USE OF BEAUTY APPLICATIONS AND AR BEAUTY FILTERS AMONG YOUNG PEOPLE: TRENDS AND CHALLENGES

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Abstract: *Beauty applications and augmented reality beauty filters are widely used on social media platforms. These filters detect and transform facial features by overlaying digital masks on moving faces. In addition to beauty applications that are used for retroactive photo editing, augmented reality beauty filters adapt to facial features in real-time, resulting in a unique digital beautifying process. This quantitative study explores how the use of beauty applications and the use of AR beauty filters impacts young people's perception of themselves, and whether their use affects the self-confidence and mental health of young people. It is based on an online survey that was conducted on a sample of 232 respondents from the category of young people (i.e. Millennials and Gen Z). For that purpose, this paper provides a relevant literature review on the attitude of young people toward trends that are imposed through social networks. The research results showed that more than 70% of respondents use ARB filters and applications to beautify their photos. Young people are largely satisfied with their appearance and more than half of them do not succumb to trends imposed by social networks. However, they notice that an increasing number of people strive for imposed ideals of beauty, which affects their self-confidence.*

Key words: augmented reality beauty filters, social media, young people

1. INTRODUCTION

The majority of augmented reality (AR) applications used by the general public today are found on smartphones. Social network apps enable the usage of numerous AR filters, including AR beauty filters, which alter users' surroundings as well as their own appearance (Fribourg, Peillard, & Mcdonnell, 2021). These AR filters are being utilized more and more frequently, and they have the potential to modify users' facial features in many ways.

There is a consensus among authors that research on using AR filters, beauty apps and the effects of the appearance caused by those filters, has been insufficiently investigated (Lavrence & Cambre, 2020; Fribourg, Peillard, & Mcdonnell, 2021; Javornik, et al., 2021; Newell, 2022). Some of the previous studies highlight that digital self-tracking devices and beauty apps articulate idealized facial images, body ideal internalization, and sociocultural pressures (Newell, 2022), and this trend can be observed especially among the younger generations.

Hence, this research aims to determine young people's attitude towards trends imposed through social networks, their attitude towards beauty applications and AR filters, as well as whether the use of beauty applications and AR filters affects their self-confidence. Therefore, the subject of this research are attitudes of young people in Serbia about the use of AR filters and beauty applications on social networks. According to the Law on Youth, young people in Serbia represent the category of persons from the age of 15 to the age of 30 (Official Gazette of RS, 2011). Data from the Serbian Republic Institute of Statistics from 2019, show that this category makes up one sixth of the total population of the country. Therefore, this research is essential as it addressing a critical gap in understanding the evolving dynamics of modern beauty standards in the digital age.

2. LITERATURE REVIEW

With the use of AR, businesses can now provide highly customized, interactive experiences, enabling entirely new levels of customer engagement. Although digital filters that change people's appearances might be very useful, they also come at a cost – according to recent research, AR apps that enable users digitally try on clothing, accessories, or makeup may have a significant, negative impact on psychological wellbeing (Javornik, et al., 2021). In addition, the impact can differ greatly depending on the user.

AR (Augmented Reality) technology is a digital technology that overlays computer-generated sensory information, such as images, videos, or 3D models, onto the real-world environment to enhance the user's perception and interaction with their surroundings (Javornik, et al., 2021). Different types of AR face filters are currently available on social media for a variety of applications and use cases (Riccio, et al., 2022), including marketing and commercials (Appel, et al, 2019), entertainment, and aesthetics (Fribourg, Peillard, & Mcdonnell, 2021). Users of social media platforms are able to create and share their own AR filters using off-the-shelf tools, establishing a new creative form of expression and a new artistic role: the filter creator (Riccio, et. al., 2022). Other users can utilize the filters to experience various versions of themselves, including ones with 3D makeup or beauty enhancement, hilarious deformations, horrific or surreal textures, future or sci-fi scenarios, or funny deformations. Since the capacity to experience these changes goes beyond the user's physical location and only requires a smartphone with an internet connection, AR face filters represent a form of post-internet art. (Riccio, et al., 2022). When it comes to the general public's acceptance of AR filters as a viable artistic medium, the COVID-19 pandemic was a watershed event (Herrington, 2022), endowing filter designers with a crucial role in determining the technology's cultural and societal effects.

