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### Spatial Perspective Taking

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# Spatial Perspective Taking

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## Introduction

Perspective taking is the literal act of adopting the perspective of another individual in order to understand a situation from another's point of view. In spatial perspective taking, an individual attempts to mentally adopt the physical vantage point of another in a given situation by mentally maneuvering oneself into another's bodily positioning.

Clements-Stephens and colleagues (2013) utilized inanimate objects with human-like features (i.e. wooden triangles affixed with eyes) and comparing them to human-like objects, as well as comparing two stimuli possessing human agency (wooden artist dolls and fashion dolls). The results found that perspective taking occurred with less difficulty when figures possessing greater human agency were present.

In a study presented by Furlanetto and colleagues (2013), the researchers demonstrated the difference between the intentional actions of eye gaze and reaching. Using scenes representing an actor seated at a table and acting on one of two stable objects by either gazing at the objects, reaching for the objects, or a combination of both actions, the researchers found that when the actor was perceived as interacting more with the surrounding environment (i.e. reaching for the object), the responses in allocentric perspective taking increased.

The current study focuses on spatial perspective taking, with a focus on the potential differences between the physical gestures of reaching and grasping through an allocentric and egocentric perspective.

## Participant and Method

### Participants

Participants were 70 college students 18+ years old. (57 Females and 13 Males)

### Materials

Participants were presented with photographs displayed on a computer monitor conducted through DMDX (a psychological software used for stimulus presentation and data collection). In each photograph, participants were presented with an image of a human (an African-American female or a European-American female) seated at a table on which two target objects (a red cup or a white glass) were presented.

### Design

Participants were asked to come to the Psychology Lab on campus after agreeing to participate in the study through SONA (a website used to recruit students for various psychological studies on campus). The researchers would have DMDX set up on the computers. prior to the participant's arrival. The researchers would randomly assign instruction (Egocentric vs. Allocentric) to the participants that would come in on that specific day. Once the participant came in to the lab, the researcher would seat them to a computer with the DMDX program and they would be told by the researcher whether they have an allocentric or egocentric perspective and then they would take a practice trial and then begin the task.

Each participant is shown a picture (like in *Fig. 1 on the right*) and would be asked either "Where is the Red Cup?" or "Where is the White Glass?" The visual stimuli were randomized according to the presenting visual angle (0°, 45°, 90°, 135°, and 180°) They would have to use the left or right shift key of the keyboard to answer if the cup or glass was on the left or right. They were shown 306 images for the African-American trial and would have a short break before completing another 306 images with the European doll for a total of 612 trials.

## Results

Results found no effects of gaze and grasping such that there was no difference in participants' perspective taking whether the human in the picture gazed at or grasped the object or not. However, reaching has an effect such that perspective taking is faster when the reaching action is consistent with the probed perspectives.

Source	Sphericity Assumed	DF	Sig.
Gaze	S.A.	2	0.737
Gaze * Instruction	S.A.	2	0.592
Action	S.A.	4	0.002
Action * Instruction	S.A.	4	0.220
Gaze * Action	S.A.	8	0.034
Gaze * Action * Instruction	S.A.	8	0.753

## Conclusion

- The results highlighted the importance of agents' intents (but not action) as manifested by hands, but not eyes, in spatial perspective taking.



Figure 1