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Improving users reading comfort and vision health by e-material formatting

Kristine Mackare
Liepaja University, Latvia

Statement of the Problem: Based on large-scale studies, more recent data shown that by 2015 - more than 30%. As the trend continues, it is expected that by the year 2050, at least half of the world's population will be myopic. The size of the myopia is also increasing and the age at which the myopia starts, continuing to development and progress. Responsiveness for the progression of myopia is the high near work load and its impact on vision that is occurring today daily, especially by development of technology. All near work, especially viewing texts and images, reading, learning both print media and computer screen, are making effects on vision. Such smart and digital devices as computers (both desktop computers and laptop computers), tablets, smartphones, book readers, etc. and internet directly or indirectly are used in both formal and non-formal education. To successfully participate in e-learning and e-studies, users need both good e-skills and well-designed e-learning materials: high-quality content, comfortable, easy-to-understand and comprehensible text, suitable formatting parameters of text.

Methodology: As research content of several parts methodology are wide and content of literature research, several e-surveys, statistical data research, patient data analysis.

Findings: Most respondents chose a larger font size; even young people Important founding is that nearly a half of respondents use smart devices almost continuously all-day long as well as that at least 96,2% respondents use smart devices for getting knowledges in different ways. For computer users under 40 years of age, an average change of 0.45D was detected within 1-2 years.

Conclusion & Significance: Analysing more than 100 literary sources, it was found that there is no unambiguity about all formatting parameters. Based on all information, research and survey, recommendations for different target groups were made. Good formatted e-materials could improve users reading comfort and vision health

	Formatting parameters				
Target group by age	Font	Body text size	Headings size	Line spacing	Background and text colour
7-15	Arial	13-18pt	214-28pt	1,15-	Black on white
	Verdana				Dark grey on white
	Dott				White on black
16 - 39	Arial	214pt	216pt	1,5	Black on white
	Verdana				Dark grey on white
	Georgia				Dark green on white
40+*	Arial	114-16pt	216-18pt	1,5	Black on white
	Verdana				Dark green on white
	Georgia				Very dark grey on white

* Theoretical

Biography

KRISTINE MACKARE, MSc is optometrist originally from Latvia, but currently from Norway. She studied science and clinical optometry and obtained her BD and MD at University of Latvia. She is doctoral student in E-study technologies and management at Liepaja University since 2016. Her research interests include vision science, public-health, on-screen reading, e-study, and technologies. Her research creates new pathways for improving users vision comfort and health by digital reading. She is working on methodology and recommendations for e-material formatting based on Vision Science. Also, there are new program for e-material formatting in progress. The research is conducted in collaboration with Liepaja University, University of Latvia and Riga Technical University. For a practical point of view on nowadays problem, she worked as professional optometrist in OC Vision (Latvia) for 5 years and now she works in Salten Synssenter (Norway).

kristine.mackare@gmail.com