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Research Article

Exploring the Relationship Between Personality Traits and ICT Usage

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Abstract – This pilot study examines the relationship between personality traits – specifically introversion and extroversion – and behaviors related to the use of information and communication technologies (ICT). The research focuses on user habits, perceptions of health risks, and adherence to ergonomic and safety principles during prolonged ICT use. We conducted a questionnaire survey on 36 university student respondents from Slovakia. The publication was produced with the support of the project KEGA No. 014TTU-4/2024: Intelligent animation-simulation models, resources and environments for deep learning.

Keywords – ICT Resources, Habits, Extrovert And Introvert, Hygiene Of Working With ICT Resources.

I. INTRODUCTION

The rapid expansion of information and communication technologies (ICT) has significantly influenced all aspects of social and economic life. In today's world, the amount of time individuals spend working with computers is steadily increasing. This trend not only shapes professional routines but also influences users' behavior, necessitating attention to factors such as regular breaks, ergonomic requirements for workplaces (e.g., appropriate chair height, desk arrangement, and monitor positioning), and the balance between computer work and leisure activities. Existing studies on this topic suggest that prolonged use of computers without adherence to ergonomic standards can lead to physical strain, such as back pain or repetitive strain injuries (RSIs). Furthermore, research highlights the importance of incorporating breaks and physical activity into daily routines to mitigate these risks. For example, a more study emphasizes that users who integrate short, frequent breaks and maintain proper posture report fewer health issues related to computer use. Another study indicates that users who alternate between work on digital devices and outdoor activities demonstrate higher productivity and mental well-being. While these findings provide valuable insights, they also underline the need for further research into the long-term effects of extensive ICT use on physical health, mental well-being, and work-life balance. Addressing these aspects holistically can help develop comprehensive guidelines for safe and effective ICT [1-7].

Since learners spend a significant portion of their day in the classroom, it is critical to ensure that the space meets public health requirements. A well-maintained and properly designed classroom contributes to the physical and mental well-being of both students and teachers, fostering an environment conducive to learning and development. When the school environment fails to account for human health needs – such as

proper ventilation, ergonomic seating, sufficient lighting, and noise control – it can lead to various negative outcomes, including fatigue. Fatigue not only diminishes learners' ability to concentrate and engage in lessons but may also negatively impact their long-term health and academic performance. Similarly, teachers working in an unsuitable environment may experience reduced effectiveness and increased stress levels. Teachers, therefore, play a pivotal role in creating and maintaining a safe and healthy classroom environment [8-9].

II. MATERIALS AND METHOD

We must emphasize that our research is explicitly a pilot study. The objective was not to precisely determine the relationships between well-defined personality types (introverts and extroverts) and their habits in computer usage. Instead, our primary goal was to obtain a basic overview and preliminary findings regarding whether there is any relationship between personality traits indicative of introversion and extroversion in relation to computer usage.

To identify personality types, we used a test developed by Ken Russell and Philip Carter, published in their book "Personality Tests." However, we adapted this tool for the purposes of our research by excluding the middle category ("neither introvert nor extrovert") and focusing on individuals who exhibit dominant traits of either introversion or extroversion. This adjustment enabled us to achieve more specific results relevant to our study.

We are aware that modifying the scale may have influenced the validity of the results and their interpretation. Our adjustment involved the complete removal of the middle category and redefining the boundaries between introverted and extroverted personalities by substituting the middle values of the original scale. This step was taken to highlight the differences between these two personality types in the context of their behavior related to computer usage.

We conducted a questionnaire survey on a sample of 36 university student respondents, with a dominant age range between 20 (19 respondents) – 21 (12 respondents) years, with one respondent being under 20, one respondent being 22, one respondent being 23, one respondent being 24, one respondent being 25, and one respondent being over 25 years of age.

III. RESULTS

The first parameter we would like to point out is the relationship between introverts and extroverts in terms of their residence.

Table 1. The relationship between introverts and extroverts and where they live

Male	1	**Village**	9	**Introvert**	17
Female	8				
Male	0	**City**	8		
Female	8				
Male	5	**Village**	8	**Extrovert**	19
Female	3				
Male	9	**City**	11		
Female	2				

In the next phase of our research, we focused on the extent to which respondents are aware of the risks associated with using ICT tools and whether they reflect these risks in their behavior. At this stage, we did not consider respondents' personality types but rather concentrated on their perceptions and practical adherence to the principles of safe ICT usage.

The first question aimed to capture respondents' opinions regarding the potential impact of long-term ICT use (computers, mobile devices, the internet) on their physical and mental health.

