

# perception of art with audio description

evidence from an eyetracking study

Izabela Krejtz, Krzysztof Krejtz, Agnieszka Szarkowska,  
Agata Kopacz, Andrew Duchowski

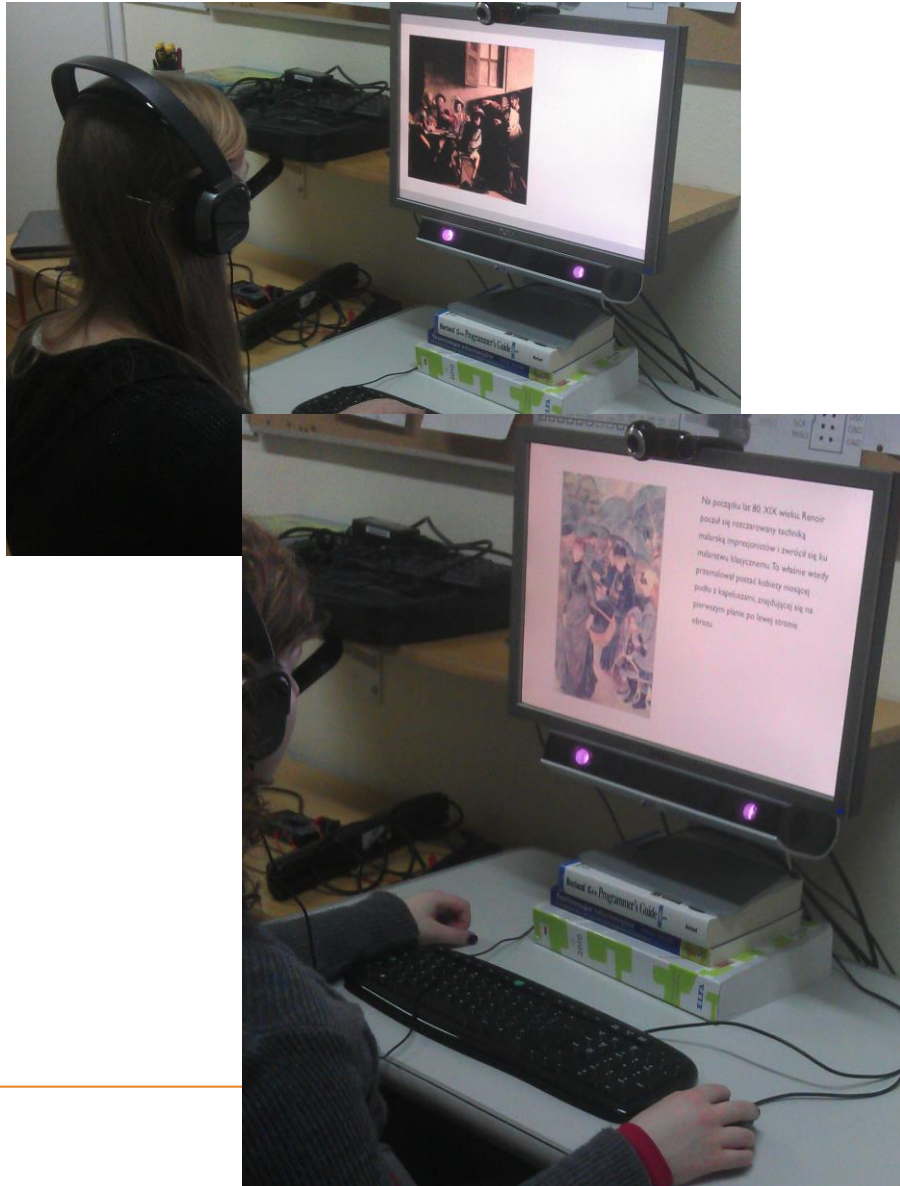
# Impact of AD on learning process

- Visually impaired respondents learn and retain more information from audio described programs,
  - sometimes even outperforming sighted people who did not hear the audio description.  
[Frazier i Coutinhoo-Johnson, 1995; Peli, Fine i Labianca, 1996; Schmeidler i Kirchner, 2001]
- Audio description can be effectively used for facilitating learning among sighted children – educational series  
[Krejtz et al., 2012 a; Krejtz et al., 2012b]
- According to Dual Coding Theory information can be stored and retrieved in both non-verbal and verbal forms, and
  - this dual capacity can facilitate learning because the same information is accessible via multiple routes  
[Paivio 1986; Sadoski i Paivio 2001; Sadoski i Paivio 2004]

