

Interaction of Language and Vision Memories in TV Drama Watching: An EEG Study

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Two memory retrieval sessions involving language-vision multimodal cues and their presentation order were studied using the multimodal memory game (MMG) platform. One session relied on script-to-scene cues and the second on scene-to-script cues. In this setting, the participant views an episode of TV drama and chooses a scene or script mostly associated with the presented one. During the game, we measure the brain activity of the players using electroencephalogram (EEG).

The MMG result shows that the retrieval performance is better in scene-to-script sessions but requires more response time than in script-to-scene sessions. This phenomenon can be explained based on the property of an image implicating diverse possibilities of interpretation while a text gives a more direct meaning. In other words, a language-dominant retrieval cue is faster but its retrieval accuracy might be lower than a vision-based cue because language has a narrower scope for memory searching. Besides, EEG analysis shows that there is an interaction between the frontal lobe and the occipital lobe while participants are playing the MMG multimodal memory game. The activation of the occipital lobe is higher in scene-to-script than script-to-scene sessions. These experimental results suggest that the brain system evokes visual imagery through the interactivity between brain areas of memory retrieval and visual processing.

The behavioural and EEG findings on the cross-modal interaction of language and vision in drama watching settings may shed light on embodied and situated cognition in language processing and its connection to mental imagery.

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