papers and talks
- These graphics may not be easy for non-experts to read, limiting the learning motivation and engagement of the public

Five-Part 30-min Webinar Series

- The live webinar series was held on Zoom in April 2021 (20-min general info+ 10-min live hands-on activities)
- Each session covered one topic in 30 min to enable asynchronous review in between and reduce Zoom fatigue
- **Collaborator–Communication:** Mary Martin-Mabry, Director of Communications and Marketing for Public Scholarship and Engagement (PSE)
 - PSE had previously developed a workshop on public communication of research values
- **Collaborator–Visualization:** Dr. Chris Simmons, Associate Professor of Food Science and Technology (FST)
 - Dr. Simmons had previously developed a workshop on 3D visualization and web deployment for FST students
- We adapted the workshops for graduate students and postdocs in all major
- We also developed a case study by applying the skills introduced in the webinar series to a research project

Topics Covered

Session 1

Introduction: Communicating with the Public

Session 2

Understanding Your Audience: Persona Analysis

Session 3

Tools for Making 3D Models and Visuals

Session 4

Web Deployment: How to Make It Interactive

Session 5

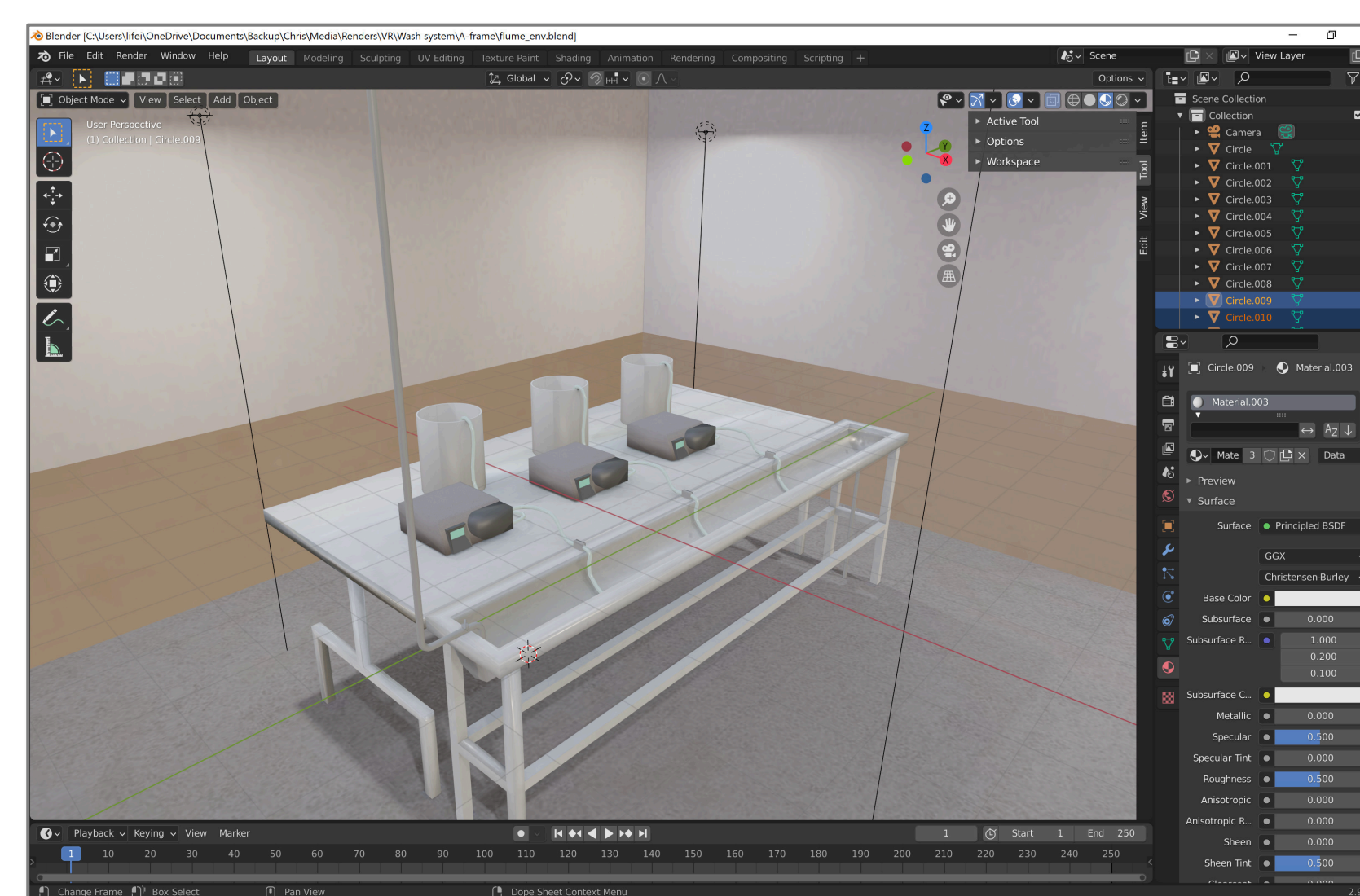
Use of 3D Interactive Environment for Public Communication

