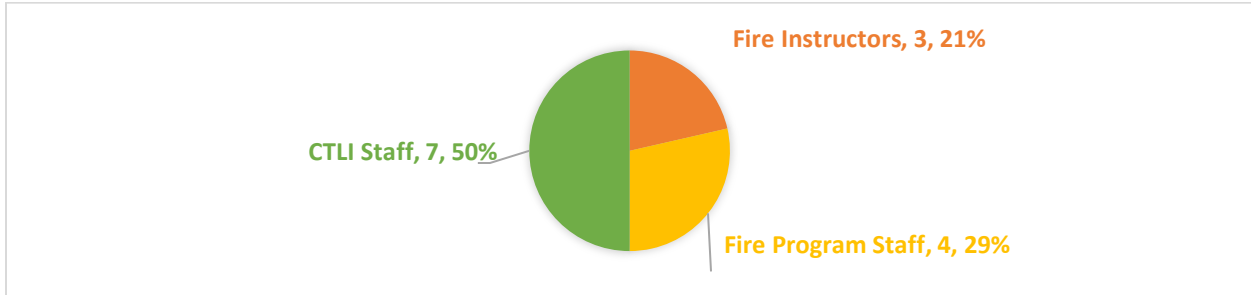


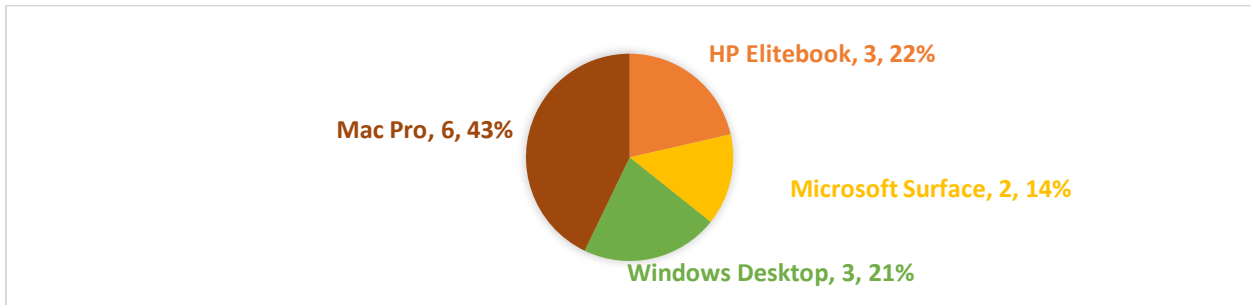
# Web-based Fire Investigation Simulation User Testing Report

## SECTION ONE

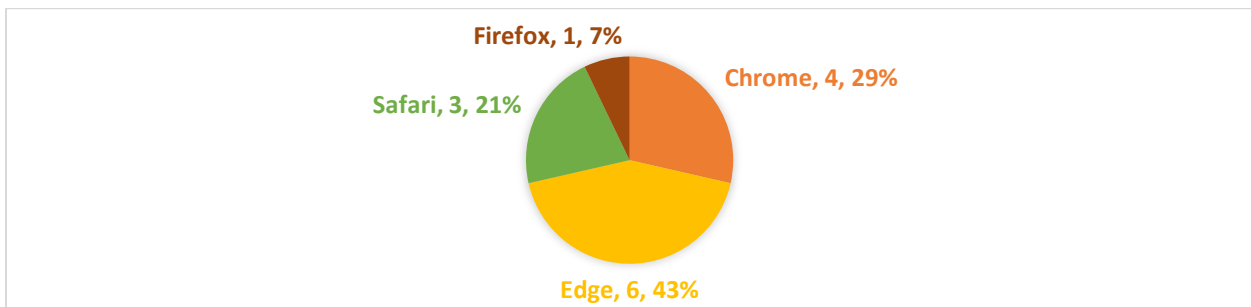
### Participants (14)



