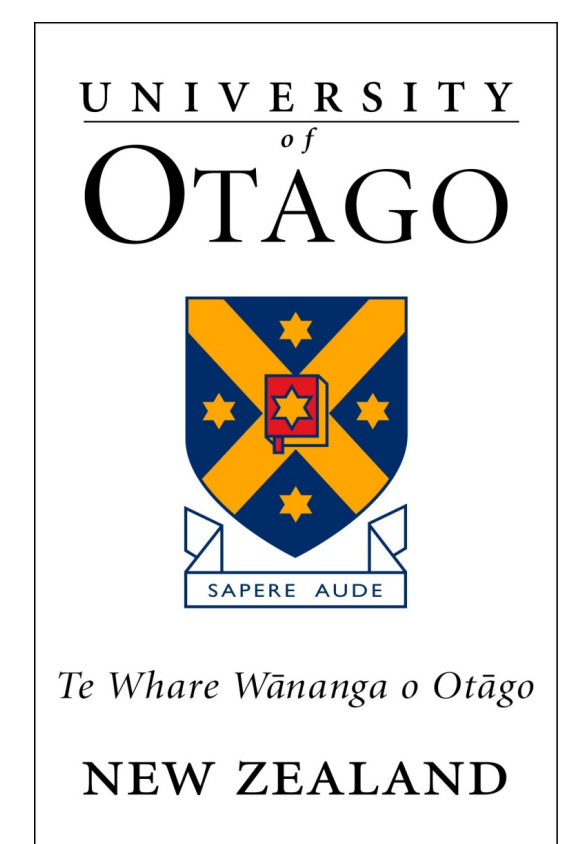# Evaluating an emphasis model of collective self-esteem and social identity using in-vivo spatial tracking

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Background

Existing work on social identity predicts a clear and negative relationship between self-esteem and the tendency to ascribe value to one's groups (Greenberg et al., 1986; Tajfel, 1982). However, we still do not understand how collective self-esteem (CSE) – an individual's group level esteem – influences social identity.

Collective self-esteem may operate similarly to individual-level self-esteem; people with low CSE may place greater value in groups to buffer their unsatisfying collective identity (buffering model). On the other hand, Individuals who have *high* CSE may ascribe more value to their social groups in an effort to emphasize their strong collective identity (emphasis model). See Figure 1. for a representation of these two competing hypotheses.

**Figure 1.** Competing models for collective self-esteem and group formation
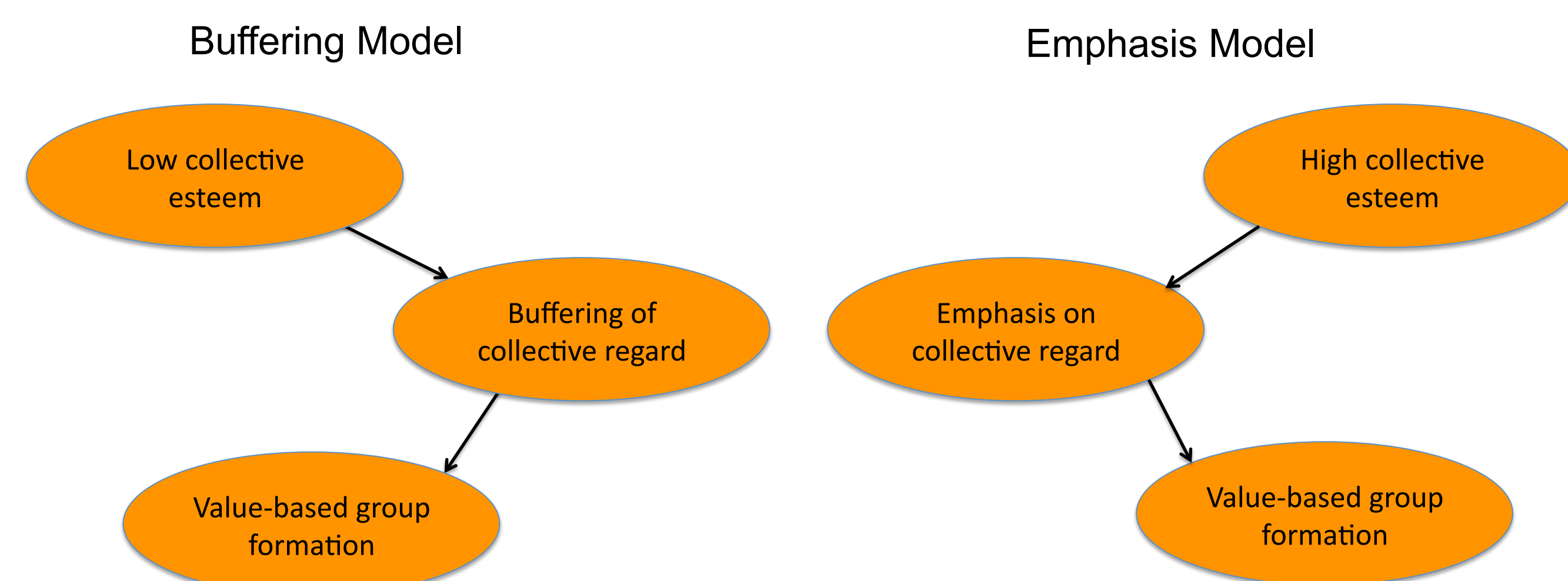
In this research, we sought to determine the association between levels of trait CSE and value-based group formation in a naturalistic social setting. In a minimal groups paradigm – in which groups are manipulated through a single superficial factor – those who prefer value-based social groups should be more sensitive to group differences, and stand with more in-group members. Similarly, participants who form value-based groups should prefer to stand with those who match their racial preferences. For both of these paradigms, who hypothesized that CSE would correlate positively with value-based group formation.