Project Goal

To provide graduate students and postdocs with resources to visualize scientific data for public communication purposes using a web-virtual reality (VR) tool that brings an interactive experience to target audiences

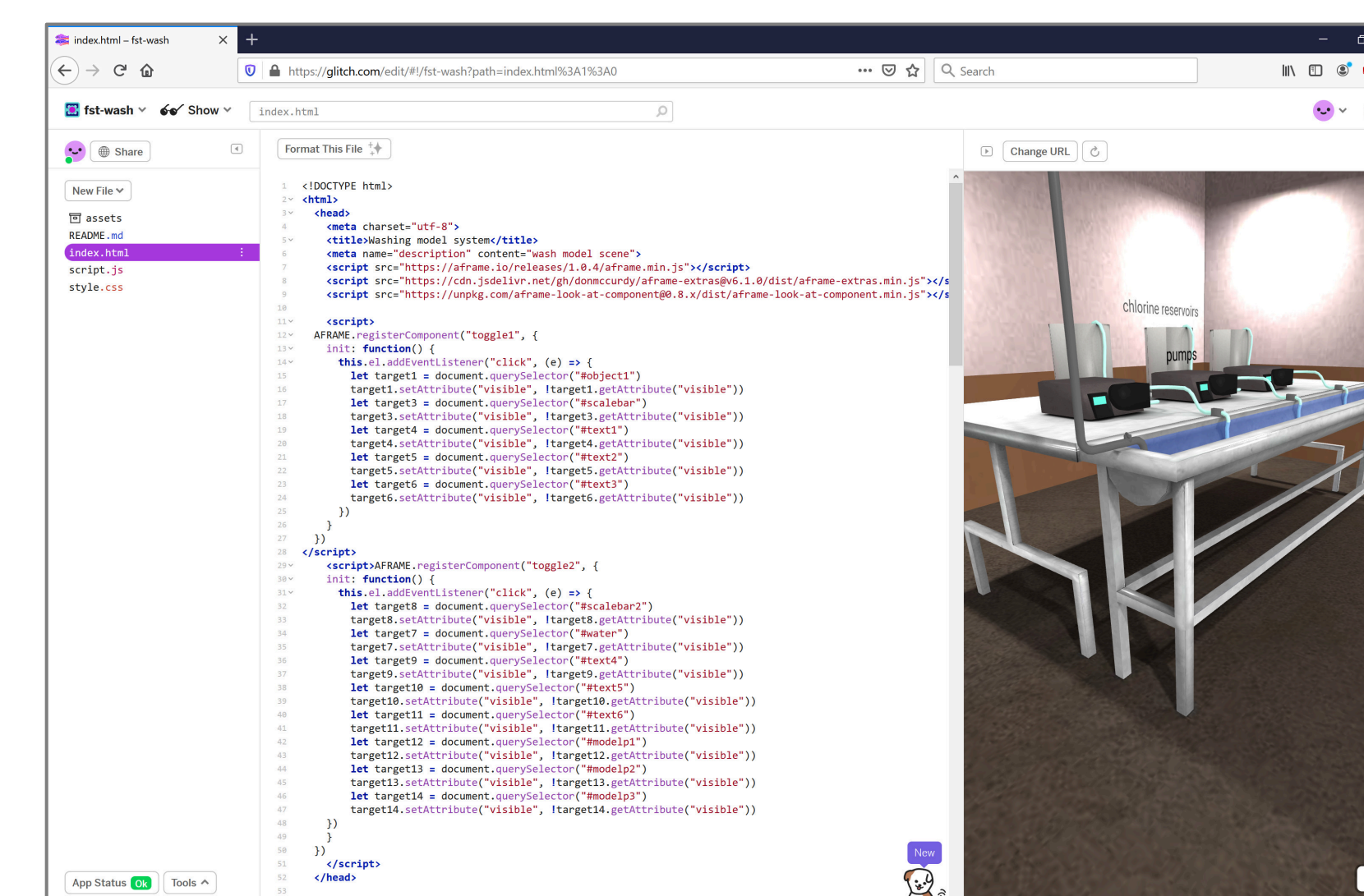
Audience Persona Analysis Sample Worksheet

