The authors of this article want to devise a way to predict a players demographics and preferences based on their behavior in game. They want to do this in order to allow developers to predict and maximize players' enjoyment of and engagement with certain elements in video games. They formed the hypothesis that it would be possible to analyze players reactions to a game and then use clustering techniques to form groups of player types.

The researchers used two sets of data in order to perform their analysis. The first set of data was a series of time stamped events within the game they were using for this test, Super Mario. These events included jumps, power up usage, level completion, wins, and losses. They then matched these up to videos of people playing these games. From these videos they extracted average head movement, head movement after losing and time spent playing.

When processing the data they had obtained, the researchers first had to determine how many clusters they were looking for. They did this by calculating the optimal number of clusters with five different indices and then taking the most frequently recommended number of clusters. These algorithms were the silhouette validation technique, the calinski-harabasz index, the weighted inter-intra measure, the krzanowski and lai index, and the davies-bouldin index [NOTE: should I specify these?]. They eventually arrived at the conclusion that three clusters would be optimal.

Once they'd derived the right number of clusters to use, they found them using a k-medoids algorithm. This algorithm is very simple, operating essentially the same was as the more famous k-means algorithm. They eventually found a solution that produced a minimal cost, which was defined as the sum of the simple euclidean distance from each point in a cluster to the center of that cluster. These clusters did turn out to contain different types of players. They showed that players that were significantly more or less expressive than average were more likely to lose frequently. In addition, older players tended to be more expressive, thus showing that expressiveness can be correlated to player traits like skill and age. The authors then suggest that more research could be done using more complex games than Super Mario and that results could be incorporated into the AI of games.