The Effect of Question Wording on the Resolution of Visual Ambiguity

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Hypothesis:

- Ambiguity will be resolved the fastest in the “one of two” condition when the participants are required to identify only one of the two possible features of the ambiguous picture.
- The participants in the “two of two” condition will have a slightly slower reaction time than the participants in the “one of two” condition because they will need a few moments to recognize the dual nature of the ambiguous picture.
- The participants in the “two as one” condition should have the slowest reaction time because they will need more time to consider the possibility that the two aspects of the ambiguous picture could be combined to form a cohesive whole figure.

Method:

- **Participants:** A convenience sample of 25 college students
- **Materials & Procedure:** We created this experiment using the “SuperLab 4.0” computer program. Each trial began with the participant being randomly assigned to one of three treatment groups. The participant was then shown the instructions followed by the ambiguous picture, L’Amour de Pierrot. The ambiguous picture remained on the computer screen for a total of 700 ms, and once the ambiguous picture vanished a question appeared on the screen. The participant responded to the question by pressing a key on the computer keyboard which corresponded to his or her answer choice.

Results:

- A one-way between subjects ANOVA identified a non-significant effect of question wording on the resolution of visual ambiguity, F(2, 18) = 1.68, p > .05. The results were calculated using the data from 21 participants.

Discussion:

- The results from the present study could imply that mental images are recreated in the mind from actual images in a unified manner rather than in a fragmented way.
- The participants may have had mental images of the ambiguous picture which did not emphasize one aspect of the ambiguous picture over the other, and instead represented and integrated both aspects equally.

Abstract:

Ambiguity is valuable because it can lead to new insights which arise from a shift in perspective. In order to evaluate how visual ambiguity is resolved, college students were shown an ambiguous picture and asked to respond to one of three questions. These three questions varied in sentence structure, and they assessed the students’ ability to identify whether the ambiguous picture had one of two components, two of two components, or two independent components which form one cohesive unit. Contrary to the researchers’ hypothesis, the way in which the questions were worded did not influence how quickly ambiguity was resolved.

Background:

- **Piaget’s Theory of Development:**
  - **Assimilation & Accommodation:** Ambiguity can be overcome more quickly if a preexisting schema can be used to evaluate the new information (assimilation).
  - **Ambiguity & Reaction Time:** Ambiguity will be resolved more slowly when the schema is reconstructed or expanded to include the new information (accommodation).
  - **Contrary to Hypothesis:** Bruner, Busiek, and Minturn’s (1952) found that the participants’ sketches of the unlabeled ambiguous figures reflected only one theme. The participants who were provided with the fewest options or labels resolved ambiguity the fastest.
  - **Clark and Chase (1972):** Found that participants will uncover the meaning of a sentence and a picture, or resolve ambiguity more quickly, if a comparison can be made between the sentence and the picture.
  - **Simpson & Burgess (1985):** Also found that there is a preference for identifying an ambiguous word based on one meaning rather than two definitions.
  - **Rock and Mitchener (1992):** Found that only one-third of the participants in the experimental condition were able to see the dual nature of the ambiguous figures.

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