For young people, applications such as SnapChat or Instagram have taken on a central role in personalized AR. Users of these apps are able to engage in real-time face figure distortion (e.g., making the eyes look bigger or in different color) and feature addition (e.g., adding dog ears or fashion accessories on top of a user's face) which are enabled by a variety of available filters (Fribourg, Peillard, & Mcdonnell, 2021). Filtered faces are some of the most predominant and heavily engaged photos on social media (Lavrence & Cambre, 2020) and not only users spend some time looking at themselves through these filters while taking selfies, they can as well use these filters on video calls or video conference with social networks apps. Such filters have received an increased interest in sociological studies, exploring for instance the long term impact of beauty filters on self-perception and self-esteem (e.g. Rajanala, Maymone, & Vashi, 2018). However, these studies tend to focus on the filters designed to increase users self-perception of attractiveness or cuteness and to study long term effects.

The quantitative study conducted by Newel (2022) advocates the attractiveness and insufficient research of this topic. The Web of Science, Scopus, and ProQuest databases were used by this author to perform a literature review using the following search terms: "beauty apps and filters in visual digital cultures" + "perceived sociocultural pressures," "self-rated emotional expressiveness," and "image processing algorithms". Studies were reviewed between 2017 and 2022 and only 166 met the eligibility criteria (Newel, 2022). While this topic is highly intriguing, it remains insufficiently researched.

3. METHODS

The research in this work was quantitative and the survey method was used for data collection. An electronic questionnaire, created through the Google Forms, was used as a research instrument. It contained 15 questions grouped into three units (socio-demographic characteristics; attitude towards social networks, AR filters and beauty apps; the influence of AR filters and beauty apps on self-confidence of young people), of which 11 questions were with offered response modalities, two questions contained a 5-point Likert scale, while two questions were open-ended. The questionnaire was distributed via e-mail addresses and Viber, using the snowball method, and the data were processed through a statistical program directly on Google Forms. The research was conducted from May 20 to June 3, 2023.

4. RESULTS

232 respondents from the territory of Vojvodina participated in the research, of which 81.9% were female and 18.1% were male. More than half of the research participants – 60.8% of them, were between the ages of 21 and 25, 19.8% were between the ages of 15 and 20, and 13.3% were between the ages of 26 and 30. Only 6% of respondents were over 30 years old. Among the research participants, there were mostly highly educated people, that is, those who completed four-year studies (39.7%), followed by those who completed high school (35.8%). Only 15.9% of the respondents had a master's diploma, 6.5% of them had a higher school, and 0.9% had a primary school diploma. Only 1.3% of the respondents obtained the title of Doctor of Science. Half of the research participants were students (50.4%), and the other half were respondents of the following employment status: permanent employees (20.7%), temporary employees (12.9%), students (8.6%), unemployed (5.2%) and freelancers (2.2 %).

4.1 Attitude towards social networks, AR filters and beauty applications

Instagram is the social network used by almost all research participants (91.4%), while the second, most used, was *YouTube* (59.5%). Popular social networks among young people were *TikTok* (39.2%), *Facebook* (29.7%), and somewhat less *Linkedin* (17.2%) and *Twitter* (13.8%). The largest number of young people who participated in the research spent between two and three hours (40.5%), that is, between three and four hours (24.6%), on social networks every day, and an almost equal percentage of them spent more than four hours (17.7%), that is, less than two hours (17.2%) per day.

Two thirds of the research participants use AR filters and beauty applications, but with different frequency: 5.2% use them regularly, 26.7% occasionally, and 36.2% rarely. AR filters and beauty applications are never used by 31.9% of respondents. Research participants who use them most often use the following apps: *Lightroom* (29.3%), *VSCO* (15.5%), *Snapseed* (13.8%), *FaceApp* (9.5%), *Facetune* (3.4%) and *Makeup Plus* (1.7%); while among the AR filters, the most dominant, are those for adjusting brightness and contrast (60.8%), for adjusting colours (51.3%), for removing various imperfections such as pimples, spots, scars, etc. (33.6%), to add effects to photos (24.1%), and often use filters to change skin colour (9.1%), to change face shape (6.9%), to change photo background (4.7%) and body shape (4.3%).

