

ATTENTION IN ADULTS AND SCHOOL – AGE CHILDREN

Ieva Timrote, Linda Alberte, Sergejs Fomins, Tatjana Pladere, Gunta Krumina

University of Latvia, Department of Optometry and Vision Science, Riga, LV-1063, Latvia
e-mail: Ieva.Timrote@gmail.com

Introduction

Visual search is often used to study attention, although different stimuli can be used [1, 2]. Baranov-Krylov et al. have demonstrated that attention system appear to mature completely by the age of fifteen [3], though they test only five, seven and fifteen years old children. Nevertheless, they propose that larger number of false alarms in a visual search could reveal deficiency of inhibitory processes, whereas larger number of misses could demonstrate weakness of selective attention. Our aim was to involve participants at different age and to use only one type of visual search.

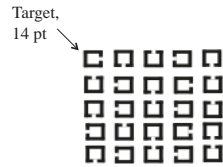


Fig.1. Introduction task.

Methods

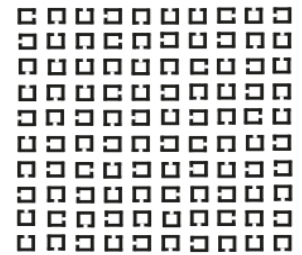
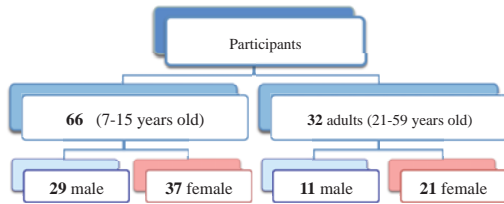


Fig. 2. An example of the main task.



- Landolt square letters in four different directions (see Fig.1., Fig.2.).
- Statistical data analysis was made using OriginPro 7.0 and MS Excel.

- 24, 26 or 27 targets in the main task.
- Test was performed at 40 cm.
- Total time, errors and their location was recorded in the program.

Results

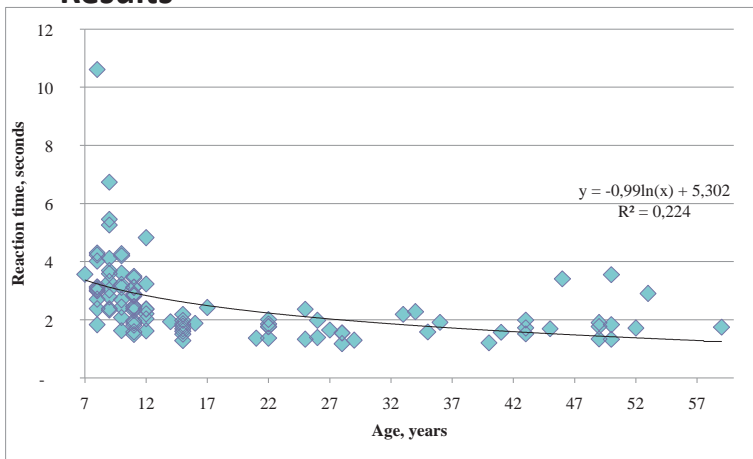


Fig.3. Reaction time per one target element for each age.

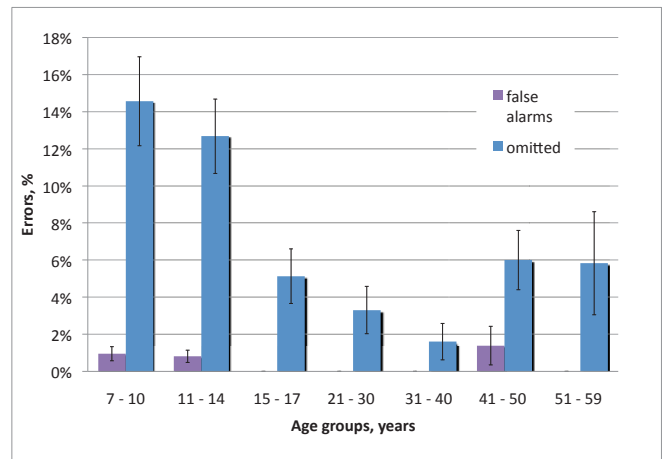


Fig.4. Average percentage of errors for each age group and standard deviation.

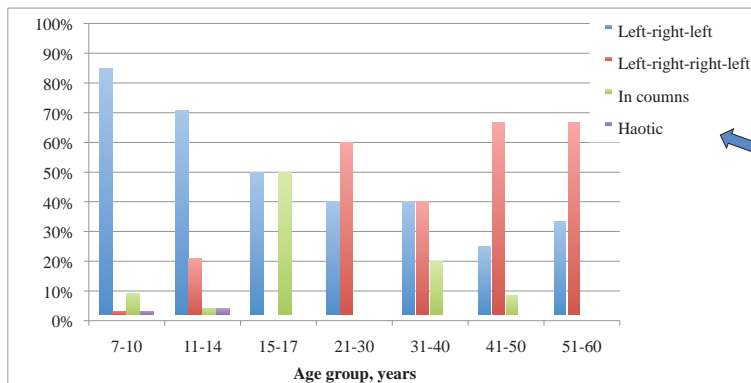
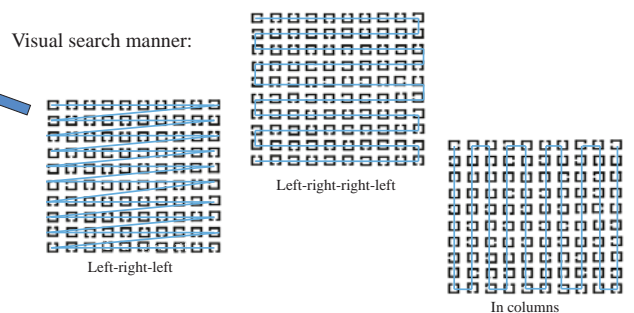


Fig.5. Percentage of visual search manner for each age group.



References

- [1] Eckstein M. P., Visual search: A retrospective, Journal of Vision, 11 (5):14, pp.1-36, 2011.
- [2] Cheal M., Lyon D. R., Attention in visual search: Multiple search classes. Perception & Psychophysics, 52 (2), pp.113-138, 1992.
- [3] Baranov-Krylov I. N., Kuznetsova T. G. and Ratnikova V. K., Attention Parameters in Visual Search Tasks in Different Age Groups, Neuroscience and Behavioral Psychology, 39 (5), pp.481-487, 2009.

Conclusions

1. Visual search performance improves until certain age and tends to worsen after forty years of age.
2. There are significantly more errors for school-age children ($p > 0.05$, ANOVA) comparing with 21-30 years old adults.
3. Left-right-left search manner is most common for school-age children. Afterwards, more efficient methods are preferred.

Acknowledgements

This work has been supported by ESF Nr. 2013/0021/1DP/1.1.1.2.0/13/APIA/VIAA/001.