

Object Substitution Masking in Video Game Players

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Presentation Description:

Action video game experience has been suggested to enhance cognitive abilities like speed of processing and attentional allocation. The present work tests this notion in a hitherto not studied paradigm where improvements in these skills should make visible something that otherwise might be invisible

Abstract:

Action video game players have been found to demonstrate an advantage in many cognitive tasks involving spatial attention, spatial distribution of attention, and task-switching. Where in the perceptual process this advantage originates is yet unknown; it might be due to a low-level process that occurs at the earliest stage of perception, or to a high-level process that occurs much later during perception. To investigate this, an object-substitution masking (OSM) paradigm was employed, which allows investigation of attention at the earliest stage of perceptual processing (within the first 100 milliseconds): Participants view a briefly flashed circular array of letters, one of which, the target, is surrounded by four dots; their task is to identify that target. On half the trials, the four dots persist beyond the brief display, which interferes with object perception and decreases identification accuracy (this is substitution masking). I hypothesize that video game players will perform better on this task, as the cognitive abilities enhanced by their habitual gaming may help facilitate the object representation formation, thereby leading to slower decay of target representations and decreased effects from the four dots. If the attentional advantage shown in video game players originates at a low-level, then they should be less vulnerable to object-substitution masking. If, however, video game players show no advantage on the OSM task, this might indicate that their advantage is a result of higher level attentional mechanisms.