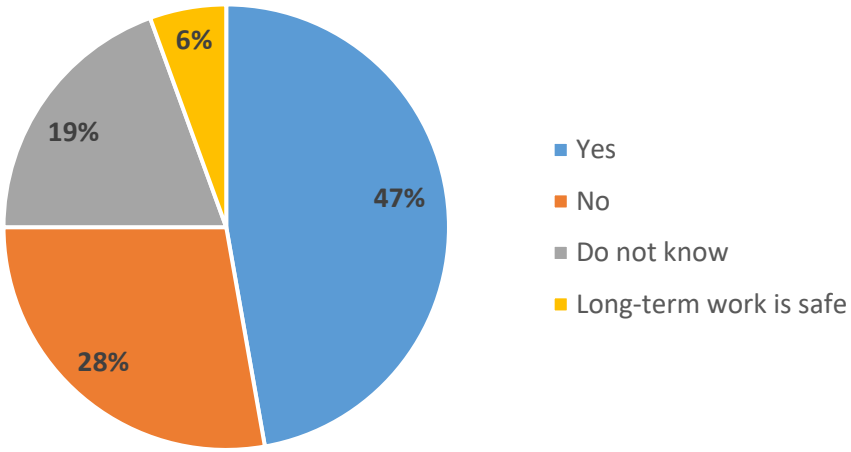

Fig. 1 Answers to the question: Do you think that long-term work or study on a computer, mobile device, or the internet (regularly for more than one hour without a break) can harm your physical and/or mental health?

The second question investigated whether respondents adhered to the principles of proper computer work during online education or extended computer use, with a focus on health protection.

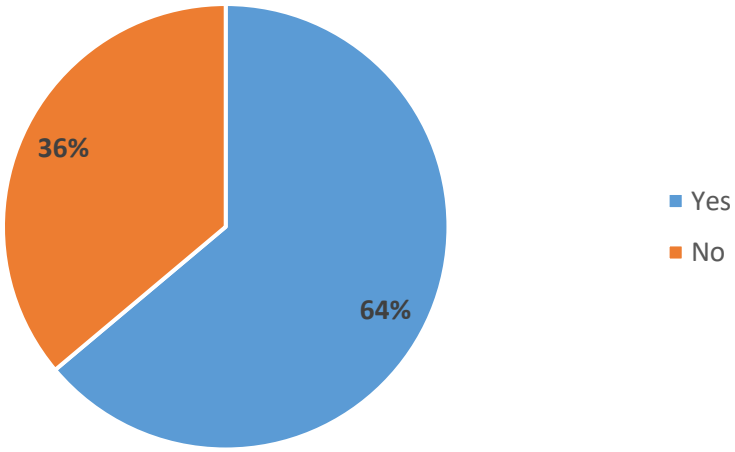

Fig. 2 Answers to the question: Did you adhere to the principles of proper computer work during online education and extended computer use? (from the perspective of mental hygiene)

The third question assessed respondents' awareness of the principles of safe computer usage.

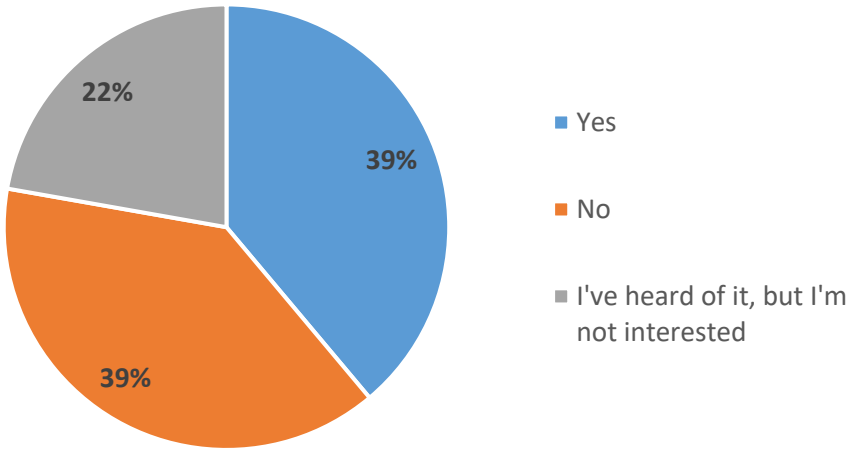

Fig. 3 Answers to the question: Do you know the principles of proper computer work? (from the perspective of mental hygiene)

Through these questions, we aimed to identify whether respondents perceive the risks associated with ICT usage, and we also examined their level of knowledge and application of safe usage principles in their daily lives. In further research, we were particularly interested in the relationship between introverts and extroverts and their habits with computer use. We surveyed with the following questions:

- Do you prefer electronic or printed learning materials?
- What kind of education do you prefer?
- Have you ever felt guilty about spending a lot of time in front of the computer, on your mobile phone and/or surfing the internet?
- Do you get nervous or irritable when you can't be in front of a computer, on your mobile or online?
- Do you prefer to work on your computer, mobile phone and/or the internet over other activities?
- Have you ever preferred computers, mobile phones and/or the internet to your social contacts (family, friends, etc.)?
- Do you think you have enough information about the risks of using computers, mobile phones and/or the Internet for work and learning?
- Has anyone informed you about the potential risks?
- Did you use your computer, mobile phone and/or the internet while completing the questionnaire? (Facebook, social networking sites, etc.)