# Aims of the project

- Audio description as verbal cues for visual attention
    - Testing the effectiveness of verbal cues in guiding/ modifying viewing patterns during painting perception
  - Influence of AD on learning process
    - testing whether AD fosters recognition of the painting
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# Participants



- 60 highschool students
  - Aged 16-17 years old
  - Men and women
  - Due to calibration problems data of 3 participants were excluded from analyses.
- Students and their parents signed written consent.

# „AD” condition



# Condition with text



Domyślać się można, że dla zleceniodawcy inspirujące były słowa Ewangelii: Potem wyszedł i zobaczył celnika, imieniem Lewi, siedzącego na komorze celnej. Rzekł do niego: "Pójdź za Mną!" On zostawił wszystko, wstał i z nim poszedł. Jednak na obrazie Caravaggia żaden z przedstawionych mężczyzn nie rusza się z miejsca, by zdecydowanie podążyć za Chrystusem. Malowidło ukazuje raczej chwilę dezorientacji i wahania przed podjęciem ostatecznej decyzji związanej z całkowitą zmianą dotychczasowego życia.

# Study design and procedure



Aparatus:

- SMI RED 250
- Sampling rate 250 Hz

- Mixed design:
  - Experimental condition:
    - AD group (painting & audio)
    - TEXT group (painting & text )
    - Control (painting & no audio)
  - Withingroup factor (film part):
    - In AD & TEXT condition there were 2 parts of film:  
introductory info,  
painting with the description
- Memory test (interactive puzzles)

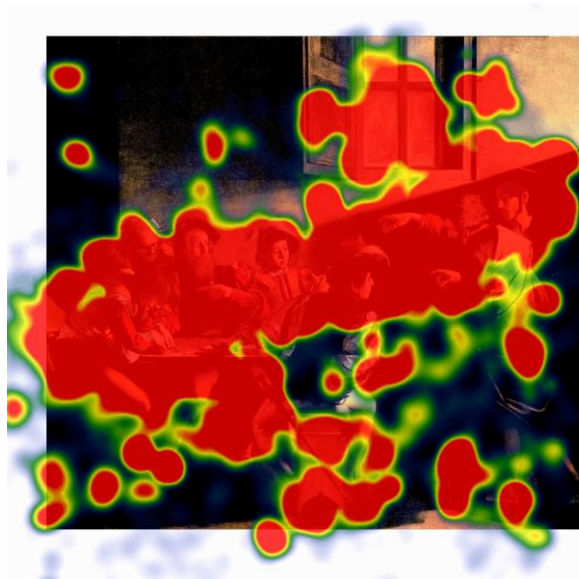


# Predictions

- Eye movement characteristics during viewing the painting
  - More time spent on viewing the painting,
  - Focused/ focal attention,
  - Higher similarity between individual scanpaths.
- Memory test – recognition based heuristics activated:
  - Faster task completion,
  - Less ambient searching during puzzle solving

