Please note that the following experimental design is hypothetical. Because of our current meeting and travel restrictions due to COVID-19, this experiment will not actually be completed. The purpose of designing this experiment is to show that we are capable of doing so. We have supplemented performing the experiment with putting in more effort into the program itself and processing more background research, in order to have a better grasp on our subject.

The purpose of our program is to teach computer desktop assembly to individuals who have no such experience. In order to observe if it effectively teaches this, we need to compare our learning method with a different learning method. We chose to compare our program's performance with what we perceived to be the best current method of learning how to build a desktop computer, which is through online tutorial videos. Our hypothesis is that our program will more effectively teach computer assembly than online tutorials. We believe our program will exhibit better performance because a user has more sensory input by actually building a virtual computer, rather than just watching steps on how to do the task.

The participants for this experiment will consist of 30 college students whose ages range from 20-25. Participants from this background will be used simply because the research pool for that population is very large. Participants will be screened beforehand to determine if they have little to no experience with computer hardware assembly. These will be the individuals that will be selected to continue in the study since the goal of this software is to teach computer hardware assembly effectively, at a beginner level.

With 30 college students, there will be 15 individuals in each of the two treatment groups for a between subjects experimental design. The 2 treatment groups will be exposed to our tutorial VR program for building a computer desktop and exposure to a short video series on the same topic.

The experiment will include three phases: a pre-treatment survey, the treatment condition, and a post-treatment survey. The pre-treatment and post treatment surveys will be the same between individuals in both treatment groups, although the two surveys will have slight variations compared to each other. They will test the same information, but they will be worded slightly different so that they do not seem identical. These tests will assess the participants' knowledge of the functions of computer hardware components (like the GPU, RAM, etc.) and the order that one would have to assemble a desktop computer.

The two treatment groups will be using our proposed VR computer hardware assembly tutorial and watching a short video series on computer hardware assembly. The participants in the VR tutorial group will complete the "Tutorial" feature of our proposed program, or until they have been using the feature for 15 minutes, whichever comes first. The other treatment group will watch 15 minutes of a beginner computer hardware assembly video series. Both treatment groups will complete the post treatment surveys immediately after they complete their treatment condition.

The data for this experiment will come from the pre-treatment and post-treatment surveys. We are interested in how each individual will improve based on which treatment group they were in. The pre-treatment and post-treatment test scores will be compared and analyzed for how much each participant progressed.