Hypothesis 1: In a minimal groups paradigm, participants would increasingly form groups with superficially similar others as a function of their collective self-esteem.

Hypothesis 2: Participants would form groups congruent with their racial values as as a function of their collective self-esteem.

Method: In vivo spatial tracking

Overview: To capture participants' spontaneous social groups, we hosted an open-air experiment at Forsythe Barr Stadium – the largest indoor turf stadium in the world. Eighty-seven participants (mean age = 23.16, SD = 6.29; 41 men, 46 women; 65 white participants, 12 Asian participants, 8 "others") were run across two sessions in a 30 x 25 meter space. Participants were discreetly filmed throughout the study using a ceiling-mounted camera. See Figures 2 – 3 for images of the participants as seen on the ground, and from the overhead camera whose feed was analyzed with a custom program developed by the New Zealand-based company, Animation Research Limited.
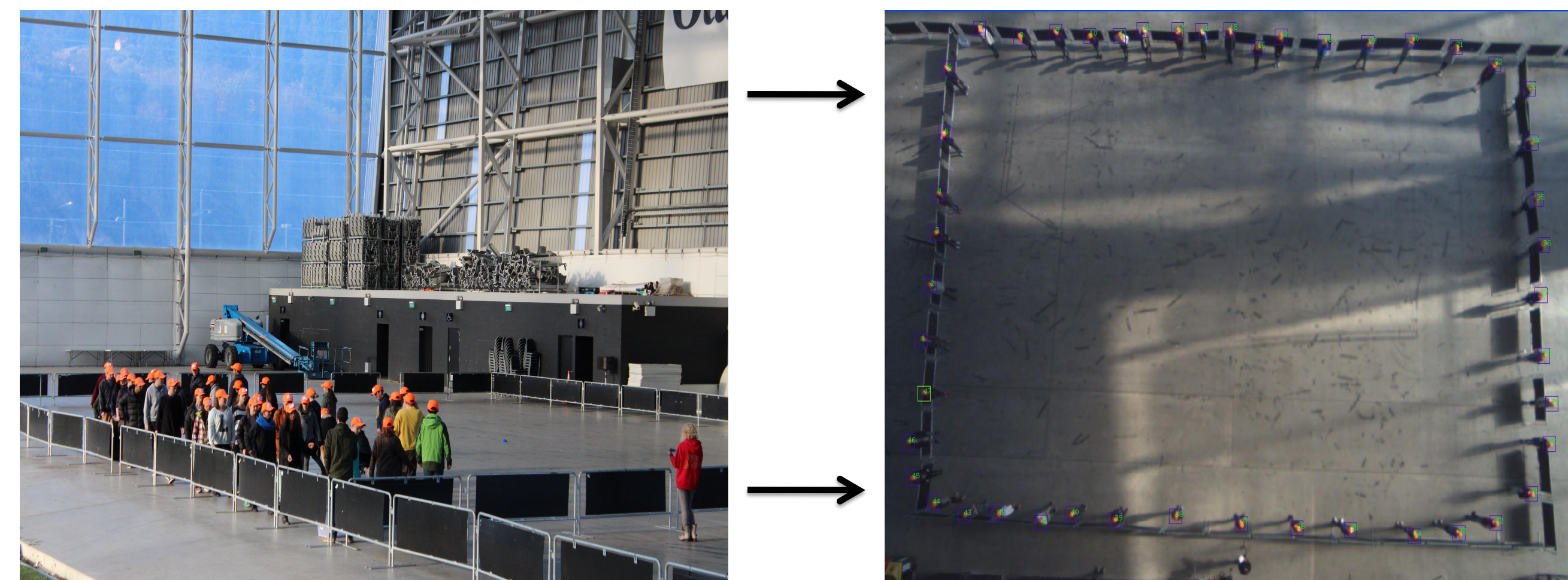
Figures 2-3: Participants viewed during the experiment in real time and during tracking

