

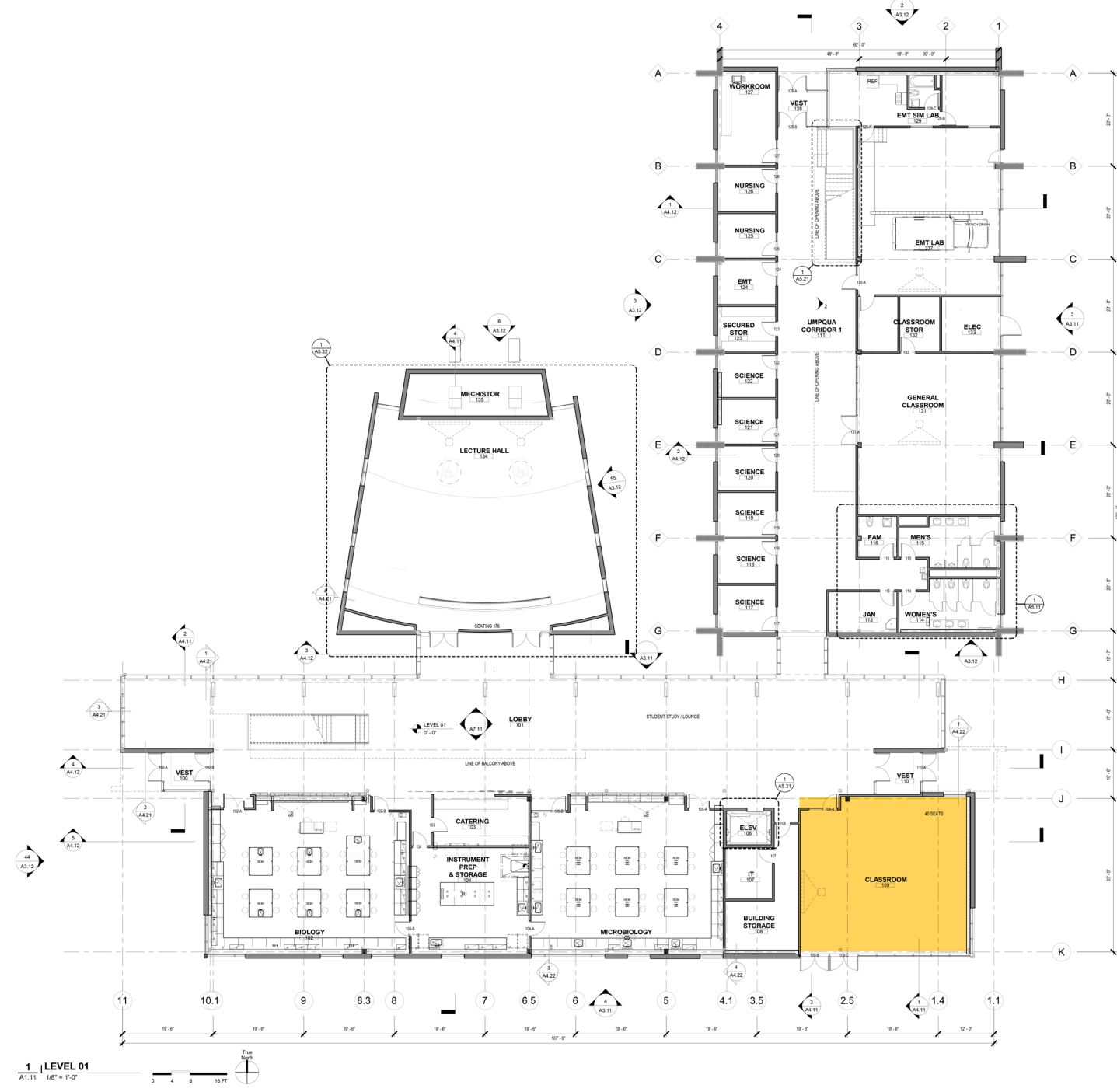
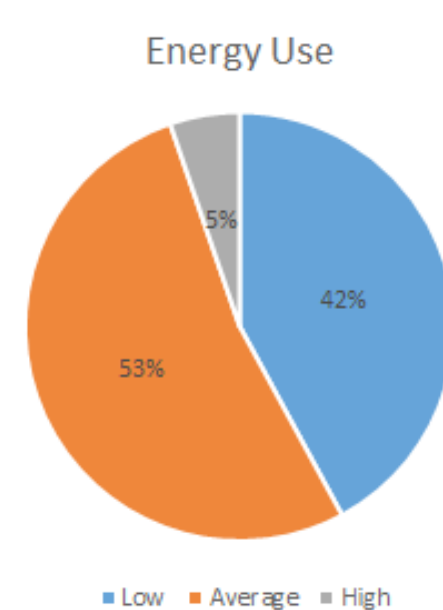
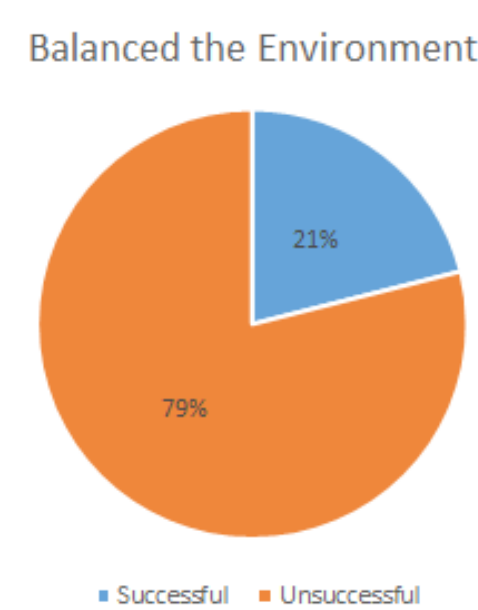
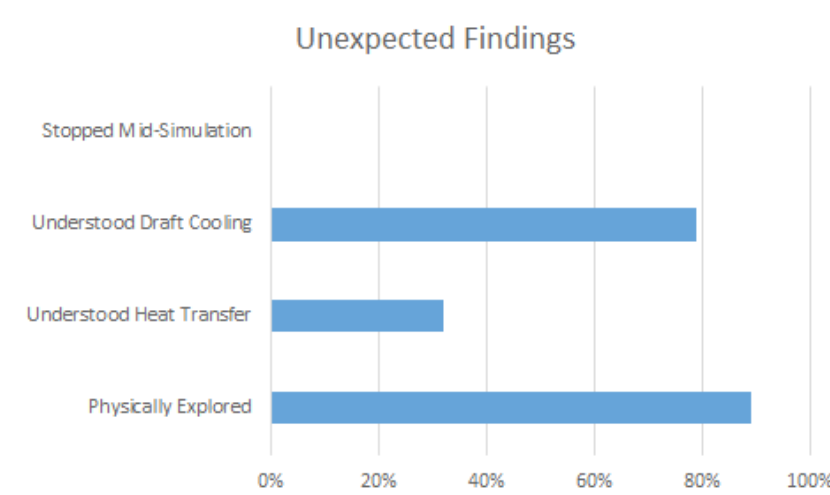
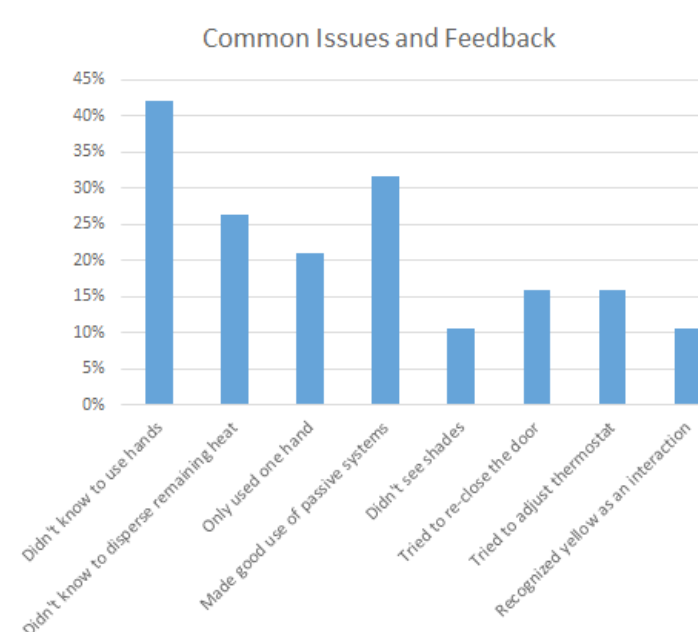


