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THE EFFECT OF FAMILIARITY ON TRUTHINESS JUDGEMENT

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By

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ABSTRACT

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The Effect of Familiarity on Truthiness Judgement

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Judgments on whether a statement is true are influenced by various factors. For example, Newman et al. (2012) found participants rated a statement as true if it was presented with a related photo, even if the photo did not provide any evidence that the statement is true. This phenomenon is known as the truthiness effect. Despite a large number of existing studies, little has been known about the mechanism underlies the truthiness effect. In the memory literature, previous studies demonstrated that simply repeating an item, such as a word, makes it more memorable (Jacoby & Whitehouse, 1989), suggesting that mere exposure facilitates conceptual processing and leads to high familiarity. The current study investigated whether pre-exposure of a photo increases familiarity, which influences people to judge a statement as true regardless of whether the statement is true. The study consisted of two phases: a pre-exposure phase, and a judgement phase. During phase 1, a series of photos were shown to participants, and they were asked to make a likeness judgment for each. In phase 2, they were shown a series of statements with a photo or no photo, where they would determine the truthfulness of the statement. Critically, half of the photos in phase 2 were used in phase 1. Participants judged statements as more truthful when they were presented with a photo, as compared to when they were not, which is consistent with previous studies. The truthiness effect disappeared when the photo was pre-exposed. The new finding suggests that familiarity through pre-exposure of a photo makes things more believable and truer even if the statement is indeed false.

Keywords: truthiness, familiarity, judgment, pre-exposure, truthiness-effect

The Effect of Familiarity on Truthiness Judgement

People rely on many factors to determine whether an ambiguous statement is true or false. Ambiguous statements are those that are difficult to determine if they are true or false. In a study conducted by Newman et al. (2015), it was determined that when participants were shown ambiguous statements with related, they would think the statement is more true than false. The pictures that were related to the statements did not overtly show if a statement was true or false, but it was related to it in some way. For instance, if a statement was "Elephants never forget," an elephant picture would be paired with that statement. Newman et al. (2015) dubbed the phenomenon of rating a statement true when shown a related picture paired with it, the truthiness-effect. Although there are many studies that have been conducted based off of the truthiness-effect, the underlying mechanism is unknown. The aim of the current study is to further understand the mechanism that underlies the truthiness-effect.

A famous study in the memory and cognition side of psychology is the study done by Jacoby and Whitehouse (1989) that aimed to understand how items might be falsely recognized. They determined that the repeating an item, such as a word, would make it more memorable to a person (Jacoby & Whitehouse, 1989). Making an item more memorable leads to higher familiarity and therefore would increase the likelihood of rating a statement as true, according to Fazio et al. (2019). Fazio et al. (2019) further explained that if an ambiguous statement is repeated more than once, it seemed more likely that that statement was true. Therefore, if a statement is familiar then participants might be more inclined to rate an ambiguous statement as true.

Combining the idea of familiarity with the truthiness-two studies would lead to further understanding the mechanism of the truthiness-effect. Further, the aim of the current study is to determine if pre-exposure of a picture would increase the likelihood of rating an ambiguous statement as true, regardless if the statement is true or false. The expected results of the study are that participants will rate a statement paired with a pre-exposed picture as truer than a picture that is not previously exposed. The following will address the methods of this study.

Method

Participants

Thirty-nine participants were recruited from the Psychology subject pool at the University of Montana. Considering item difficulty, four different sets of the materials (see below for details) were pre-determined, and participants received one of the four sets; there were 11, 10, 10, and 8 participants were assigned to study type 1 to study type 4, respectively, for the four sets.

Design

The design of the current experiment was a 2 x 2 within-subjects factorial design. The first independent variable consisted of two conditions: pre-exposure of a picture and no pre-exposure of a picture paired with a related statement. The other independent variable consisted of two conditions: a picture paired with a statement and no picture paired with a statement.

Materials

The materials used in this study were 64 ambiguous true and false statements. These statements were paired with related pictures. Half of the statements were true, and half of the statements were false. Statements were adopted from Newman et al. (2015), Fazio et al. (2019), and Tauber et al. (2013). Related pictures were chosen from Newman et al. (2015) or selected from Google. The statements were ranked in order of how likely they would be correctly answered true (i.e., item difficulty), and they were counter-balanced across each study type so that each statement would be a part of each condition.