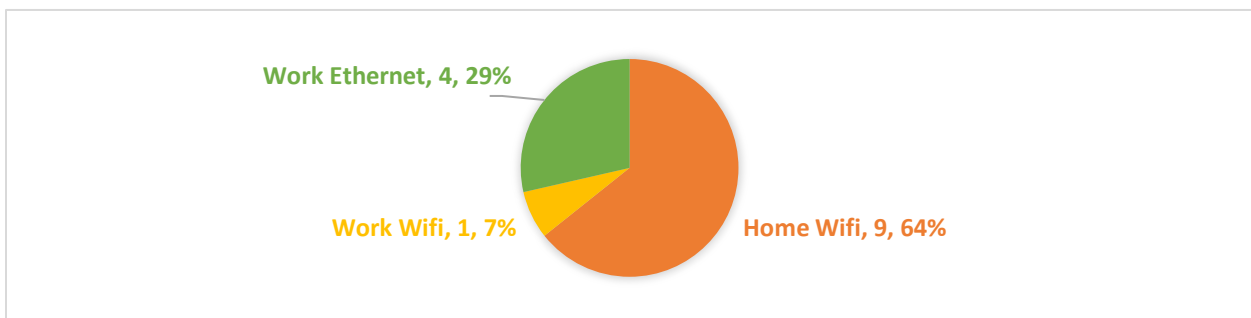
### Types of Computers



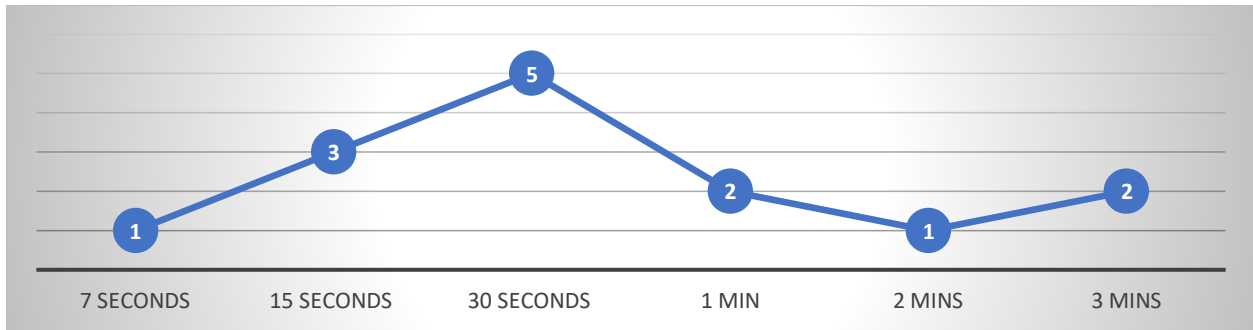
### Browsers



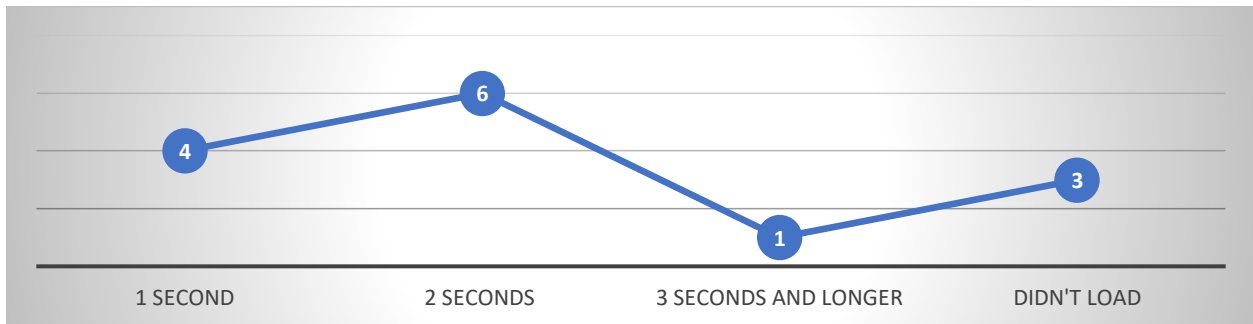
### Internet



## Simulation Loading Speed



## Animation Loading Speed



Note: "Didn't load" happened to Safari users as the browser shows error code below.