DEMOGRAPHICS	BACKGROUND	PERSONALITY
Gender, age, income, location • Female • Age 45-60 • Dual-income household: \$74,000 • Suburban residence in district/studio apartment in DC	Education, job, career path, family • Member, U.S. House of Representatives • Got into government because she believes in the democratic process • Went to Georgetown for her JD • Married with 2 kids (9 and 11)	Dimensional, values, beliefs • Open-minded, generous and intelligent • Confident, direct and sympathetic with constituents • Believes government can be a tool to effect change • Becoming more partisan in her rhetoric
INFLUENCES	DAY-TO-DAY	SOURCES OF INFORMATION
What shapes their beliefs and values? • Got involved in politics to serve her community, agriculture is a major industry in her district • Mother died of Alzheimer's disease, personal mission to combat it • Teenage job made her gun control an issue of personal concern	How do they spend their time? • Single the day by answering headlines • Meets with staffers and adds daily to check in and strategize • When in her district, she hosts open hours for constituents outside of normal business hours	Where does this person come for information? • Reads the major news outlets everyday • Cancels policymaker targeted publications • Likes to consult with experts before making policy decisions • Staffers and aides manage her social media, she rarely uses it herself
GOALS	CHALLENGES	MESSAGING
What do they want to accomplish? • Supporting the views of her constituents • Wants to be an effective legislator but also wants to be elected • Sustaining work-life balance with a picketed agency	What might get in their way? • Politically progressive but understands she must prioritize bipartisan issues that will get traction with her legislators • Has to weigh expert opinions against distrust in the political climate • Spends a lot of time away from teenage children	How should I talk to them? • Talk about measurable impact (eg. cost saving) that has broad political appeal • Include clear and cogent evidence to substantiate any claims, avoid overly academic language • Repeat messages in solutions relevant to current events