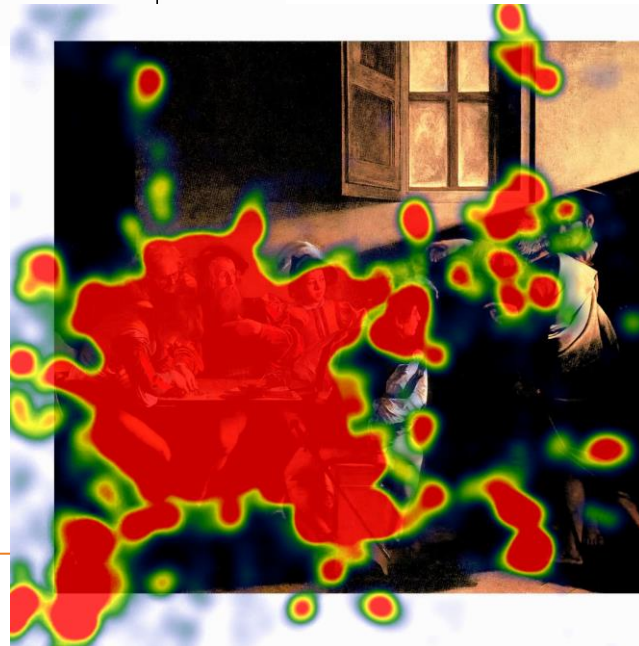


# Heat maps – gaze concentration

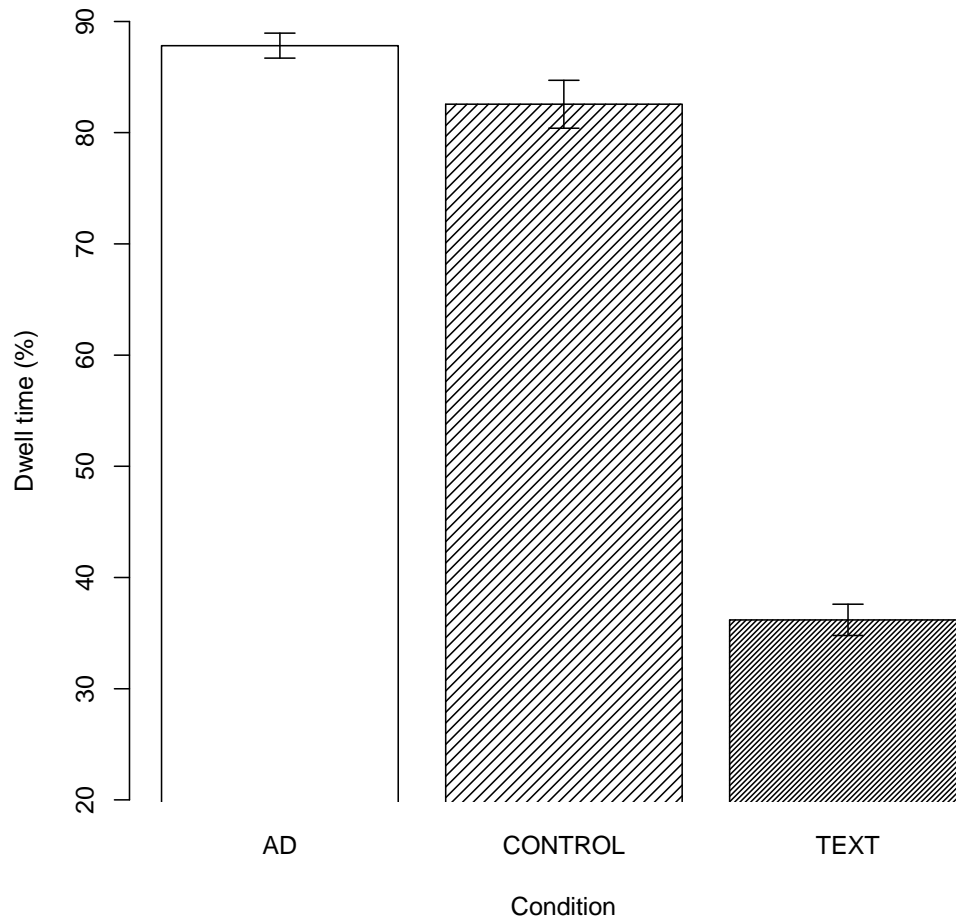


Control condition

AD condition



# Significantly longer dwell time on the painting in