**Methods**

**Participants**

[30] undergraduate students were recruited from the Stanford Psychology 1 credit pool. The students received course credit for participation. [sentence(s) about excluded participants] The final sample included [x] participants.

**Materials and Design**

Eye-tracking software from SensoMotoric Instruments (SMI) was used to design the study and to collect the coordinates of participants’ eye gazes. The design of the video was based on a paradigm introduced by Yurovsky and Frank (2015) and further developed by MacDonald, Yurovsky, and Frank (under review) to include the presence of a social cue. Participants viewed the video either on a laptop or on a detached computer monitor.

In total, the video used in this study consisted of two training pairs, whose order was fixed and which appeared at the beginning of the video, and sixteen novel pairs, whose order was randomized. Sixteen novel words were featured, which were pseudowords recorded by an AT&T Natural VoicesTM speech synthesizer using the “Crystal” voice (a woman’s voice with an American English accent). The video also featured a total of 48 novel objects, represented by black-and-white drawings of fictional objects from Kanwisher, Woods, Iacoboni, and Mazziotta (1997).

Each participant was randomly sorted into either the *gaze* or *no-gaze* condition. The experiment consisted of a series of paired *exposure* and *test* trials. On exposure trials, a woman’s face appeared on the screen above two novel objects. The woman’s face either looked straight ahead (in the *no-gaze* condition) or turned toward one of the objects and back to straight ahead (in the *gaze* condition), while a woman’s voice pronounced a novel (nonsense) word. Exposure and test trials appeared in pairs, such that each exposure trial was followed immediately by a test trial. On test trials, one of the two objects from the exposure trial remained on the screen, while a new object replaced the other object. In both conditions, the woman’s face looked straight ahead on test trials, while the voice repeated the word from the immediately preceding exposure trial.

[screenshots of exposure/test trial pairs in the gaze and no-gaze conditions]

Of the sixteen novel test trials, eight displayed (“kept”) the object that had been on the left in the corresponding exposure trial, while the other eight kept the object that had been on the right. Additionally, the position of the “kept” object was counterbalanced such that it appeared on the left for half of the test trials and on the right for the other half of the test trials. The second of the two objects in the test trial had not previously appeared in the video. Finally, in the *gaze* condition, half of the test trials kept the object that the face had “looked at” in the corresponding exposure trial, while the other half kept the object that the face had not looked at. This aspect of the experiment was crucial because it allowed us to examine how much attention participants allocated to objects that were not socially cued.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Novel word | Trial type | Object on left | Object on right | Gaze direction, in *gaze* condition |
| “vamey” | Exposure | Object 1 | Object 2 | Left |
|  | Test | Object 1 | Object 3 |  |
| “taspu” | Exposure | Object 4 | Object 5 | Right |
|  | Test | Object 5 | Object 6 |  |
| “plizet” | Exposure | Object 7 | Object 8 | Left |
|  | Test | Object 9 | Object 7 |  |
| “fengle” | Exposure | Object 10 | Object 11 | Right |
|  | Test | Object 12 | Object 11 |  |
| “roosa” | Exposure | Object 13 | Object 14 | Right |
|  | Test | Object 13 | Object 15 |  |
| “puser” | Exposure | Object 16 | Object 17 | Left |
|  | Test | Object 17 | Object 18 |  |
| “jic” | Exposure | Object 19 | Object 20 | Right |
|  | Test | Object 21 | Object 19 |  |
| “suleb” | Exposure | Object 22 | Object 23 | Left |
|  | Test | Object 24 | Object 23 |  |
| “deecha” | Exposure | Object 25 | Object 26 | Left |
|  | Test | Object 25 | Object 27 |  |
| “loga” | Exposure | Object 28 | Object 29 | Right |
|  | Test | Object 29 | Object 30 |  |
| “wiffle” | Exposure | Object 31 | Object 32 | Left |
|  | Test | Object 33 | Object 31 |  |
| “malsig” | Exposure | Object 34 | Object 35 | Right |
|  | Test | Object 36 | Object 35 |  |
| “balip” | Exposure | Object 37 | Object 38 | Right |
|  | Test | Object 37 | Object 39 |  |
| “chila” | Exposure | Object 40 | Object 41 | Left |
|  | Test | Object 41 | Object 42 |  |
| “benez” | Exposure | Object 43 | Object 44 | Right |
|  | Test | Object 45 | Object 43 |  |
| “feenam” | Exposure | Object 46 | Object 47 | Left |
|  | Test | Object 48 | Object 47 |  |

Table 1. Object layout, novel words, and gaze directions.

Some of the exposure/test trial pairs were *training* pairs. The objects in training trials were commonly recognizable objects, such as a squirrel or a cup, while the corresponding words were common English words that corresponded to an object on the screen, such as “squirrel” or “tomato”. The training trials were meant both to signal to the participant that the face was “labeling” objects on the screen and to check that participants were following the face’s gaze (in the *gaze* condition). In the *no-gaze* condition, the woman’s face looked straight ahead as the objects were labeled, while in the *gaze* condition, she looked at one of the two objects, consistent with the novel trials.

[one or two screenshots of training trials]

**Procedure**

Participants were seated in front of a monitor and told they would watch a very short video, during which their eye movements would be recorded. They were asked to stay still and to keep their eyes on the screen. The experimenter then began the video, which consisted of a five-point calibration, two training trials, and sixteen novel trials. The experimenter then stepped away from the screen until the experiment was over.