



Teacher Note Extension to Altered Reality

This slightly more sophisticated approach to data collection in the Altered Reality experiments is suitable for high school students.

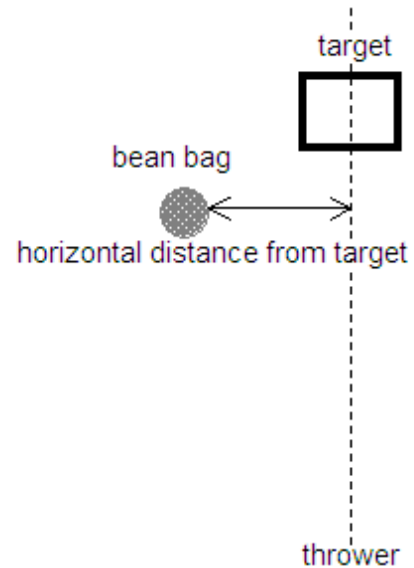
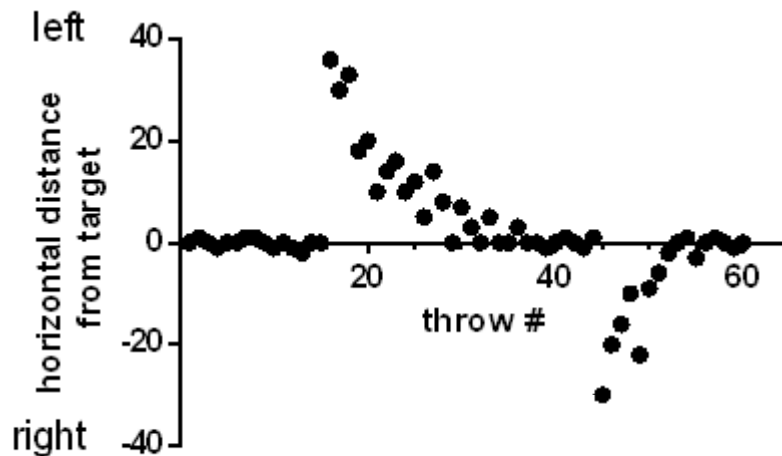
In the classic BrainU Altered Reality lesson, the thrower tosses the bean bags at the target and we simply count whether the throws missed or hit the target.

In this extension, we will measure the horizontal distance between where each bean bag lands and the target.

Next, we'll plot the distance from the target (y axis) against the throw number (x axis). This is the way the original data was plotted in the article THROWING WHILE LOOKING THROUGH PRISMS II. SPECIFICITY AND STORAGE OF MULTIPLE GAZE-THROW CALIBRATION, Martin et. al. (1996) *Brain* 119:1199-1211.

Do the trial initially with goggles off and then with goggles on. Keep throwing with goggles on until there are 5 hits in a row. Then remove the goggles and keep throwing.

Data should look similar to this:



What do these curves tell you? Plot points from many students can be added together throw-by-throw to generate a smoother curve.

How long does it take for this sensory-motor learning to occur when glasses are first put on?

...when glasses are taken off?

How many tries do you think it takes to learn in other situations?

Give some examples.