## Recommendations

- Chrome is highly recommended; edge works well but users may be interfered by pop-up windows.
- High speed internet is recommended, be it ethernet or WIFI.
- Simulation loading and respond speed remains a key area for improvement. Certain 3D assets in the simulation can be removed.

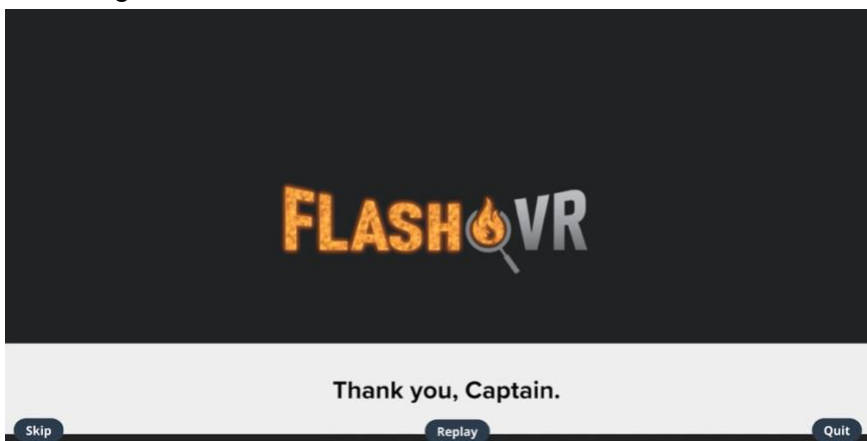
## SECTION TWO

### Animation UI Elements

- Users tend to click “Quit” button when they just want to skip, as it is placed on the right bottom corner.



- Observation suggests that all first-time users typically watch the entire video and none of them clicked “replay”. When the animation video ends, the UI elements seem quite confusing as users are unsure about what to click.



### Recommendations

- While the video is playing, the “skip” button needs to be placed on the right bottom corner. “Replay” may be removed as it is not used.
- When the video ends, users can be led to the scene automatically. No buttons needed.

## SECTION THREE

### Moving with ASWD keys or Arrow Keys

- Generally, most users find it easy to move around with ASWD or arrow keys.
- Depending on the internet, some users may experience lagging.

### Pivoting Viewpoint

- Overall, only a few users find it easy to change viewing perspective, whereas most users find it challenging for a few reasons:
  - There is a lot of information and users don't know how to pivot viewpoint.
  - Lagging tends to cause multiple attempts or too much dragging which shifts the screen drastically and suddenly.
  - Some users reported that it felt like they are dragging to the opposite
    - Note: this is more of a user issue.

### Wayfinding

- Most first-time users reported that it was difficult to identify the path to the burned room; moving into the burned room can also be challenging.



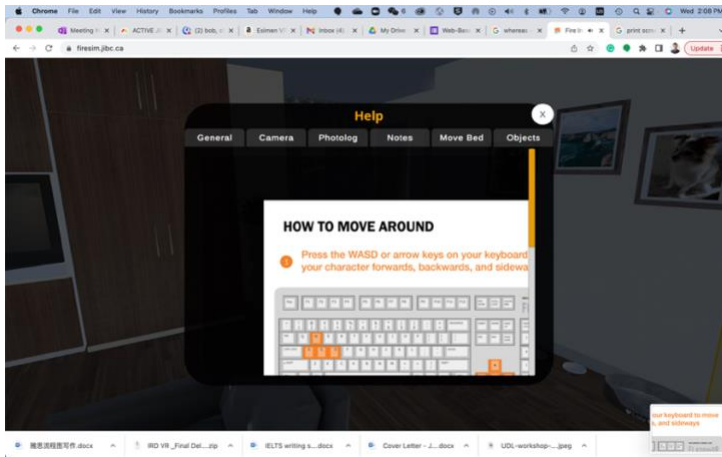
### Recommendations

- Wayfinding needs to be improved by highlighting the footsteps on the floor and/or placing the users in the burned room directly which will reduce the navigation workload.
- Improving responding speed remains a key as it determines how easy it is to pivot viewpoint.

