Looking for the big picture? The effect of temporal distance priming on global vs. local eye movements

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Abstract
The current study sought to examine the effects of psychological distance on perceptual processing by measuring eye-movements. Participants were first primed with either high or low psychological distance and subsequently completed a series of eye-tracking tasks. Participants primed with high psychological distance, compared to participants primed with low psychological distance, made significantly longer saccades (p=0.003) when viewing images of indoor scenes. Longer saccades indicate that participants engaged in global processing, integrating more features of the scene in order to understand the big picture. The results suggest that psychological distance influences perceptual processing at the level of eye-movements. While the findings are promising, we describe several planned, future studies to more precisely determine effects of psychological distance on eye-movements.

Methods
Participants:
• 30 Macalester Students and Faculty
• Each participant received $8 for their involvement

Procedure:
• Participants were primed with either high temporal distance (writing about a year from today) or low temporal distance (writing about tomorrow)
• Participants completed two tasks followed by a scene perception task
  • Scene Perception Task
    • 16 Trials
    • Stimuli were images of interior rooms generated by interior design software and used in past scene perception research (Unema et. al, 2005)
  • Each scene was followed by a question regarding either a specific item or the overall distribution of items in the scene

Results

<table>
<thead>
<tr>
<th>Psychological Distance</th>
<th>Mean Saccade Amplitude (SD)</th>
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</thead>
<tbody>
<tr>
<td>High</td>
<td>5.563 (0.949)</td>
</tr>
<tr>
<td>Low</td>
<td>5.280 (1.143)</td>
</tr>
</tbody>
</table>

Discussion

• Hypothesis: Participants primed with high psychological distance will be engaged in more global perceptual processing and will therefore make longer saccades
• Participants in the high psychological distance group made significantly longer saccades than participants in the low psychological distance group (p=0.003).

• Because eye-movements are very closely linked with attention, this difference in eye-movements suggests that people in the high prime condition focused more on the general gestalt of the scene while participants in the low prime condition focused more on the specific features in the scene.

• While the results are promising, three future studies are planned to clarify the relationship between psychological distance and eye-movements:
  1. If high construal level increases saccade amplitude during scene perception, then other dimensions of psychological distance should show the same result as what was found. Therefore, the next study will be to replicate these findings using social and spatial primes of psychological distance.
  2. The next question to address will be to what extend are these results generalizable. Therefore, once the relationship between psychological distance and eye-movements is better established, various other types of scenes and visual images will be tested using psychological distance primes.
  3. If both of the previous two studies produce promising results, a final study will be conducted to examine whether saccade amplitude can be used as an implicit measure for psychological distance in real-world applications. Specifically, the authors will test whether psychological distance of climate change can be measured using eye-tracking.

References