Minimal Groups Paradigm: To simulate a minimal groups paradigm, we randomly assigned participants to wear either a blue or yellow nametag at the beginning of the study. Examples of these nametags are given in Figure 4. During analysis, we regressed the color of participants' own badge number against the ratio of yellow and blue badge wearers in their social groups.


Small Groups: During the experiment, Participants were instructed to form groups of "any size and composition." Participants formed three sets of three groups, returning to the perimeter of the experimental area after each set. See Figure 5 for an overhead view of participants in groups.


Group Value congruence: To assess the social value emphasis that participants placed on their groups, we regressed participants' responses on the Attitudes Towards Asians (ATA) scale against the ethnic composition of their social groups.

Results and Discussion

Results were analyzed on MATLAB to define participant groups through k-cluster means analysis. Degrees of fit were provided by breaking the data into different numbers of clusters using a silhouette procedure which calculates and displays a measure of how close any point in any cluster is to points in the neighboring clusters. In our analysis, we chose cluster numbers that maximized this measure. See Figure 6-7 for this visual output.
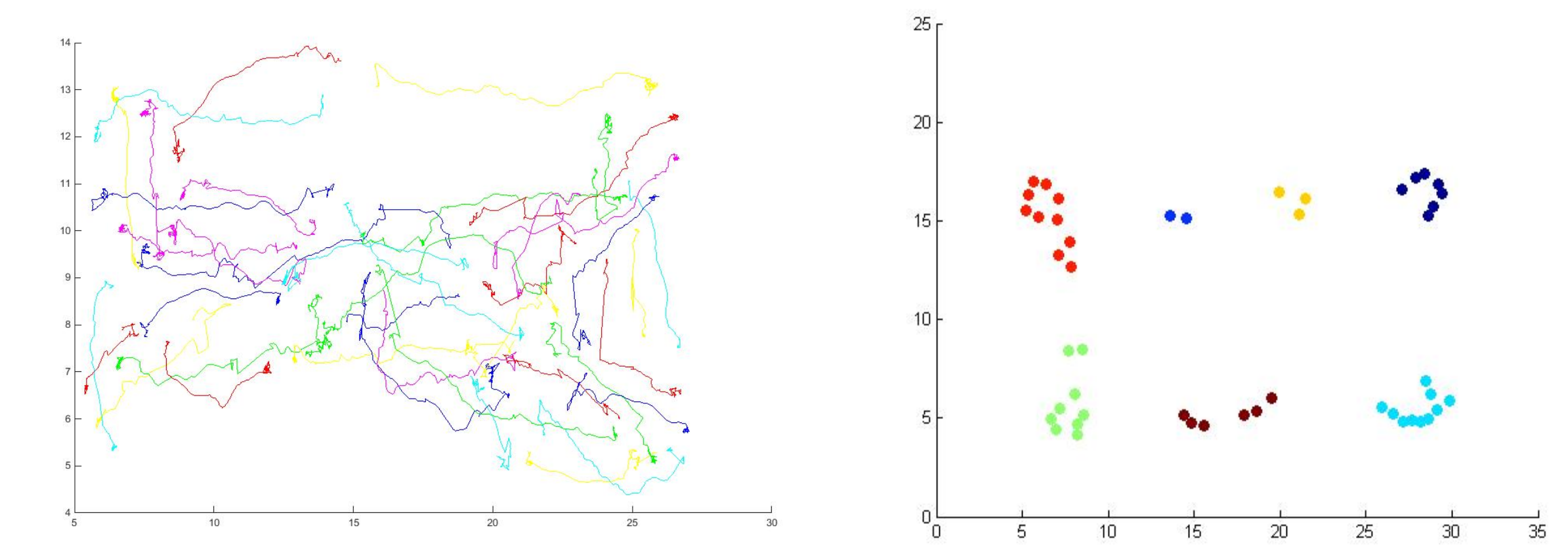
Figures 6-7: Participants data visualized on MATLAB as they walked to their new groups (Figure 6) and stood in their groups (Figure 7).
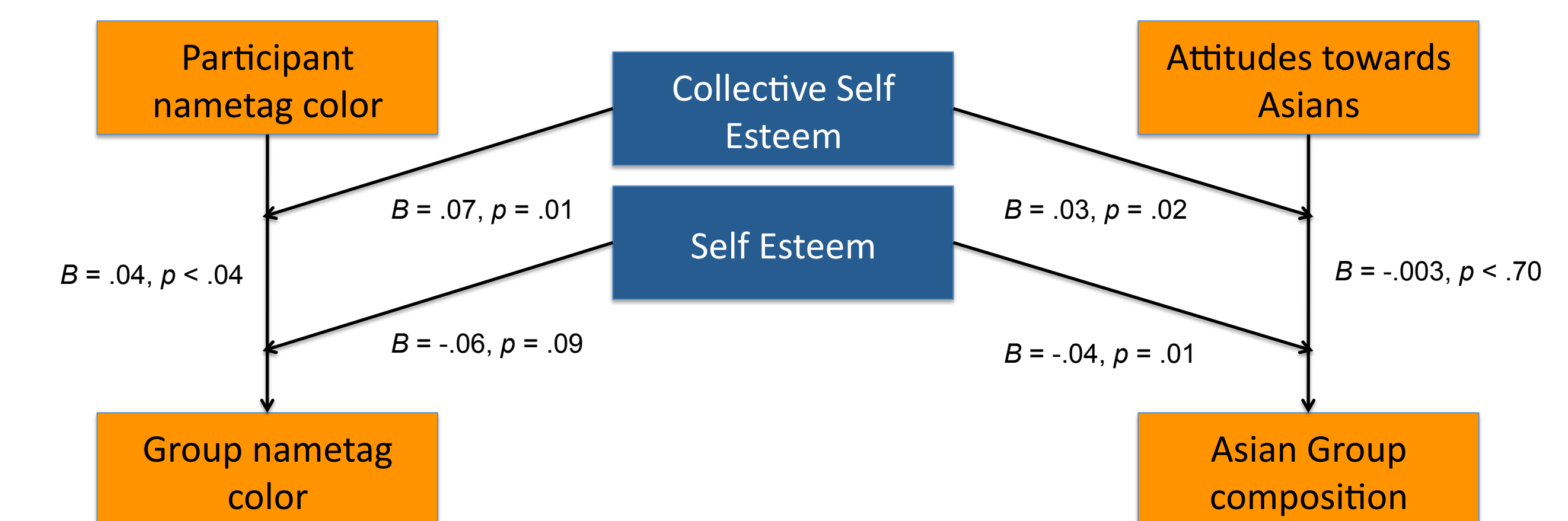
