

How eye movements and expertise can explain memory of visual items of central or marginal interest

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In complex scene, memory for central interest items is better than memory for marginal interest items and this difference remains stable independently of the scene presentation duration (Melcher, 2006). However, without eye movement recording, it is not possible to know whether central interest items are better remembered because they are more fixated or because they are more meaningful. In order to answer this question, we analysed the memory of complex scenes (paintings) according to the eye movements and subjects' expertise. 15 novice subjects and 15 art historians (experts) were asked to look at 6 paintings that were separately and randomly presented for 10 seconds. After each painting presentation, subjects were asked questions about painting knowledge (author's name, painting's name) in order to evaluate their painting knowledge and about pictorial details of 3 categories: details of central or marginal interest and background information. If the expert and novice groups significantly differed concerning the knowledge they had about all paintings, the accuracy of answers about the painting details did not differ between both groups. Moreover, we showed novice's answers were more accurate when they looked longer at the asked detail and when this detail was watched early on in the presentation while in the expert group, the accuracy of the answer was not influenced by the duration and moment they watched the asked detail. These findings suggest experts have some wrong representations which are not influenced by eye movements contrary to novices whom memory accuracy is influenced by their eye movements.