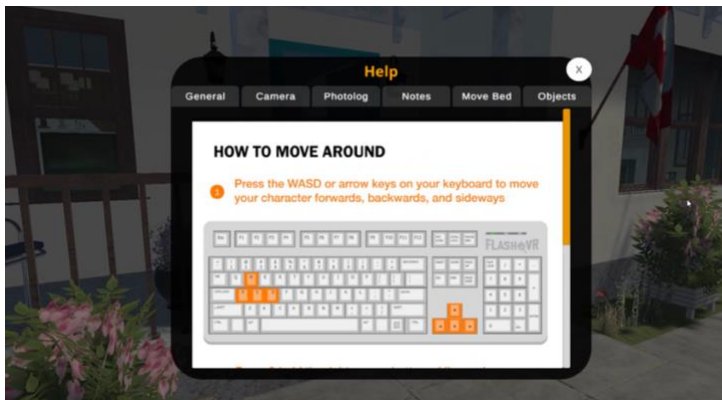
## SECTION FOUR

### Instructions

- The document within “Help” is not fixed and can be dragged around which cause issues when users scroll up and down.



- Regarding “how to move around”, some users don’t see that there are more instructions below the keyboard image.



- The tab “General” is confusing, and tabs are not highlighted when users click them.
- Instructions around “pivot viewpoint” for Mac users are not included.
  - Note: Mac users need to enable “secondary click”.

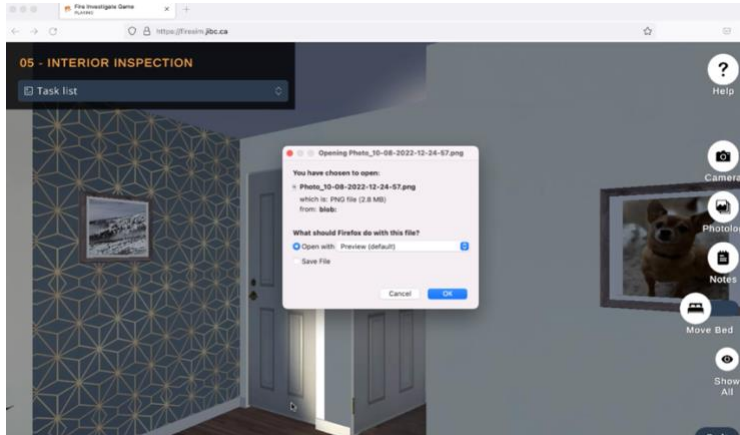
### Recommendations

- Fixate the document within “Help”.
- Redesign the layout to make “Move around” and “Pivot Viewpoint” more visible.
- Add instructions for Mac users under “pivot viewpoint”.
- Highlight the tab when users click it.
- Change “General” to “Control” or something easier to understand.
- Potentially remove instructions for “photolog”, “camera”, “move bed” and “notes”.

## SECTION FIVE

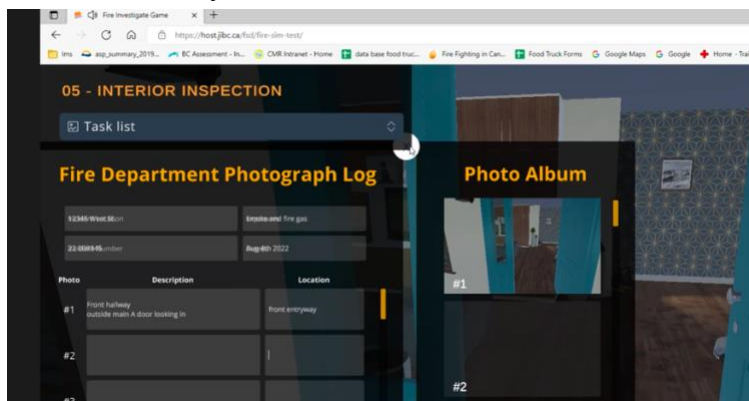
### Photo-taking

- Users generally find it easy to take photos, though some spent time figuring out how.
- Internet speed may cause delay which may cause users to click “take photo” a few times which further freeze the screen.
- Depending on the browser, user may see pop-up windows on the screen (Firefox) or on top of the browser (Edge).



