

Exploratory Study on UX Design Barriers: Enhancing User Experience for Children with High Functioned Autism Spectrum Disorder on Educational Websites

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Abstract:

The present paper is a study that focuses on the Autism Spectrum Disorder (ASD) current nature of things revolving around improving and customizing the incorporation of the user experience design (UX) on educational websites to individuals with ASD. Specifically, the research emphasizes the necessity of recognizing the specific needs and consequences of the users in this particular group in order to develop more inclusive and user-friendly digital learning environment. In this study, the key issues in UX design are uncovered to address the needs of individuals with ASD including experiencing sensory overload, complicated navigation and social interaction difficulties. Similarly, it explores how these hurdles make a difference in an individual's level of interaction with online educational sites. This study explores UX design barriers through different methods: semi-structured interview, thematic analysis, survey and experiment on specialists, observation and selected example experiment.

Moreover, the research reveals some design tactics to overcome those obstacles, like one-column design, uniform navigation, and targeted content. The main goal is to increase the usability and effectiveness of websites which are visited by autistic children. The outcome of this study emphasizes the critical role and the stuff to be done by both UX designers and instructors when the process of creating media learning is on. This approach will materialize in more inclusive but a fair online space that will carry on efficient learning, and also provide equal chances to everyone. The aim, however, has the potential to lead to a rather significant improvement in this field.

Keywords:

User Experience Design, autism spectrum disorder, Digital Barriers, Digital Inclusion

References:

- 1- Aguiar, Y.P.C., Galy, E., Godde, A., Trémaud, M. and Tardif, C., 2022. AutismGuide: A usability guidelines to design software solutions for users with autism spectrum disorder. *Behaviour & Information Technology*, 41(6), pp.1132-1150.
- 2- Brewer, J. (2011). *Accessibility of the World Wide Web: Technical and Policy Perspectives*. Universal Design Handbook. United States: Mc Graw-Hill.
- 3- Chung, S. J., & Ghinea, G. (2020). Towards developing digital interventions supporting empathic ability for children with autism spectrum disorder. *Universal Access in the Information Society*, 1-20.
- 4- Dattolo, A., Luccio, F. L., & Pirone, E. (2016). Web accessibility recommendations for the design of tourism websites for people with autism spectrum disorders. *International Journal on Advances in Life Sciences*, 8(3-4), 297-308.
- 5- Digital Accessibility Guidelines. (n.d.). Available at: https://www.internetsociety.org/wp-content/uploads/2018/08/APAC_Digital-Accessibility_Guidelines-1.pdf.
- 6- Firth, A. (2019). *Practical web inclusion and accessibility: A comprehensive guide to access needs*. Apress.
- 7- Hassanein, E.E.A., Adawi, T.R. and Johnson, E.S., 2021. Barriers to including children with disabilities in Egyptian schools. *Journal of International Special Needs Education*, 24(1), pp.25-35.
- 8- <https://web.facebook.com/tafawak.education/> (2022) Tafawak. Available at: <https://tafawak.io/> (Accessed: 10 September 2024)
- 9- Johansson, S. (2019). *Design for Participation and Inclusion will Follow: Disabled People and the Digital Society* (Doctoral dissertation, KTH Royal Institute of Technology).
- 10- Johansson, S., Gulliksen, J., & Gustavsson, C. (2021). Disability digital divide: the use of the internet, smartphones, computers and tablets among people with disabilities in Sweden. *Universal Access in the Information Society*, 20(1), 105-120.
- 11- Kumm, A. J., Viljoen, M., & de Vries, P. J. (2021). The digital divide in technologies for autism: feasibility considerations for low-and middle-income countries. *Journal of Autism and Developmental Disorders*, 1-14.

12- Learn K-6 math and reading (no date) AdaptedMind. Available at: <https://www.adaptedmind.com/> (Accessed: 10 September 2024).

13- Meir, D. (2024) Best graphic design websites for Impactful Inspiration, Wix Blog. Available at: <https://www.wix.com/blog/graphic-design-websites-inspiration> (Accessed: 10 September 2024)

14- Neb, V. (2023) 9 simple ways to make your website easier to navigate for your users, Kurieta. Available at: <https://kurieta.com/make-your-website-easier-to-navigate-for-your-users/> (Accessed: 10 September 2024).

15- Perez-Escolar, M., & Canet, F. (2022). Research on vulnerable people and digital inclusion: toward a consolidated taxonomical framework. Universal access in the information society, 1-14.

16- Rezae, M., Chen, N., McMeekin, D., Tan, T., Krishna, A., & Lee, H. (2020). The evaluation of a mobile user interface for people on the autism spectrum: An eye movement study. International Journal of Human-Computer Studies, 142, 102462.

17- Sernoff, L. (2024) Website menus: 10 outstanding examples, Wix Blog. Available at: <https://www.wix.com/blog/website-menus> (Accessed: 10 September 2024).

18- Tsatsou, P. (2021). Is digital inclusion fighting disability stigma? Opportunities, barriers, and recommendations. Disability & Society, 36(5), 702-729.

19- Tsatsou, Panayiota. "Digital inclusion of people with disabilities: a qualitative study of intra-disability diversity in the digital realm." Behaviour & Information Technology 39.9 (2020): 995-1010.

20- Valencia, K., Rusu, C. and Botella, F., 2021. User experience factors for people with autism spectrum disorder. Applied Sciences, 11(21), p.10469.

21- Yaneva, V. (2016). Assessing text and web accessibility for people with autism spectrum disorder.

22- Yu, B., Murrietta, M., Horacek, A., & Drew, J. (2018). A Survey of Autism Spectrum Disorder Friendly Websites. SMU Data Science Review, 1(2), 8.

23- Zelezny-Green, R., Voslon, S., & Conole, G. (2018). Digital inclusion for low-skilled and low-literate people: a landscape review-UNESCO Digital Library.