Measuring Young Adult Cognitive Performance on Varying Level of UI and UX

How and when should we compromise between UI design before we kill UX?

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***Abstract*—This paper aims to do a comparison of varying levels of UI/UX design and how it can influence the efficiency of user navigation by monitoring the user's behavior while doing multiple tasks.**

***Index Terms*—UI design, UX design, cognitive performance, UMUX**

I. Introduction

It is a fact that we use digital technologies for our daily life. From checking your phone when waking up in the morning, until midnight before going to bed, we are constantly using technology. There can be no doubt that we are tied to it. The first thing that we see in using technologies is the user interface (UI). The interface is what the users use to add inputs and receive outputs, these may be in the form of texts, images, buttons, or videos [1]. The next thing that the users feel is user experience (UX). It is crucial because user experience is how the users feel when they are using the interface [1]. With this, the push of having both a good user interface and user experience is very pivotal, since they are the first things that users interact with. A study has shown that a good user interface alone will make the users more comfortable using the software, so does a good user experience [2]. A combination of both will be the finest [2].

Creating a good User Interfaces and User Experience comes with many challenges, an easily recognizable problem is when a digital application has a bad user interface, creating navigation problems. On a website, its color arrangement may cause partially sighted people to struggle to comprehend. In addition, their content hierarchy, which follows menu placement, may be difficult to locate. Another challenge with a website is to have a good user experience. Users who are familiar with a certain style of layout will have better navigation compared to those who have never seen this style or are not so tech-savvy. Issues in designing, implementing, managing, maintaining, training, evaluating and refining user interface of interactive systems is very prominent in this stage [3].

To measure the level of user experience of a system, a technique called SUS is commonly used. System Usability Scale (SUS) is a widely used standardized questionnaire for assessing perceived usability [4]. SUS has accounted for 43% of the post-study questionnaires in industrial usability studies [4]. On March 13, 2018, Google Scholar citations for the paper that introduced the SUS showed 5,664 citations [4].

In this paper we are aiming to answers these research questions:

1) Assessing the effect of improving User Interface design and improving User Experience level in terms of the user's efficiency in navigating a sample application
2) Observing user's efficiency difference in navigating sample websites
3) Examining the shift in user's efficiency metrics against improvements in the sample website's design and usability
4) Analyzing user's System Usability Scale for the different websites

We chose to use UMUX, dubbed the metric to be measured when SUS takes too much time [5]. UMUX is a relatively new standardized usability questionnaire designed to get a measurement of perceived usability consistent with the SUS [6], [7], but using fewer items that more closely conformed to the ISO definition of usability (effective, efficient, satisfying). Similarly to SUS, it does not matter whether the UMUX is unidimensional or tone-based bidimensional [8]. In either case, practitioners should treat the UMUX as a unidimensional measure of perceived usability [8].

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