### Photolog & Notes

- Most users find “Photolog” easy to use, despite some delay.
- Most users find “Notes” quite smooth, and delay is rare.
- Text overlay appears in “Photolog” and “Notes” on PCs such as Surface and HP laptops, and occasionally the “close” button is hidden behind the interface.



### Recommendations

- Improve the responding speed for photo taking and typing in photolog.
- Address text overlay issue and the hidden close button issue.

## SECTION SIX

### Examining Objects

- Generally, examining objects can be slightly challenging for some users as it requires users to pivot viewpoint from time to time while manipulating objects.
- Some users had a hard time finding where the object is on the screen, mostly due to their viewing perspectives. For example, in the image below, the user already picked up an object; however it is NOT visible due to the perspective.



- Additionally, objects can be difficult to examine due to the messiness in the background and its color scheme.
- Most users don't know what the "rotate" buttons are for but they work well once users learned how.
- SME suggested to remodel the power bar so it is not burned, as it is not the cause of fire. Burned power bar may be misleading for students.



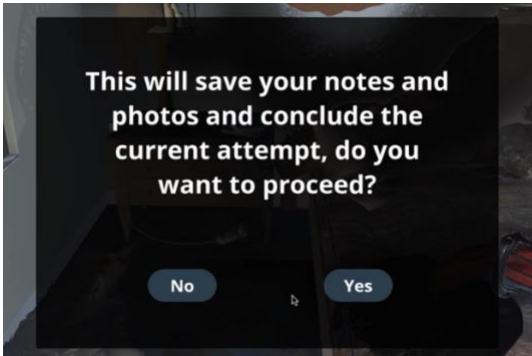
### Recommendations

- Automatically adjust users' viewpoint when an object is picked up.
- May add a white transparent layer when an object is picked up for examination.
- Remodel the power bar so it is not burned.

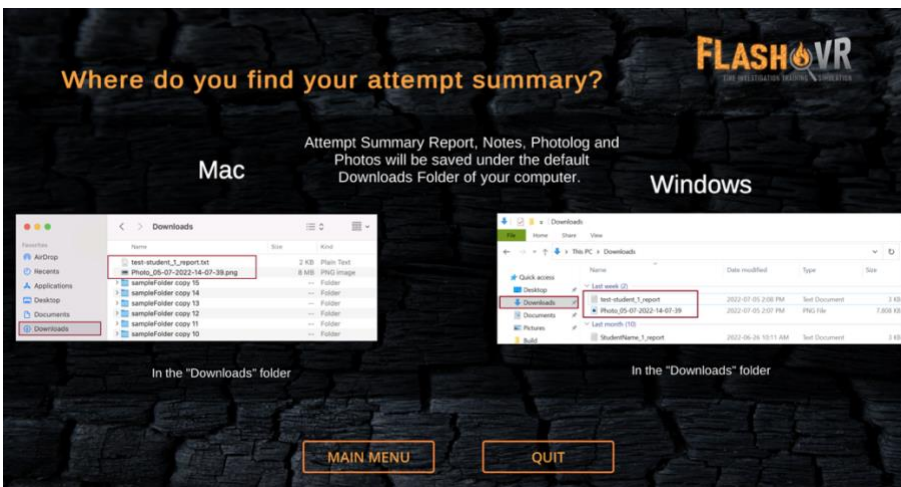
## SECTION SEVEN

### Quitting and Downloading Reports

- Most users were able to find the “quit” button easily and follow the instructions.



- The “quit” button on the final screen can be confusing as users can’t click “QUIT” to exit the simulation anymore since it is web-based. Users need to close the browser to close the simulation.



### Recommendations

- For better understanding, the quit message may be changed from “do you want to proceed” to “do you want to **continue**.”
- On the last screen, the “QUIT” button needs to be changed to “DOWNLOAD”.
- The Logo *FlashoVR* needs to be changed at multiple spots as it is not a VR simulation. One possibility is simply reduced it to “FlashO”.
- Lastly, percentage of loading could use a better design.