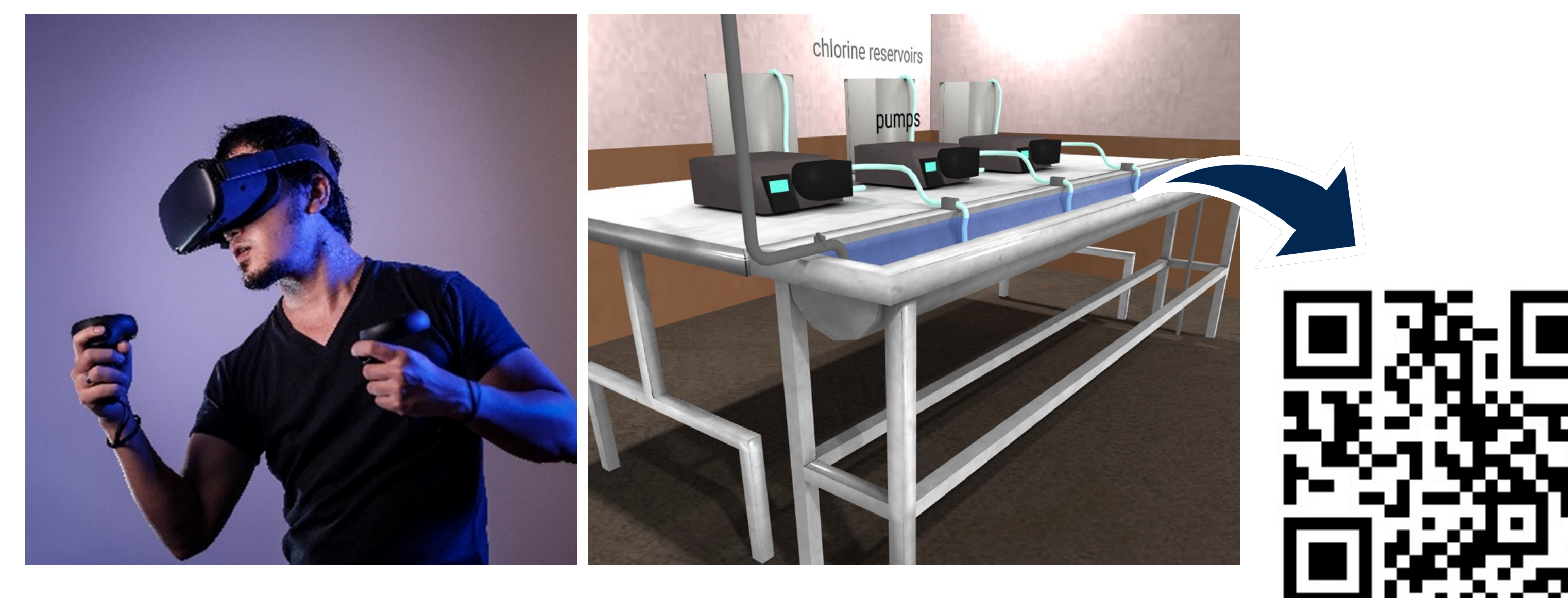


3D Visualization with Blender

Creating a Web-VR Page with A-Frame



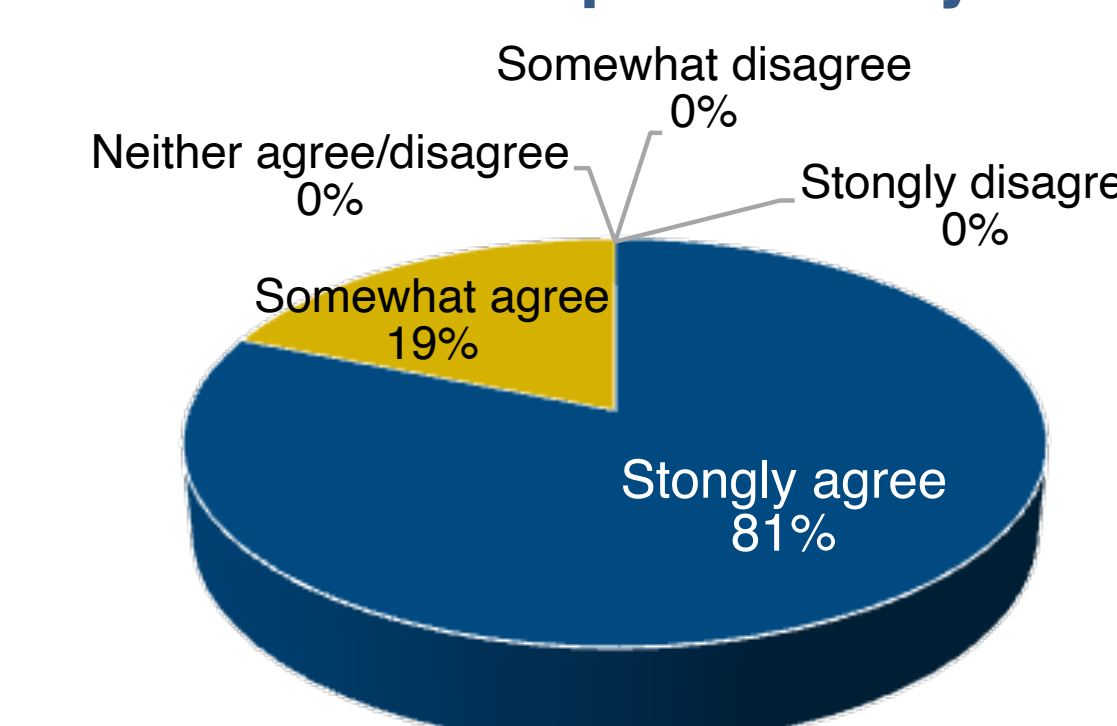
An example Virtual Laboratory



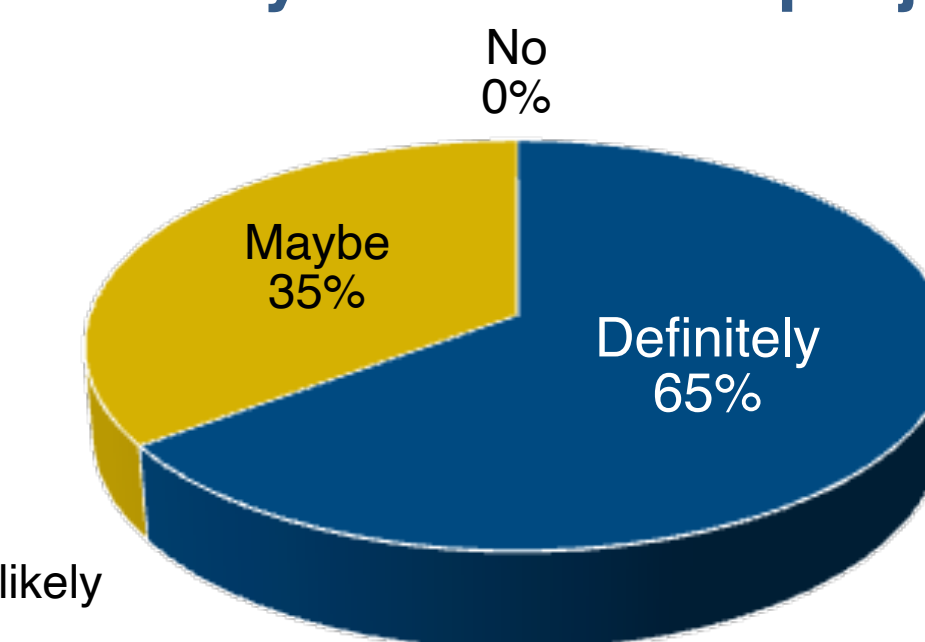
Feedback

- 51 people registered, 23 attended
- 38 complete feedback provided through Qualtrics survey created for post-event evaluation after each session

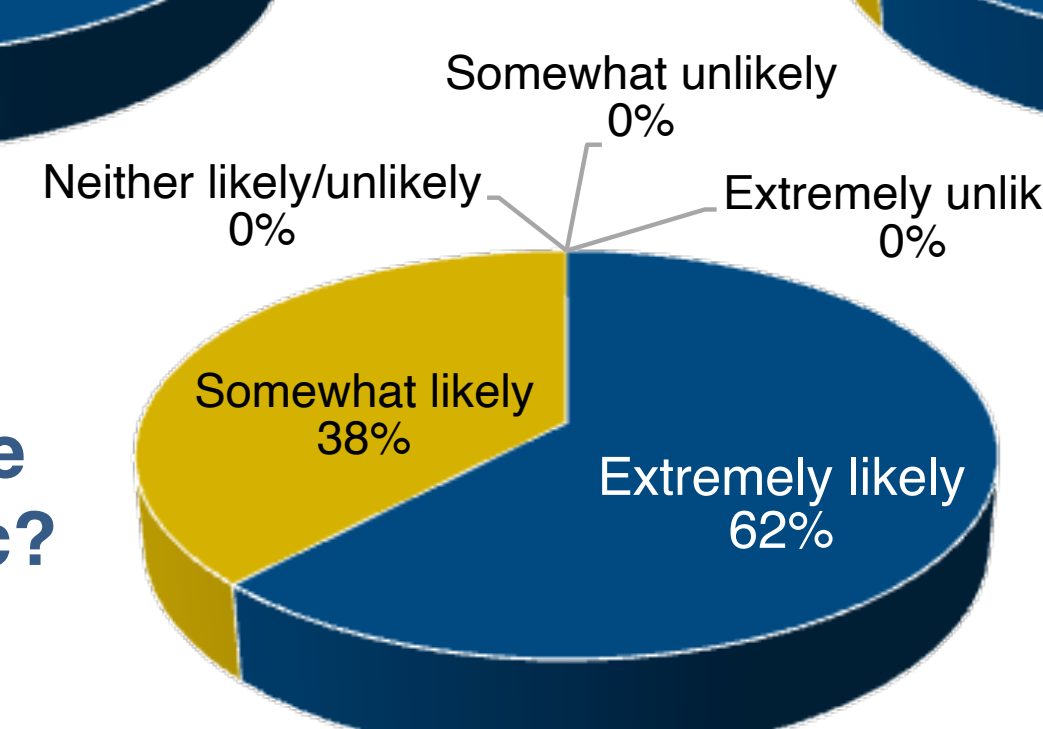
Contents were helpful & easy to follow



Planning to apply the learned skills to your research project?



Learning more about the topic?



- Many attendees expressed that the live hands-on activities & case study were helpful
- Attendees indicated that this webinar series provided a good starting point to increase the impact of their research

Resources & Future Plans

- The recording of the **general info** part is available on the GradPathways Institute YouTube channel
 - youtu.be/1hvcLqh4DCw
- More resources related to public communication
 - publicengagement.ucdavis.edu/communicating-public-audiences
- Given the positive feedback from attendees and interest in applying this approach to their research projects, Dr. Simmons and I will **continue to promote the recording**, especially to STEM majors, and **write a paper in an education journal**

Acknowledgements

- Mary Martin-Mabry and Dr. Chris Simmons, who were extremely generous with their time and in adapting their in-person workshops to this webinar series
- Teresa Dillinger and Ellen Hartigan O'Connor, who organized PFTF this year and supported me in structuring this new format of webinar series
- David Blancha for editing recordings to post them on YouTube, and Olga Garzón for logistics and advertising
- Public Scholarship and Engagement for co-sponsorship
- My PFTF cohort, from whom I learned a great deal over the year-long fellowship