Procedure

Phase 1. First, participants were shown four practice statements that were the same format, as seen in Figure 1. Participants were first shown 32 pictures that were related to statements that would be shown later in Phase 2. Half of these pictures were related to true statements and half were related to false statements. Participants were asked ‘How much do you like or dislike this picture?’ and then answered by rating the picture on a scale from 1 to 5 (1=Strongly Dislike, 2= Dislike, 3= Neutral, 4= Like, 5=Strongly Like).

Phase 2. Participants were shown eight practice statements before the experimental trials began. Then, participants were shown 64 statements in total. Statements were randomly shown with either no picture or with a picture, as seen in Figure 2. For the picture and exposure condition, 16 statements were shown with their related pictures that were shown previously in Phase 1; half of the statements were true and half were false. Similarly, 16 statements were shown for the no picture exposure condition that were related to pictures that were shown in

Phase 1. Sixteen statements and pictures were shown for the picture and no pre-exposure condition, that were not shown before. Finally, 16 statements were shown for the no picture and no pre-exposure condition. For each statement that was shown, participants were asked if the statement was true or false. These answers were recorded and analyzed.

Results

Scores were compiled into three measures: hit responses, false alarm responses, and truthiness bias across conditions.. 'Hit' responses refer to responses that were answered 'true' correctly for true statements (see Figure 3). For the pre-exposure condition for no picture and picture conditions the mean score was 0.676 and 0.696, respectively. The mean scores for the no pre-exposure condition for no picture and picture conditions was 0.625 and 0.678 respectively. 'False alarm' refers to responses that were answered 'true' incorrectly to false statements (see Figure 4). Mean scores for pre-exposure condition for no picture and picture condition was 0.414 and 0.429, respectively. The mean score for no pre-exposure condition for the no picture and picture condition was 0.397 and 0.436 respectively. Finally, truthiness-bias refers to how participants tended to answer true or false. As seen in Figure 5, a negative bias refers to the tendency to answer true, while a positive bias refers to the tendency to answer false. For the pre-exposure condition with the no picture and picture condition mean scores are -0.149 and -0.177 respectively. Finally, the mean scores for the no pre-exposure condition for the no picture and picture conditions -0.037 and -0.212, respectively.

Two related two-sample t-tests were conducted on the data to determine statistical significance. Pair 1 and Pair 2 results are depicted in Table 1, where Pair 1 is the outcome of the current study, and Pair 2 was the results from Newman et al., (2015) for comparison. There was a statistically significant difference when items were not previously exposed between picture and no picture conditions, $t(38)= -2.111$, SE=.0830, $p=.041$. Across other conditions there was no statistical significance found, as depicted in Table 1. Therefore, a replication of Newman et al., (2015) study was successfully completed, but when pre-exposure was applied, the truthiness-effect disappeared. This was a new finding and indicates when participants are shown a picture more than once, they do not tend to answer more true than false regardless of the correct answer of an ambiguous statement.

Discussion

The current study found that the truthiness-effect disappeared when statements were pre-exposed using related pictures. This means that the hypothesis was not supported. The Newman et al., (2015) study was also replicated successfully, which is good for future research.

Despite being consistent with Newman et al., (2015) study, there were many limitations to this study. First, in Newman's study, 65 participants were used and in the current study only 39 individuals participated. This reduced the effect-size power, making it difficult to determine accurate results. In future studies, a larger sample size is needed to see if familiarity could affect the truthiness-effect.

Finally, future studies should be considered to see if there are any other variables that are affecting the truthiness-effect. Future studies might include pairing statements with unrelated pictures and comparing results to the results of the current study's related picture condition. Other studies might include comparing paired statements and unrelated statements to statements paired with no picture and then compared to the current study. There is still more research to be done on the truthiness-effect and whether or not it can be affected by familiarity.