Gameplay Imagery



Experiment Findings

We collected anonymous user data from our day of running the simulation and we discovered some trends in terms of both difficulties people had within the game as well as surprising data outcomes. We anticipated that people who had used VR before would have an advantage and would therefore have a higher completion rate, but this was not the case. In fact 0% of people with prior VR experience completed the simulation successfully. We also noticed some subjects did not understand the basic tenants of playing in virtual reality and did not know to physically turn their bodies in order to explore the space, we had been hoping and relying on participants innate curiosity to drive them to explore the room. There was also data to support making certain functionalities more visible and easy to interact with. The window shades were particularly problematic in that many people 53% of users had difficulty operating them and 11% never even noticed them. We were pleasantly surprised to find that no participants became uneasy or motion sick and had to exit the simulation early and 100% were engaged and observed to be enjoying the experience. The enjoyment is a significant factor in that we are trying to utilize fun and gamification as a means of engaged learning. The players were asked to complete a quick informational quiz on the passive and active systems available in the room post-simulation and 93% of all questions were answered correctly. A comparative control group will need to be utilized in order to give value to the VR as a more or less effective training tool than standard methods, however time was a limiting factor. The total number of successful completions of the game, 21%, was lower than expected and hoped for, with most participants getting close but not having a full enough understanding of heat dissipation methods in the game to effectively maintain a lowered temperature, even with all of the passive systems being utilized.



