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Comparison strategies in the change detection task are influenced by task demands.

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Abstract: Current models of visual working memory (VWM) assume that comparing memory with the environment obligatorily involves a spatial comparison process. Can changing task demands determine whether a spatial or non-spatial comparison processes is employed? Study displays of three colored shapes were presented, followed by test displays of three coloured shapes. Participants decided whether a feature changed between displays. Task-irrelevant changes to the probed item's locations or feature bindings reduced memory performance, suggesting that participants employed spatially guided comparison process. This finding occurred irrespective of whether participants decided about the whole display, or only a single cued item within the display. When task-irrelevant feature changes occurred amongst uncued items, performance was unaffected by irrelevant changes in location or feature bindings. These results suggest that participants can flexibly shift comparison strategy in response to changing task demands. These findings have implications for models of VWM, which assume obligatory location-based comparisons in VWM.