IMPORTANCE OF A BLACK BACKGROUND IN IMAGE DISPLAY FOR COGNITIVE REHABILITATION SOFTWARE

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Introduction

A growing number of educative, rehabilitation or playing softwares are proposed for cognitively impaired elderly people. Very few maker are considering specific visual needs and understandability of their visual interfaces.
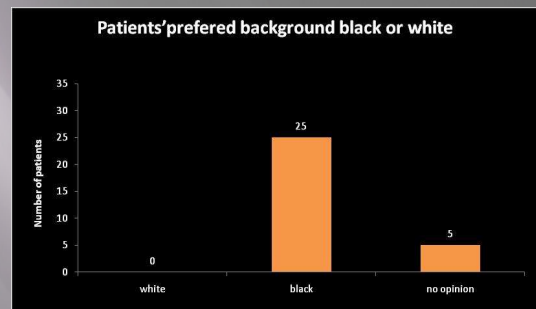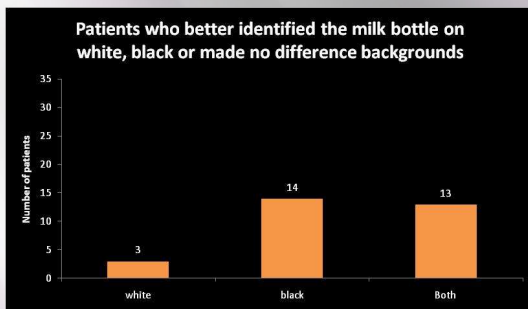
Population and method

We proposed the same image of a milk bottle:
• white background and black background
• 15" laptop computer screen
• 30 cognitively impaired patients with average MMS of 17 +/- 6.

Results

Patients who better identified the milk bottle on white, black or made no difference backgrounds

white: 3
black: 14
Both: 13

**Patients'prefered background black or white**

white: 0
black: 25
no opinion: 5

Discussion

A white background is sending photons to the eye when a black background is absorbing most of the photons. The ratio between information and noise is decreased in case of a white background. If we then consider that vision is based on a prototypic encoding based on the information coming through four channels (shape, color, movement and intensity) and that this prototype is then formally recognized through a process of multi-sensorial integration ; the better the signal on noise ratio, the smallest cognitive work is needed.
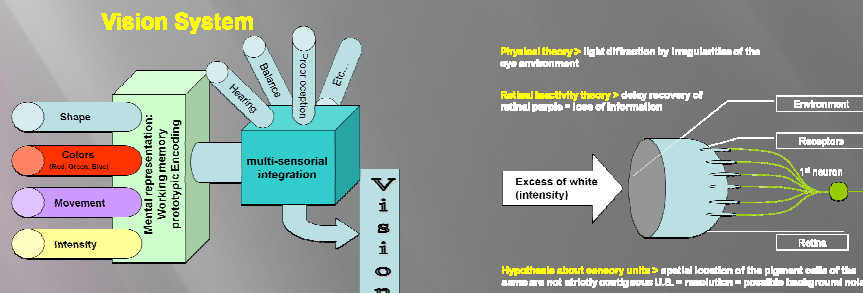
Conclusion

We should not have been surprised to find that the requirements made for low vision should then be the same for cognitively impaired patients. If we want to develop efficient multimedia rehabilitation programs for cognitively impaired patients, we have to make sure to limit the cognitive impact of visual information that patients have to use to achieve other specific training tasks.