the AD condition



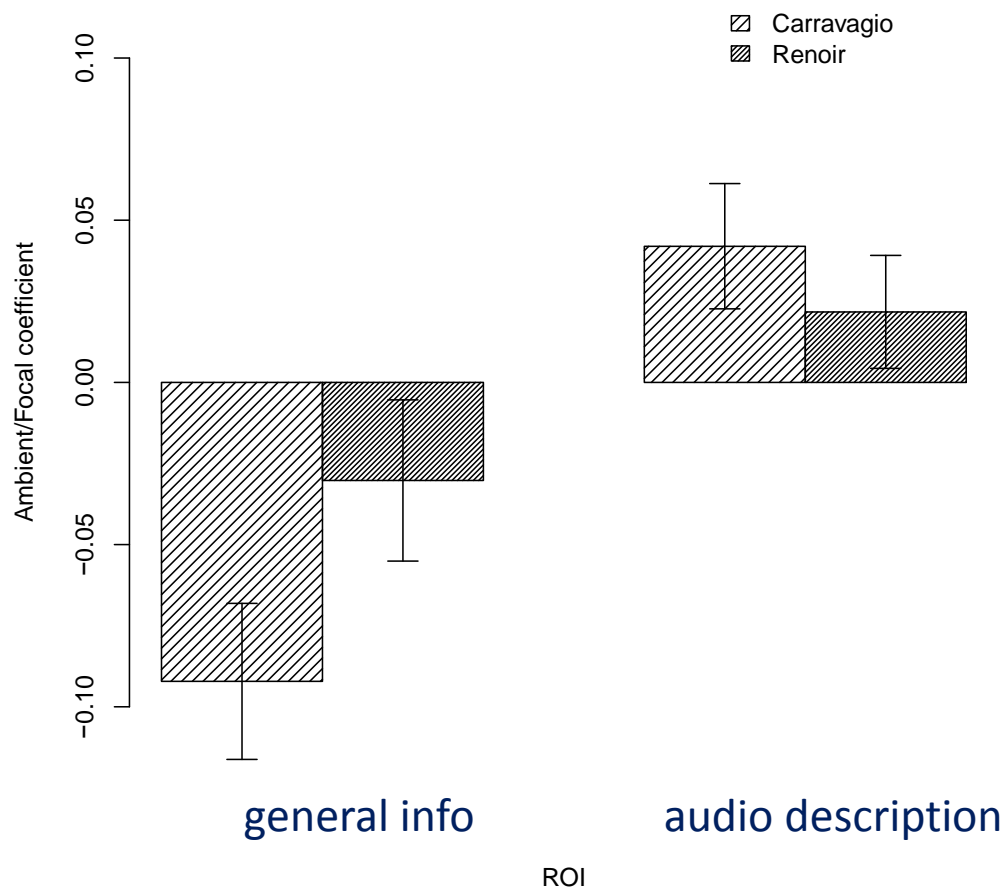
# Guiding attention with AD

Viewing patterns

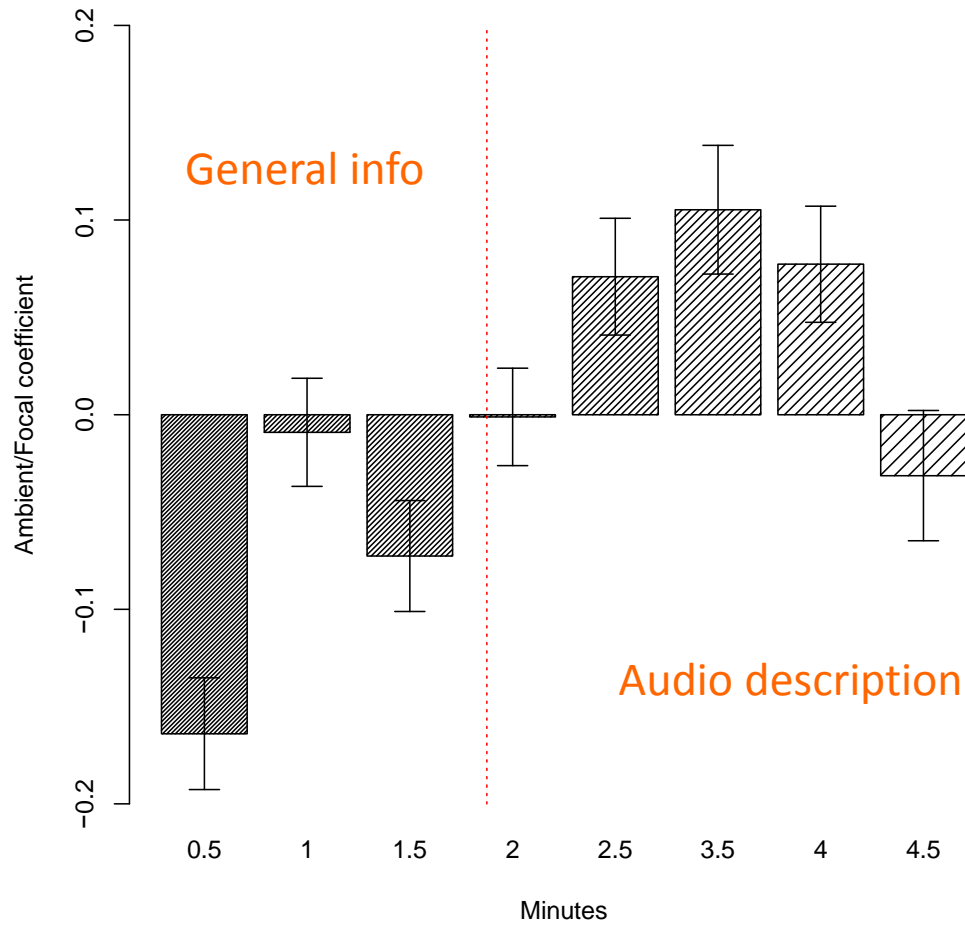
# Focal vs ambient processing (Velikovsky et al., 2005 )

