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Author

Wasylyshyn, Christina

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Audio-Visual Task Switching in Multisensory Environments

Christina Wasylyshyn

Naval Research Laboratory, Washington, District of Columbia, United States

Abstract: The majority of task-switching research has focused on shifting attention between multiple tasks in the same perceptual modality (i.e., visual) within a single task domain. However, typical environments are not unisensory, and typical response decisions often involve multiple task domains. This study examines multisensory task-switching costs and the interactions of several variables, including perceptual modality of the cue, perceptual modality of the target task, type of task completed (i.e., spatial or identity decisions), and availability of foreknowledge. The design is marked by no redundant multisensory information and minimal memory demands. Performance costs varied as a function of whether participants had foreknowledge of upcoming task and/or modality presentation. Consistent with previous research, the current results also show that performance costs between tasks were significantly smaller (and essentially, eliminated) when the sensory modality of the task switched versus when it repeated. However, this result was contingent on manipulations of the experimental design.