**Use case for the Snap Shot game as an apparatus for spatial memory research**

**General goal**: construct a dynamic a 3D virtual environment (a video game) that (a) contains lifelike visual characteristics; and (b) allows for an active control of locomotion by the player; that is, the display should be interactive and change in response to the individual’s movements through space.

1. **Main characteristics**
   1. A large-scale outdoor environment, such as a campus
   2. Environment is to be typical of real-life
   3. Environment is to be as realistic as possible and thus ought to contain dynamic elements, such as moving objects.
   4. First-person perspective in navigating the space
2. **Main stages**
   1. ENVIRONMENT EXPLORATION

The player is on a platform and led through the space once. The player is in first-person view and sees hands holding a camera at the bottom of the screen. The player can rotate in any direction but cannot freely move. The player is allowed to control the speed of movement and is allowed to stop at any point. The player is not told there is a time limit to explore the environment; exploration is finished when the route is completed. The player is allowed to take pictures of surrounding scenery, including specific objects and landmarks. To take a picture, the player raises the camera, looks through the lens, and hits a button. When a picture is taken, the screen flashes and then freezes for a second. Details about what happens to the pictures are up to the team to decide. There is also flexibility on other details of the exploration stage, such as how points are earned, how many points, etc.

To make the game more interesting, the player may be asked to do one or more of the tasks previously proposed by the team (e.g., hit targets, knock down certain objects, throw certain objects, etc.), and the details of how these tasks are implemented are also up to the team to decide.

Measures: total time of exploration, number of stops, number of pictures taken, and which pictures.

* 1. RECALL TEST/PLACEMENT STAGE

The player is placed at a “start” location and is free to navigate in the environment. The player has an inventory containing 6 missing items; the player selects each item in order and places where the player believes it belongs. The player is allowed to pick up and replace the item if unsure. When the player makes a final decision, a 7-point scale will appear for the player to rate his/her confidence “How confident are you that this is the correct location for [this item]?” 7=absolutely confident, 1=not at all confident. The recall test is finished when the inventory is empty and the player arrives back at the start location.

Measures: number of placements, position of final placement, time to each item’s final placement, total test time, confidence, and locomotion (the player’s taken path).

* 1. RECOGNITION TEST/CHOOSE POSITION STAGE

The player is placed at the start location and is asked to revisit, in order, the 6 items that had been placed in the previous stage. When the player arrives at each location, there will be 2 objects: one placed at its original/correct position and the other one at the player’s recalled position (from the placement stage). The player is to choose which position is correct by touching (?) the correct object (alternatively they can hit a key to indicate the object on the left or the right). Finally, a 7-point scale will appear for the player to rate each choice, “How confident are you of your choice?” 7=absolutely confident, 1=not at all confident. The recognition test is finished when the player has visited all locations and arrives back at the start location.

Measures: time to choose each item, total test time, and confidence.