- Two stages of visual processing:
    - orienting vs evaluating (Ingle, 1967)
    - what-where (Schneider, 1967)
  - **AMBIENT:** shorter fixations are followed by longer saccades
  - **FOCAL:** longer fixations are followed by shorter saccades
  - Continuous increase of fixation duration over a period of time
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# More focused viewing in AD

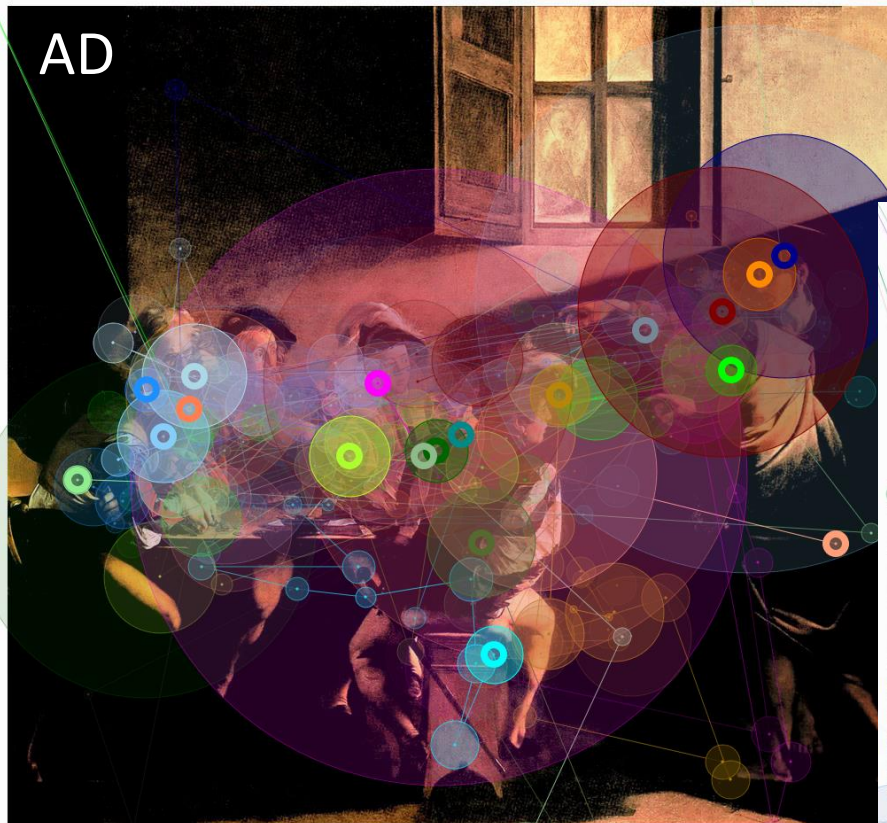


# AD condition: focal processing



# Visual attention guiding

AD



90th sec. of the clip

Control





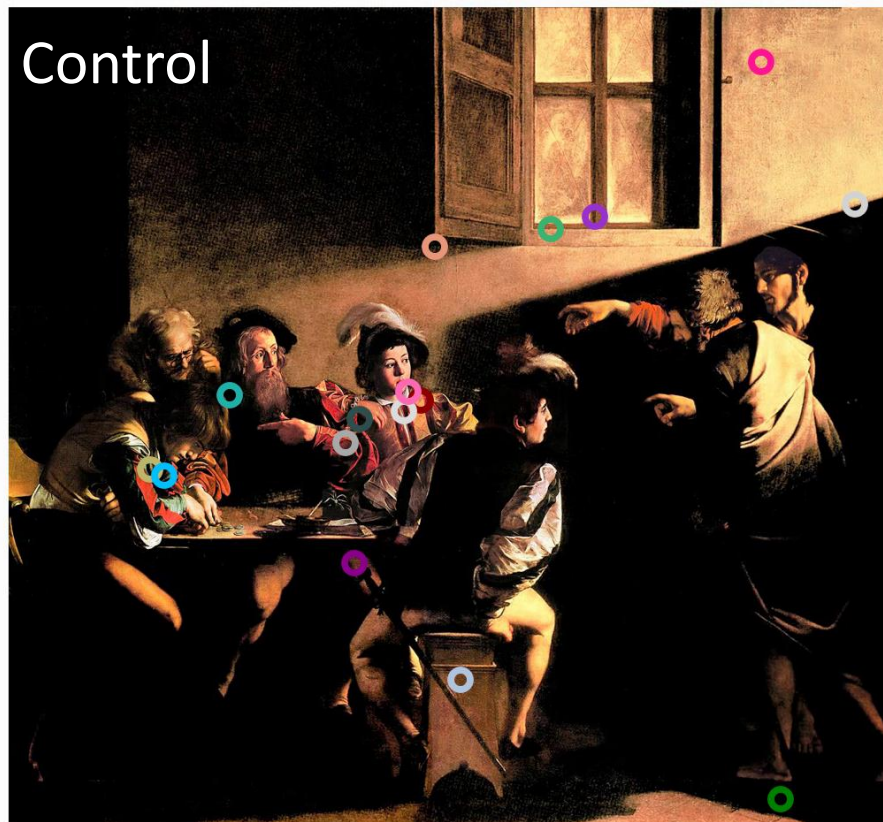
# Visual attention guiding

AD



120th sec. of the clip

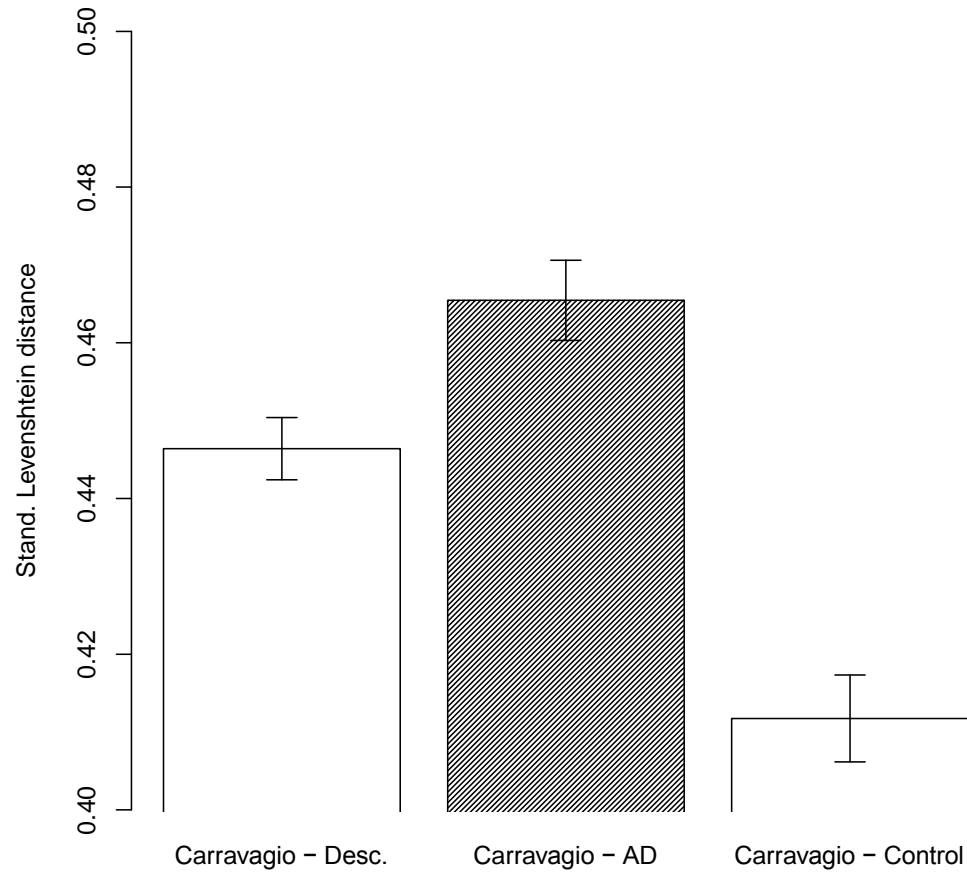
Control



# Examples of different AD fragments



# Similarity of scanpaths



Learning effects

Interactive puzzles