References

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Tables and Figures

Pair 1 (Current Study's Outcome)
Pre-exposure Hits for Picture and No picture conditions: t(38)=.598, SE=.0335, p=.554
Pre-exposure False Alarm for Picture and No picture conditions: t(38)=.397, SE=.0398, p=.694
Pre-exposure Bias (C) for Picture and No picture conditions: t(38)= -.318, SE=.0873, p=.752
Pair 2 (Newman et al., for comparison)
No exposure Hits for Picture and No picture conditions: t(38)=1.352, SE=.0395, p=.184
No exposure False Alarm for Picture and No picture conditions: t(38)=1.322, SE=.0291, p=.194
No exposure Bias (C) for Picture and No picture conditions: t(38)= -2.111, SE=.0830, p=.041

Table 1. Inferential statistics gathered from the current study and Newman et al., (2015) study

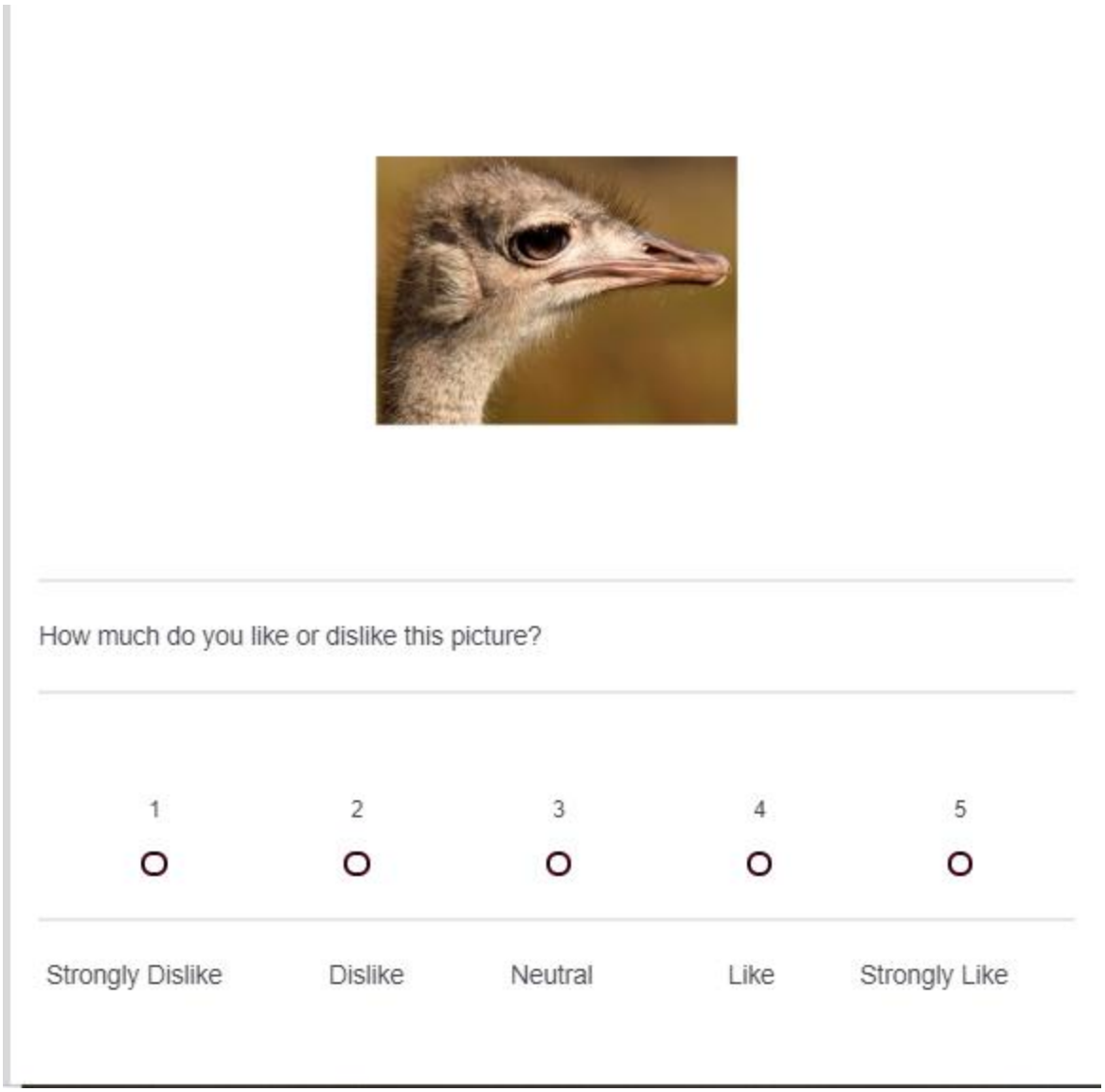

Figure 1. Example of Phase 1 question format

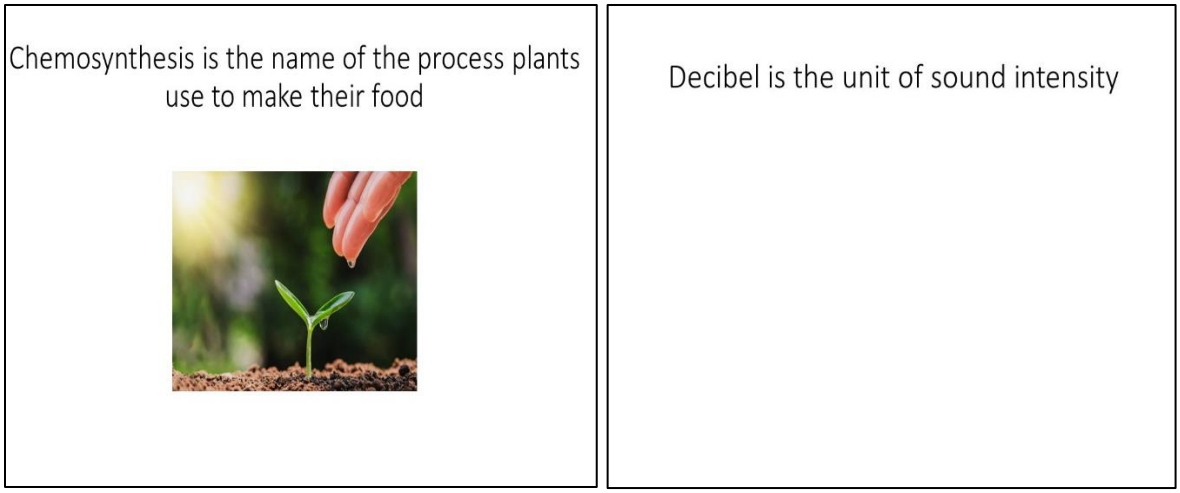

Figure 2. Examples of materials used in the testing phase, Phase 2.

