

Opportunities and prospects for personalizing the user interface of the educational platform in accordance with the personality psychotypes

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Abstract. The article is devoted to the actual problem of studying the possibilities of implementing personalization of the user interface in accordance with the personality psychotypes. The psychological aspect of user interface design tools is studied and the correspondence of their application to the manifestations of personality psychotypes is established. The results of the distribution of attention of users of these categories on the course page of the educational platform are presented and the distribution of attention in accordance with the focus on educational material is analyzed. Individual features and personal preferences regarding the used design tools are described, namely the use of accent colors in interface design, the application of the principles of typographic hierarchy, and so on. In accordance with this, the prospects for implementing personalization of the user interface of the educational platform are described. The results of the study allow us to state the relevance of developing and applying personalization of the user interface of an educational platform to improve learning outcomes in accordance with the psychological impact of individual design tools, and taking into account certain features of user categories. The research is devoted to the study of user attention concentration using heatmaps, in particular based on eyetracking technology, we will investigate the distribution of user attention on the course page of an educational platform to redistribute attention in accordance with certain categories of personality psychotypes. The results of the study can be used to rearrange the LMS Moodle interface according to the user's psychotype to achieve the best concentration on the training material. The obtained data are the basis for developing effective user interfaces for personalizing educational platforms to improve the quality of the education.

Keywords: eye tracking technology; psychological types; user-oriented design

1. Introduction

The issue of adaptation in the field of design occupies a prominent place in the scientific research of a large number of scientists in various fields (Abdelaziz *et al.* 2017, Chemerys *et al.* 2021, Dyagileva *et al.* 2021, Kiv *et al.* 2021, Krouska *et al.* 2020, Kaveh and Bakhshpoori 2016,

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- Data, 2004, 388.
- Nielsen, J. (2000), *Designing Web Usability*, New Riders Publishing Indianapolis, U.S.A.
- Papakostas, C., Troussas, C., Krouska, A. and Sgouropoulou, C. (2021), "Measuring user experience, usability and interactivity of a personalized mobile augmented reality training system", *Sensors*, **21**, 3888. <https://doi.org/10.3390/s21113888>.
- Polzin, T.S. and Waibel, A. (2000), "Emotion-sensitive human-computer interfaces", *Proceedings of the ISCA tutorial and research workshop (ITRW) on speech and emotion*, Newcastle, U.H., September.
- Pham, A.H. (2016), "Discrete optimal sizing of truss using adaptive directional differential evolution", *Adv. Comput. Des.*, **1**(3), 275-296. <https://doi.org/10.12989/ACD.2016.1.3.275>.
- Rodemann, P. (1999), *Patterns in Interior Environments: Perception, Psychology, and Practice*, John Wiley & Sons.
- Roy, S., Sethuraman, R. and Saran, R. (2016), "The effect of demographic and personality characteristics on fashion shopping proneness", *Int. J. Retail Distribut. Manage.*, **44**(4), 426-447. <https://doi.org/10.1108/IJRDM-12-2014-0162>.
- Sandoval, C.A.O., Tizani, W. and Koch, C. (2018), "A method for discrete event simulation and building information modelling integration using a game engine", *Adv. Comput. Des.*, **3**(4), 405-418. <https://doi.org/10.12989/ACD.2018.3.4.405>.
- Schmitt, N. (1996), "Uses and abuses of coefficient alpha", *Psychol. Assess.*, **8**(4), 350-353. <https://doi.org/10.1037/1040-3590.8.4.350>.
- Sharov, S., Lubko, D., Lomeiko, O., Chemerys, H. (2021), "Information system for the formation of students' individual educational trajectory", *Proceedings of the 1st International Conference on Education, Humanities, Health and Agriculture*, Flores, Indonesia, June. <http://doi.org/10.4108/eai.3-6-2021.2311038>.
- Sutcliffe, A. (2017), "Designing user interfaces in emotionally-sensitive applications", *Proceedings of the 16th IFIP TC 13 International Conference*, Mumbai, India, September. https://doi.org/10.1007/978-3-319-67687-6_27.
- Swami, V., Malpass, F., Havard, D., Benford, K., Costescu, A., Sofitiki, A. and Taylor, D. (2013), "Metalheads: The influence of personality and individual differences on preference for heavy metal", *Psychol. Aesthet. Creativity Arts*, **7**(4), 377-383. <https://doi.org/10.1037/a0034493>.
- Troussas, C., Krouska, A. and Sgouropoulou, C. (2020), "Collaboration and fuzzy-modeled personalization for mobile game-based learning in higher education", *Comput. Educat.*, **144**, 103698. <https://doi.org/10.1016/j.compedu.2019.103698>.
- Vanderdonckt, J., Grolaux, D., Van Roy, P., Limbourg, Q., Macq, B. and Michel, B. (2005), "A design space for context-sensitive user interfaces", *IASSE*, 207-214.
- Zheng, M., Ormandjieva, O. and Fan, H. (2015), "Designing context sensitive mobile user interface", *Proceedings of the International Conference on Software Engineering Research and Practice (SERP)*, Athens, Greece.