Novel stadium-based research helps us understand group dynamics

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Credit: Francisco Farias Jr/public domain

New Psychology research led out of New Zealand's University of Otago

is backing up the old saying that "birds of a feather flock together". The findings emerged after researchers used high-definition video cameras on the roof of a large covered stadium to track and analyze how strangers formed groups.

They found that individuals were likely to join groups containing members with similar physical traits—including levels of attractiveness. The researchers also discovered that attractive women were the most likely to be placed in the physical center of social groups.

These are the first findings from a unique social psychology experiment using Forsyth Barr Stadium in Dunedin, New Zealand as a giant laboratory. The study appears in the journal *PLOS ONE* and involved researchers at the University of Otago; the University of Oxford, UK; the University of Maryland, USA; and Dunedin company Animation Research Ltd (ARL).

The research team used a high-definition sports video camera mounted on the stadium's roof to record and track the behavior of 172 study participants as they interacted in a 600m2 space. Each participant was given a numbered cap to wear, so they could be identified as they moved around. Custom-made ARL sports tracking software was used to gain 30 sets of co-ordinates each second for every person.

They were also photographed on the day by the research team; with the physical attractiveness of each participant was rated by three members of the research team to produce an averaged single attractiveness score. This score was later matched with observations about how individuals grouped together.

Participants were asked to "mingle" while the researchers set up the study, and to form groups of any number and composition and raise their hand once this was done. They were also directed to form new groups

eight more times.

Study lead author Professor Jamin Halberstadt, of Otago's Department of Psychology, says the study aimed to test the feasibility of the novel research approach and to answer several longstanding, fundamental questions about the first stages of social group formation.

"For one, we wanted to know if people group together based on physical traits that they share, such as gender or physical attractiveness.

"We also wanted to find out if these traits predicted the physical position of individuals in their groups. Finally, we sought to determine if how close they stood to others would predict how cooperative they would be in a future group task," he says.

The researchers found that on average, participants formed groups of six individuals, and that they were more likely to approach others of similar attractiveness.

According to Professor Halberstadt, "Women and attractive individuals were also more likely than men and unattractive individuals to be in the center of their groups. Our analysis could not confirm whether this was because they acted as 'social attractors', although this is the likely explanation—as we didn't find evidence that they were jumping into the middle of the group as it formed."

Finally, analysis of how close an individual stood to other members when the group formed showed that those who "submerged" themselves in their group put less effort into a later "foraging" task that required the entire group to co-operate.

The task involved gathering 500 one-inch washers, randomly scattered around the stadium, and depositing them one at a time in a large basin in

a corner of the stadium.

"Participants who were closer on average to other participants at the beginning of the study were also the ones who were less cooperative at the end of it. This is consistent with a known association between anonymity and 'social loafing', but more research is needed to clarify what are the motivations behind, and the links between, the behaviors we saw," he says.

Professor Halberstadt says that up until now, researchers of group behavior have had to either sacrifice the spontaneity and freedom of movement of field observations, or the control and precise measurement of the laboratory setting.

"We've now found a happy medium by using a stadium-size laboratory and applying unobtrusive state-of-the-art tracking technology to participants' social behavior," he says.

Co-author Dr Jonathan Jong, from the Institute of Cognitive and Evolutionary Anthropology at the University of Oxford, says "Our main breakthrough came in knowing what to film and how to analyze the film later. Most measures of cooperation are pretty overt or direct, but we looked at the subtleties of how people moved during the cooperation task, and devised algorithms to analyze the data in order to obtain the results."

Provided by University of Otago