These in-vivo grouping data showed that self-esteem and collective self-esteem have diverging effects on group formation. Participants with lower self-esteem, but higher collective self-esteem, formed more value-based groups. These results support an emphasis model of esteem, in which we support areas of esteem that we feel more assured of. People with with low individual self-esteem emphasize their collective self, while those with low collective self-esteem de-emphasize their collective self. This work allows a more complete understanding of our esteem processes, and the means by which we form identity.
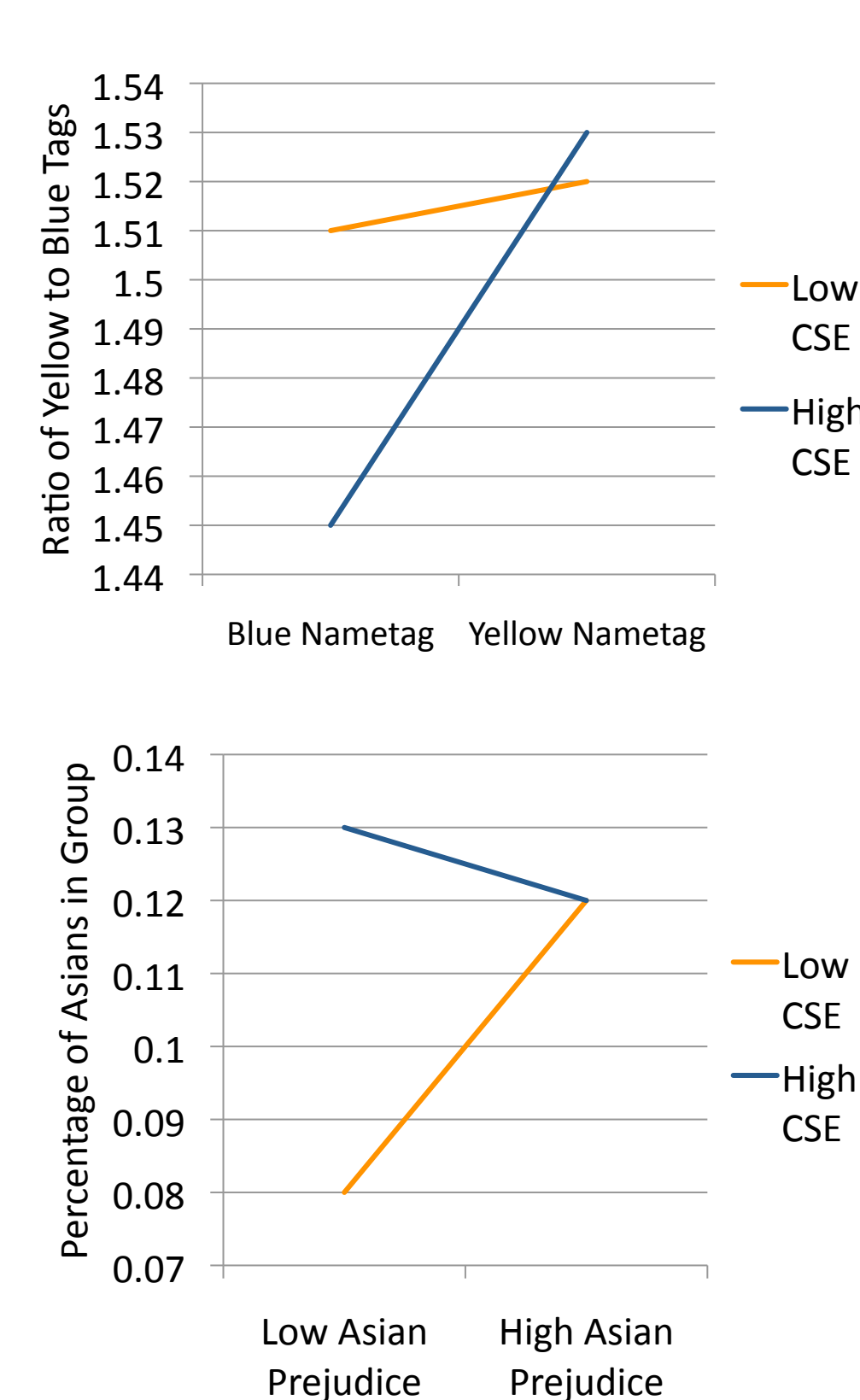
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Tajfel, H. (Ed.). (1982). *Social identity and intergroup relations* (Vol 1). Cambridge University Press