Evaluating the attitude towards AR filters and beauty applications, the largest number of research participants fully agreed with the following statements: "girls who use the most popular beauty applications start to look like each other and lose their identity" (55.17%), "they contribute to the creation of unrealistic standards beauty" (48.28%), "negatively affect the attitude towards natural appearance" (43.53%), and "impose new standards of beauty" (39.66%). With the claims "I always recognize when a filter or beautification application has been used on a photo" and "they completely change the physical appearance of those who use them" 42.67%, that is, 36.21% of respondents agreed. A third of the research participants did not agree at all with the statement that they "support the use of filters and beauty applications because they believe that they contribute to increasing self-confidence in real life" (36.64%), while 34.05% of them did not agree with the statement that they "support their use because then everyone more beautiful". Half of the respondents have between one and three apps for photo processing/beautification installed on their mobile phone (51.7%), and only 2.2% of them have between four and six. 45.7% of young people who participated in the research have not installed any applications from this category. As the most common reason for using filters and beauty apps, in a free answer, the respondents cited the correction of imperfections that exist on their faces.

4.2 The influence of filters and beauty applications on the self-confidence of young people

The research results showed that the participants had a high level of self-confidence, because more than two thirds of them either completely agreed or agreed with the statements that they are pretty, attractive, intelligent, confident in themselves and their decisions, that they are happy, that they do not succumb under the influence of others, that they are satisfied with themselves and that they already have a built image, as well as that they have a large number of friends with whom they spend time outside of social networks. At the same time, he most of them totally disagreed or disagreed with the assessments that they have bad thoughts and that they are depressed. Figure 1 shows the summary of results about the self-perception and self-confidence of the participants, shown in absolute values according to the number of respondents and their degree of agreement with the defined statements.

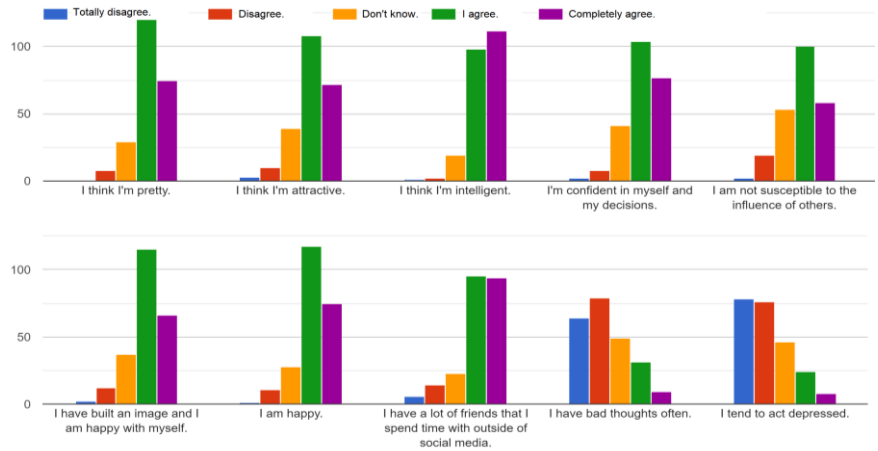

Figure 1: The results of self-confidence and mental health of young people

5. CONCLUSIONS

According to the study's findings, more than 70% of participants use AR beauty apps and filters to enhance and beautify their photos. Conducted research indicates that more than half of representatives of young people in Serbia said they are largely satisfied with how they look and do not follow social media trends. However, the research results demonstrate that young people in Serbia have noticed an increasing number of people strive for imposed so-called social media ideals of beauty, which affects their self-confidence. Noteworthy is that the majority of research participants do not succumb under the influence of others and that they are satisfied with themselves, based on which it is possible to infer that young people in Serbia have decent mental health.

However, the public in Serbia has a very different viewpoint about this subject, so the high likelihood of providing socially acceptable responses represents one of the major limitations of this research. By combining multiple research methods and including more respondents from various backgrounds, this study shortcoming can be overcome. Future studies could include a comparison of the findings about the situation among young people in region countries that share comparable cultural norms.

Some of the suggested strategies to address the challenges young people are facing, could include avoiding promoting unrealistic beauty standards by popular brands, celebrities and influencers, proactively educating customers about the possible risks of utilizing AR, as well as collaboration with regulators and business leaders to create an industry code of ethics for the future socio-economic development.

6. ACKNOWLEDGMENTS

The results presented in this paper are part of the research within the project “Improvement of teaching processes at DIEM through the implementation of the results of scientific research in the field of Industrial engineering and management”, Department of Industrial Engineering and Management, Faculty of Technical Sciences in Novi Sad, University of Novi Sad, Republic of Serbia.

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