# Predictions

AD leads to better performance in recognition tasks by strengthening memory retrieval which in turn may facilitate which puzzle solving

AD facilitates the recognition-based heuristic of decision-making over an elimination-based heuristic.

## recognition-based heuristic

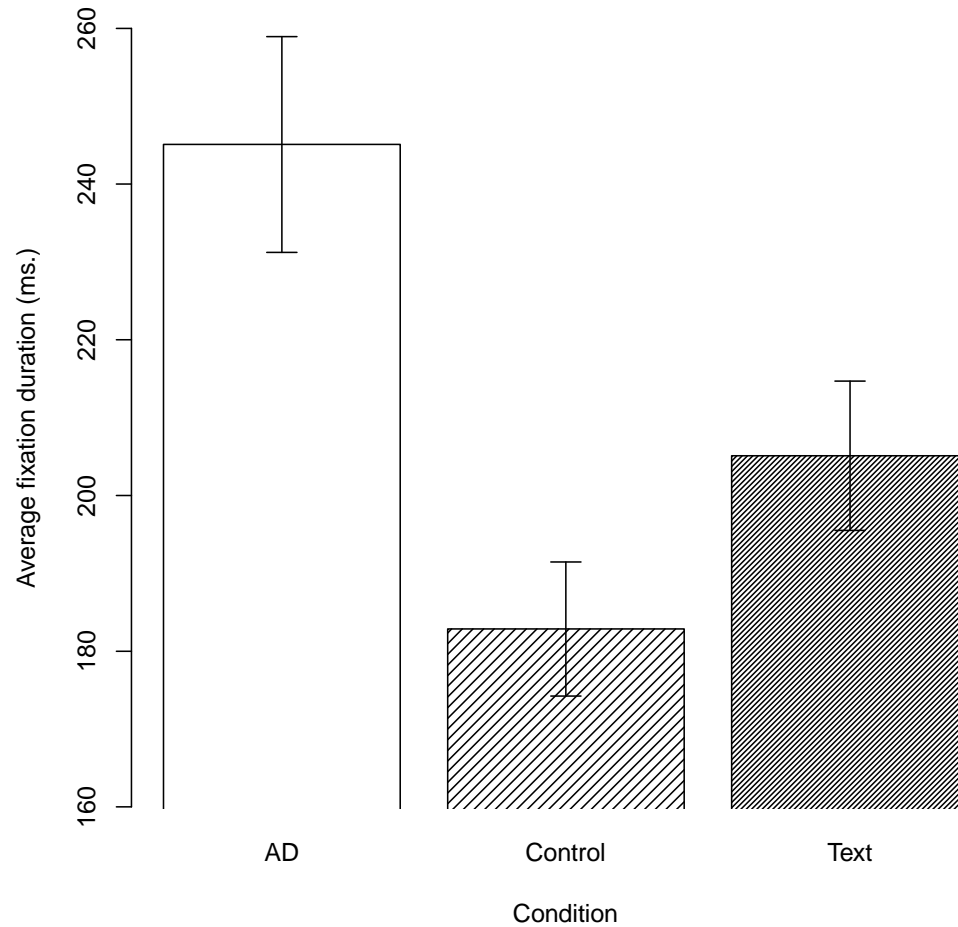
when object is recognized no further information is seeking