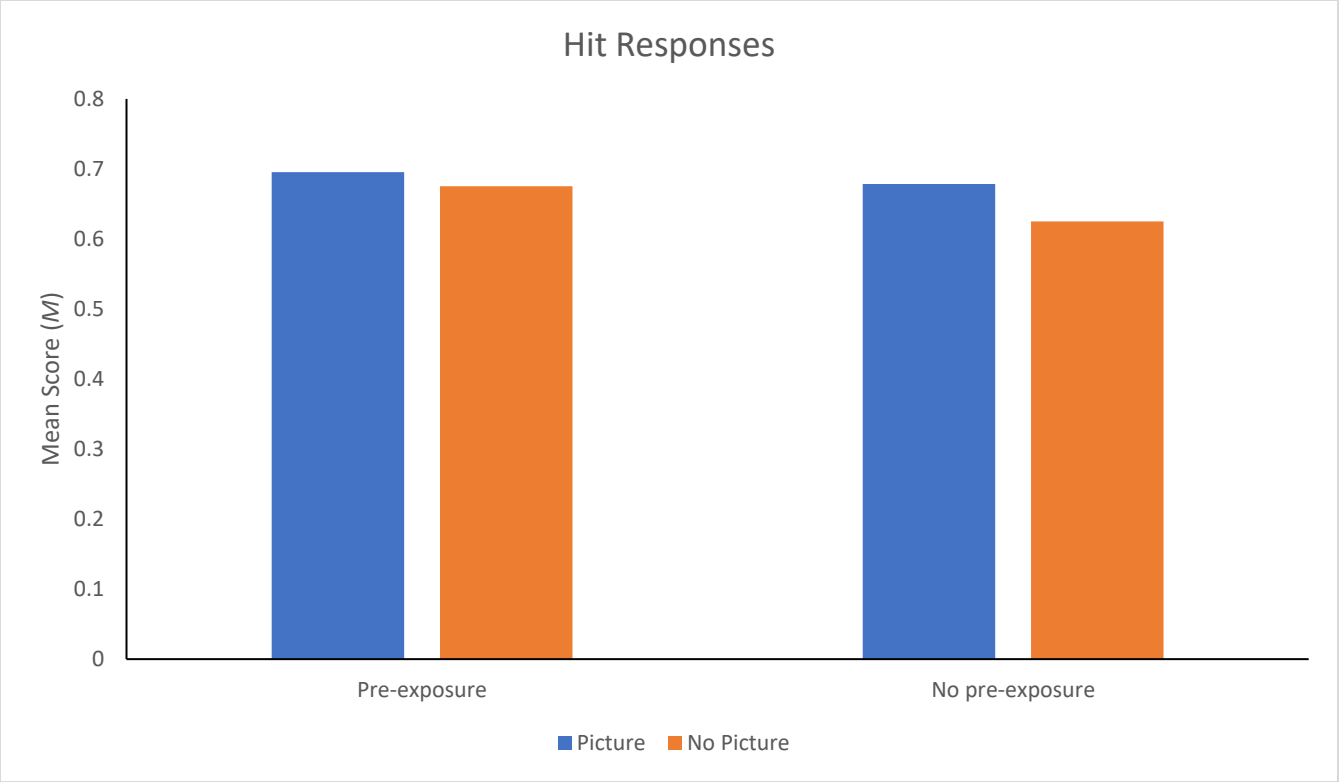

Figure 3. 'Hit' refers to responses that were answered 'true' correctly to true statements. These are the results of the current study for hit responses.