Opsis Team



Heather DeGrella
AIA, LEED AP BD+C
Associate + Sustainability Liaison



Isaac Harris, AIA,
LEED AP BD&C
Project Architect



Mike Montagne
BIM Manager + IT



Kate Piper
AIA, LEED AP
Project Architect

Consulting Team



Eric McDaniel AIA, LEED AP
Sora Design Group
Energy Modeler



David Bynum
Bynum Labs
3D designer + VR consultant

PSU Team



Gwen Ward
Graduate Student



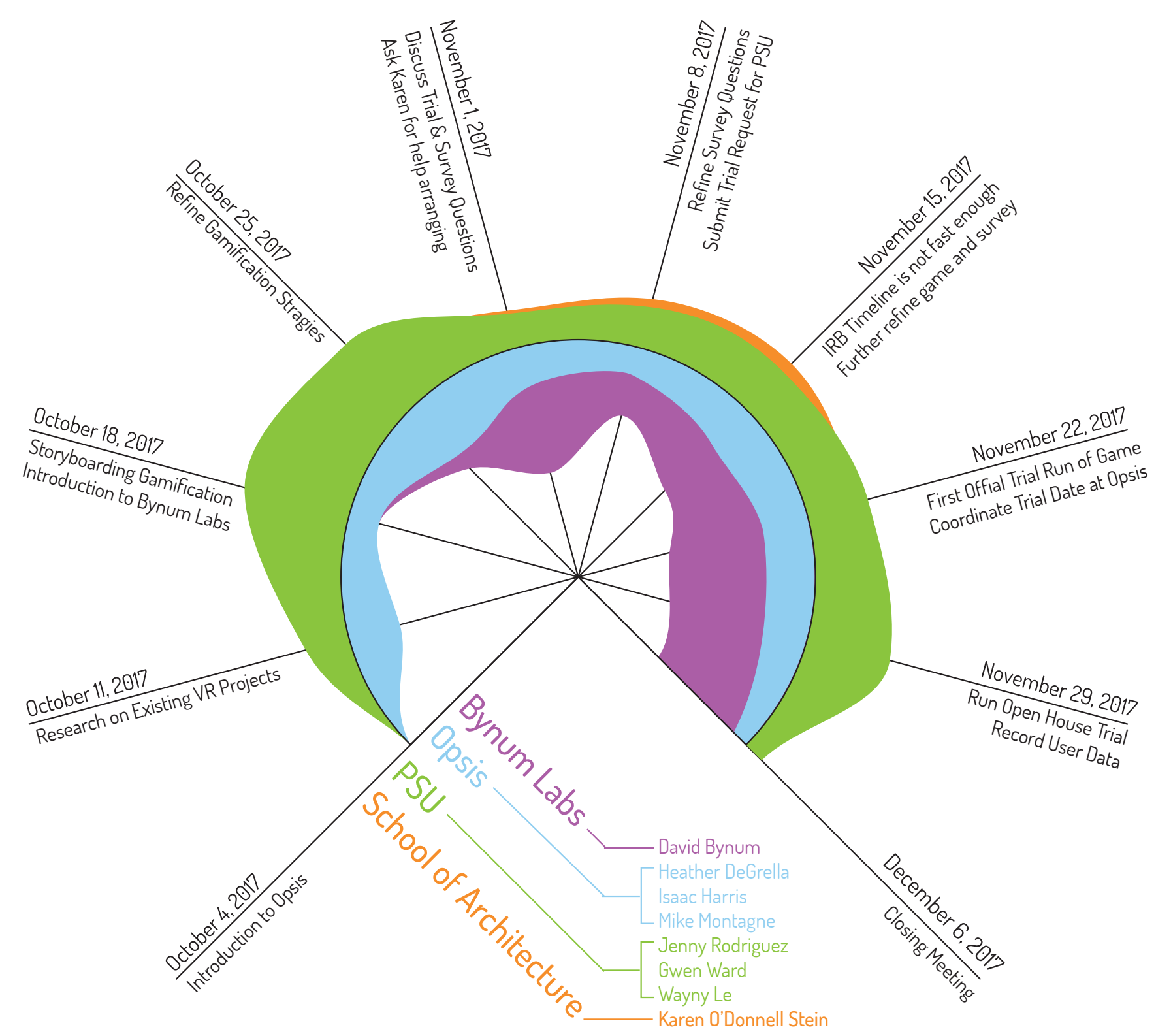
Jenny Rodriguez
Graduate Student



Wayny Le
Graduate Student



Karen O'Donnell Stein
Administrator



opsis

PORTLAND STATE UNIVERSITY ::
SCHOOL OF ARCHITECTURE