## elimination-based heuristic

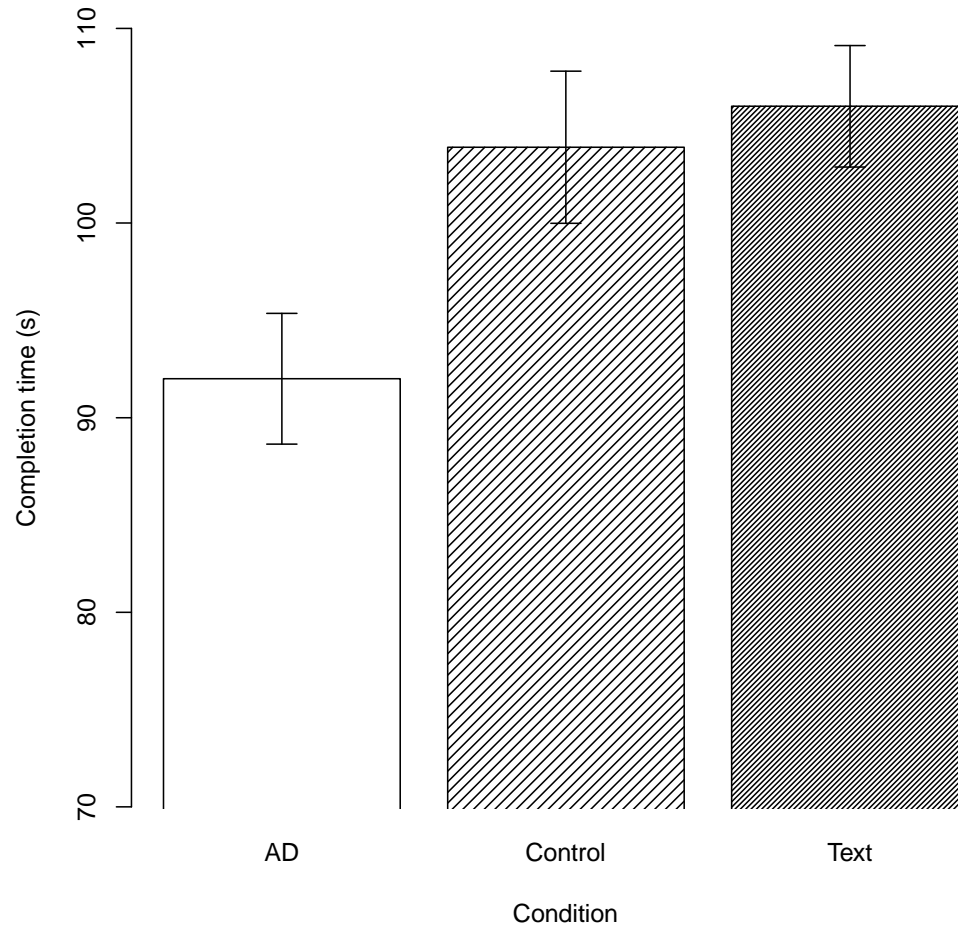
when object is not recognized the decision can be made on eliminating new information/object

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# Average fixation duration during puzzle solving



# Completion time





# Summary

- Audio description is an external source of attentional control
  - It strengthens focused viewing patterns – focal attention
- AD facilitates the recognition-based heuristic of decision-making
  - Participants solved puzzles faster due to stronger memory traces – making decisions relied on familiarity heuristics.
- Audio description may thus provide exogenous attentional guidance, helping to select and organize learning elements.
- “visually peripheral elements ... gain particular narrative importance when competing with the more overt, bottom-up aspects of the narrative (with an equally high narrative salience, as well as a high visual salience)” (Kruger 2012: 67).