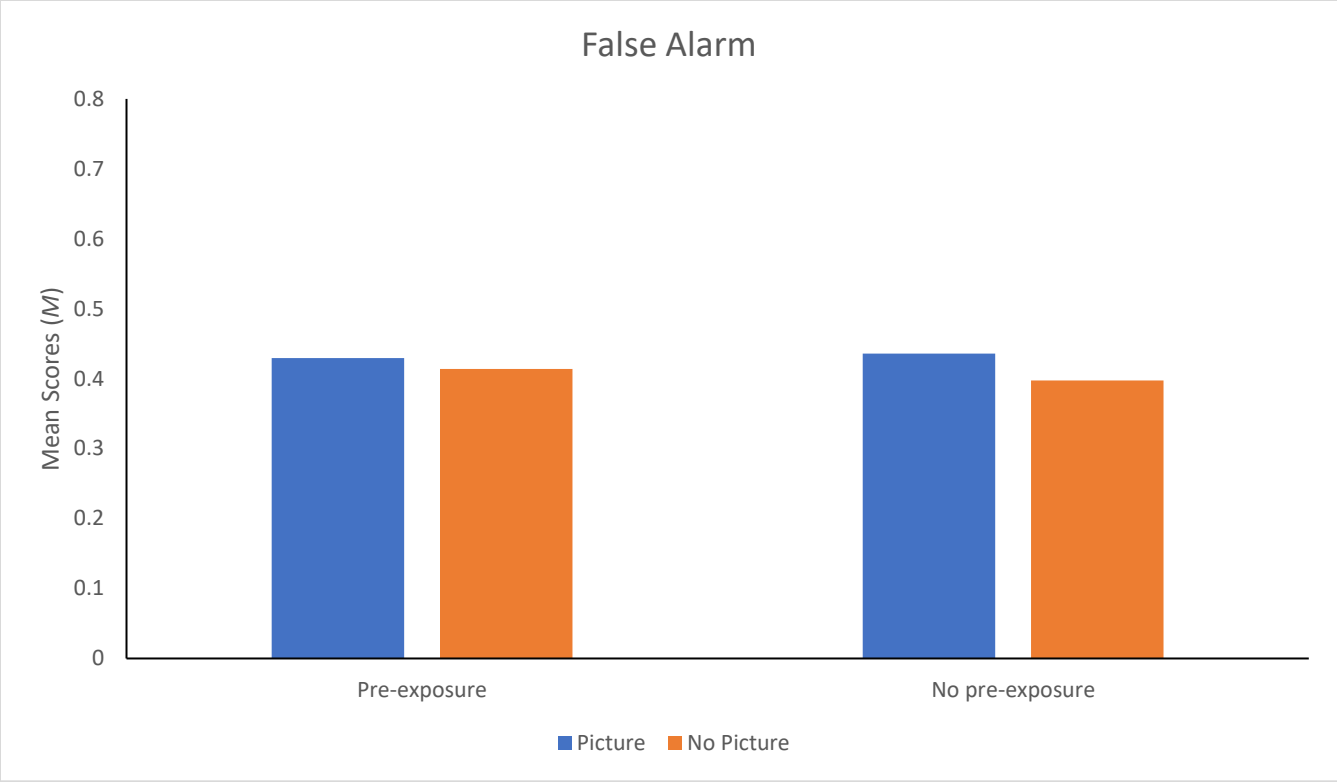

Figure 4. 'False Alarm' refers to responses that were answered 'true' incorrectly to false statements. These are the results for the mean score of the false alarm responses.

