USER PREFERENCES FOR UI DESIGN ELEMENTS: IMPACT ON LEARNING AND SKILL DEVELOPMENT ON COURSERA, EDX, AND STEPIK

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Abstract. With the development of digital technologies and the proliferation of digital applications and platforms, the issue of educating users and developing their skills in using these technologies is becoming increasingly important. One of the key challenges is ineffective or unsatisfactory user interface design, which can impede learning and hinder the development of user skills.The purpose of this study is to analyze the impact of UI design on user learning and skill development in digital applications and platforms. The study aims to identify methods and strategies that optimize UI design to improve learning and skill development.

To achieve this objective, an extensive literature review is conducted, analyzing existing research practices in the area of user interface design and its impact on learning. In addition, empirical data is collected and analyzed through user testing and surveys to identify practical recommendations and best practices.

Keywords. ui design, ux, user learning, digital applications, education and technology, visual components of the learning platform (VCLP).

Introduction. We are currently living in the era of information technology, where datareportal.com statistics indicate a continuous increase in the number of individuals using phones and the internet each year[1]. On average, users are dedicating approximately 7 hours a day to these digital technologies and it is shown in Figure 1. This trend underscores the fact that digital devices and the internet have evolved into integral aspects of nearly everyone's daily existence. One of the reasons for the increasing importance of digital technologies in our lives is online learning. According to Hasugian et. al.[2] online courses are in great demand today, especially for students and practitioners. It is believed that the ability to develop themselves gives them more opportunities in life, particularly in employment. Online learning offers the flexibility to study from anywhere with a convenient schedule and at an affordable cost. Therefore user experience plays a crucial role, user interface (UI) design has become a key factor in how users interact with digital applications and platforms [3]. However, with the advancement of technology and the increasing number of apps and websites

available, there is a challenge in educating users and developing their skills in utilizing these digital tools[4]. As many of the presently available platforms do not enable interaction between students and teachers[5].

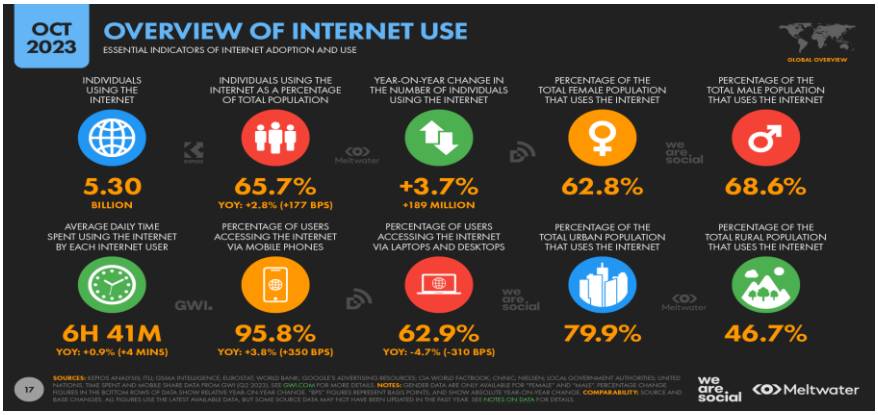

Fig.1. Daily time spent with media

Information overload is a significant issue, often caused by excessive information and features offered by apps and websites, resulting in confusion and learning challenges. This is compounded by poor design, making it hard for users to grasp new platforms.[6] Additionally, difficulties in navigating the interface and swiftly finding required information or functions further contribute to learning obstacles faced by users. The issue has several consequences. Individuals experiencing difficulties in understanding and using applications may choose more user-friendly alternatives, resulting in a loss of users[7]. Inefficient UI design can impede workflow and decrease user productivity[8]. Moreover, users may expend extra time and effort deciphering the interface, distracting them from their primary tasks and wasting valuable time and energy[9].

Related work. This section describes the approaches that are now in use.The simplicity and ease with which a user can access available functions immediately after interacting with the application's user interface is consistent with the principles of efficient navigation and therefore contributes to a high-quality user experience (UX). Vlasenko et al. [6] proposed a theoretical analysis of research papers and resources that introduce guidelines on UI/UX design when developing an educational system.

Nasution et al. [13] have used the design thinking method which consists of several steps aimed at identifying and understanding users, user problems and solutions that allow the author to define the problem from a particular point of view. The use of prototypes and testing allows you to test ideas in practice and then make adjustments based on feedback from users. However, an iterative process, including research, prototyping and testing phases, can require significant time and resources. Introducing game components into the educational process can enhance participation, create excitement, engage the students and result in improved learning and play skills by applying gamification techniques Pamudyaningrum et al.[14]. Not all users may be motivated by game elements. Some may not be interested or may even reject the method. Laur and Lutoshkin [15] mentioned that the automation of assessment and progress calculation, visualization of learning achievements, additionally motivates the student

Experimental Results. User Preferences for Visual Component Design in Learning Platforms. This analysis presents findings from your survey exploring user preferences for visual component design in learning platforms like Coursera, EdX, and Stepik. With 115 university student participants, the data offers valuable insights into design choices that can enhance user experience and facilitate effective learning. Were given a choice of responses on the following VCLP:

1. Layout and Interface Composition
2. Icons and Graphics
3. Typography and Fonts
4. Navigation and User Experience

The survey aimed to elucidate user preferences concerning UI design elements across Coursera, edX, and Stepik platforms, shedding light on the impact of design on user learning experiences and skill development. The findings revealed nuanced insights into user inclinations towards various visual components:

1. Layout and Interface Composition: The dominant preference for a balanced layout (60.9%) underscores users' yearning for visually appealing yet functionally clear interfaces. This emphasizes the significance of aesthetically pleasing designs that facilitate an uninterrupted learning trajectory. Notably, the minority seeking lively aesthetics (17.4%) suggests a segment craving engaging visual stimuli during learning.

2. Icons and Graphics: Users predominantly favored clear and informative icons (47.8%), highlighting the importance of visual clarity in conveying information. Simplicity in iconography (34.8%) and the preference for detailed, colorful visuals (17.4%) indicate differing tastes in visual richness, aligning with the desire for clean and engaging design.

3. Typography and Fonts: The inclination towards varied typography (47.8%) emphasizes the role of visual cues in aiding learning and information retention. However, the substantial preference for medium-sized, unobtrusive fonts (34.8%) signals a collective desire for readability without distractions, while a minority (17.4%) values bold, visible text.

4. Navigation and User Experience: The inclination towards flexible navigation (43.5%) underscores the significance of personalized learning experiences and user control. However, a substantial proportion seeking visually appealing navigation (39.1%) emphasizes the role of engaging design elements in navigation, albeit without compromising usability.

Conclusions. The study aimed to understand user preferences for UI design elements on Coursera, edX, and Stepik, and their impact on user learning experiences and skill development. The responses provided valuable insights into user tendencies regarding visual components and their implications for learning. The study revealed a wide range of preferences regarding layout, icons, typography, navigation, and interactivity. Overall, participants preferred interfaces that combined aesthetic appeal with clear learning pathways. However, there were notable differences in preferences among subgroups. Notably, the substantial

favoritism towards balanced layouts and informative yet visually pleasing icons underscores the critical need for designs that marry aesthetics with usability, striking a delicate balance for engagement without sacrificing functionality.

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