SVEUČILIŠTE U ZAGREBU
GRAFIČKI FAKULTET
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Postupak ocjene doktorskog rada

DOKTORAND/ICA:	Željko Bosančić, mag. ing. techn. graph.

NASLOV RADA na hrv. jeziku:	Poboljšanje prijenosa vizualnih informacija određivanjem korisničkih preferencija boja
NASLOV RADA na engl. jeziku:	Improvement of visual information conveyance by determining user color preferences

SAŽETAK:

Boje su integralni dio ljudskog iskustva, s moćnim utjecajem na emocije, percepciju i ponašanje, a u oblikovanju grafičkih proizvoda kao i u grafičkim komunikacijama općenito, koriste se kako bi privukle pažnju, prenijele poruku, stvorile atmosferu i potaknule emocionalne reakcije. Ključne su za izgradnju brenda i privlačenje kupaca, što povećava prepoznatljivost brenda i pozitivno utječe na percepciju kvalitete proizvoda. Razumijevanje utjecaja različitih boja na ljude može pomoći dizajnerima u kreiranju učinkovitijih i privlačnijih vizualnih materijala, što u konačnici poboljšava korisničko iskustvo te je iz tog razloga njihova promišljena upotreba nužna.

U okviru doktorskoga rada kreirano je i provedeno istraživanje na 1 000 sudionika pomno raspoređenih po sociodemografskim kriterijima koji predstavlja strukturu nacije, a kako bi se ustanovile njihove preferencije prema definiranim bojama. Za potrebe istraživanja odabran je set od 24 boje koji obuhvaća boje kojima je čovjek svakodnevno okružen. Set boja se osim osnovnih boja aditivne i suptraktivne sinteze sastoji i od 18 boja koje predstavljaju obojenje stvari i pojava iz prirode.

Naposljetku, u radu je ispitana normalnost distribucije prikupljenih podataka Shapiro – Wilk testom, a koji su zatim obrađeni neparametrijskim statističkim metodama Man – Whitney i Kruskal – Wallis testovima, ovisno o broju nezavisnih varijabli. Dobiveni rezultati znanstvenog istraživanja su pokazali kako postoji statistički značajna razlika u preferencijama pojedinih boja ovisno o spolu i samoprocijenjenom emocionalnom stanju sudionika istraživanja, kao i o načinu na koji im je boja prikazana.

Primjena ovih saznanja može pomoći dizajnerima poboljšati stvaranje vizualno atraktivnih i emocionalno učinkovitih proizvoda, prilagođenih specifičnim potrebama i preferencijama različitih korisničkih skupina. Rad doprinosi znanstvenom razumijevanju preferencija boja i pruža korisne smjernice za praktičnu primjenu u različitim industrijama.

Ključne riječi: boja, preferencija boje, grafički dizajn, vizualne komunikacije, korisničke preferencije

EXTENDED ABSTRACT:

Colors are an integral part of the human experience, with a powerful influence on emotions, perception, and behavior. In the design of graphic products and in graphic communications in general, they are used to attract attention, convey a message, create atmosphere, and elicit emotional responses. In graphic design, colors play a crucial role in attracting attention and maintaining audience interest. They can influence mood, trigger specific reactions, and help shape brand perception. In marketing strategies, colors are of crucial importance for building brand identity and attracting customers, which increases brand recognition and positively affects the perception of product quality. Understanding the impact of different colors on people can help designers create more effective and appealing visual materials, ultimately improving the user experience, which is why their thoughtful use is necessary.

To confirm the stated hypotheses, research was created and conducted on 1,000 participants in the Republic of Croatia through several phases of research:
- Creating the research participants sample
- Creating the questionnaire
- Conducting the research
- Statistical analysis of collected data

The research participants sample was created in a manner that the participants were carefully distributed according to sociodemographic criteria, i.e., gender, age, and place of residence. This approach ensured the representativeness of the sample, meaning that the participants represented the structure of the nation. This methodological approach ensured detailed data collection and analysis, taking into account various regional factors that could influence the perception and interpretation of colors in graphic communication.

When creating the questionnaire, a set of 24 colors was selected for the research purposes, including colors that a person encounters daily. The set includes not only the basic colors of additive and subtractive synthesis but also 18 colors representing the coloration of objects and phenomena from nature that participants are generally surrounded by daily. At the very beginning of the questionnaire, basic demographic questions were asked to ensure the

fulfillment of the previously defined sample of participants. Then, a question was posed in which participants, based on a culturally neutral, non-verbal evaluation system based on a three-dimensional system of emotions, were asked to self-assess their emotional state at the time of filling out the questionnaire. In the next part of the questionnaire, participants were presented with 24 randomly arranged colors on the right side of the screen, which they needed to arrange in a 6x4 grid on the left side of the screen to form their own color pattern. The next part of the questionnaire was divided on half of the sample, where part of the participants needed to evaluate the preference for all 24 colors by viewing the pattern they had arranged, while the other half needed to evaluate each color individually until all 24 colors were rated.

In the next phase of the research, the questionnaire was delivered to participants electronically, ensuring data collection in a manner that satisfied the established sample of participants. Participants were required to complete the questionnaire on a personal computer, and it was not possible to complete it on devices with small screens such as phones and tablets.

The research focused on analyzing color preferences among participants considering their gender, emotional state, and the manner in which colors were presented to them. Various statistical tools were used for analyzing the collected data. The normality of data distribution was tested using the Shapiro-Wilk test, and further processing was conducted using non-parametric statistical methods such as the Mann-Whitney and Kruskal-Wallis tests, depending on the number of independent variables. The Mann-Whitney test is used to compare differences between two independent groups, while the Kruskal-Wallis test allows for analyzing variations among more than two groups.

The scientific research results showed a statistically significant difference in the preferences for certain colors depending on the participants' gender and self-assessed emotional state, as well as the way the colors were presented. The research results provide useful guidelines for practical application in various industries, including graphic product design, marketing, and similar fields. These findings emphasize the importance of understanding different aspects of color perception to achieve the best possible efficiency and attractiveness of graphic products. Applying this knowledge can help designers create visually attractive and emotionally effective graphic communications, tailored to the specific needs and preferences of different user groups. This thesis contributes to the scientific understanding of color preferences and provides useful guidelines for practical application in various industries.

Keywords: color, color preference, graphic design, visual communication, user preference

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