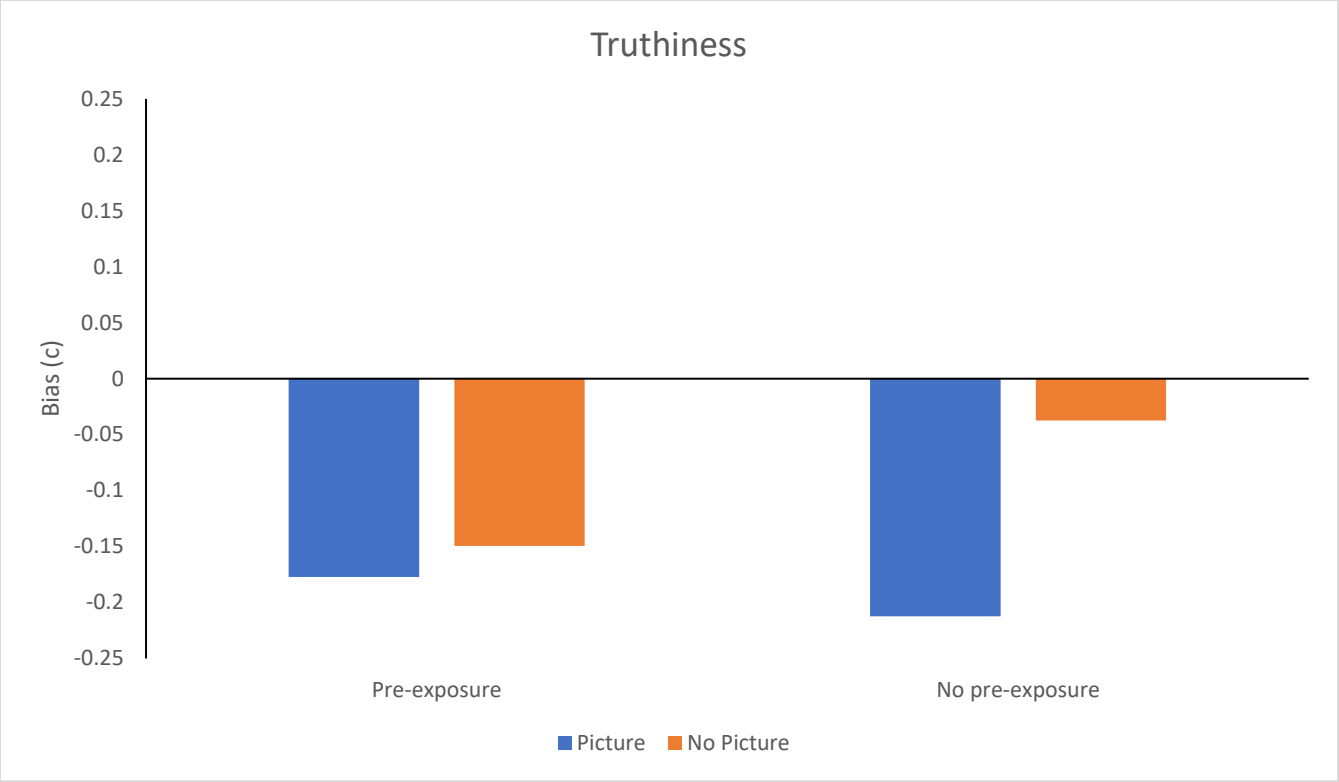

Figure 5. A negative Bias (Criterion (C)) refers to the tendency to answer true, whereas a positive bias refers to the tendency to answer false.