We present our results in the following text. We have summarized the individual responses using pie charts and provided the percentages of each response.

Table 2. Answers to the question: Do you prefer electronic or printed learning materials? (left) and What kind of education do you prefer? (right)

Electronic learning materials	12	Extrovert
Printed materials	7	
Electronic learning materials	11	Introvert
Printed materials	6	

Online education	9	Extrovert
Contact education	10	
Online education	10	Introvert
Contact education	7	

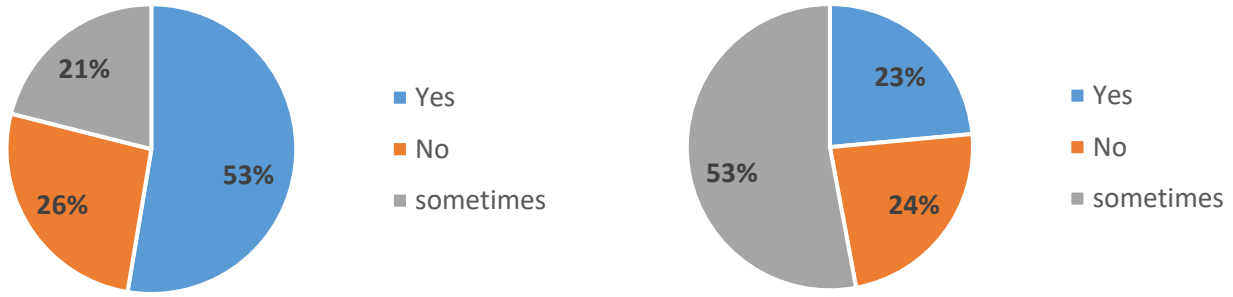

Fig. 4 Answers to the question: Have you ever felt guilty about spending a lot of time in front of the computer, on your mobile phone and/or surfing the internet? Extrovert – left and Introvert – right.

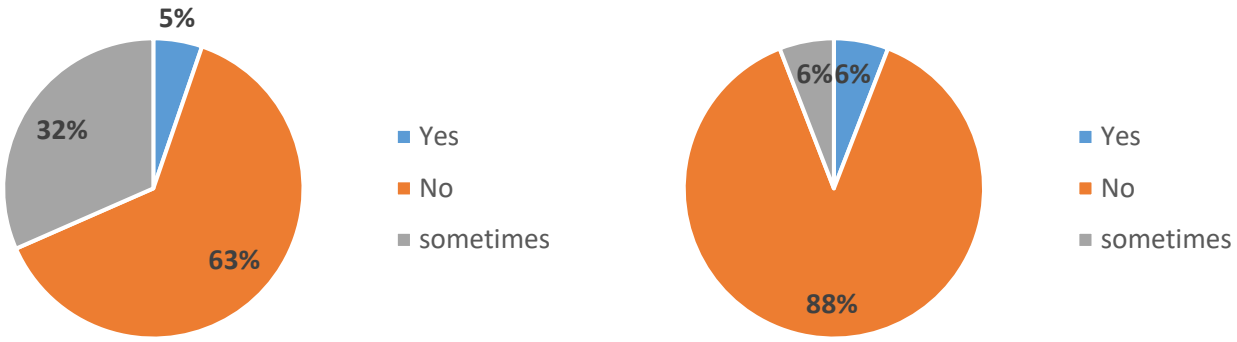

Fig. 5 Answers to the question: Do you get nervous or irritable when you can't be in front of a computer, on your mobile or online? Extrovert – left and Introvert – right.

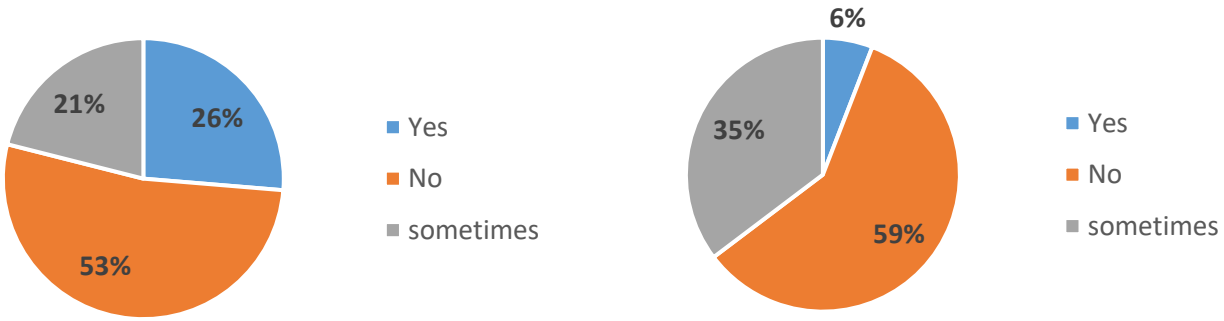

Fig. 6 Answers to the question: Do you prefer to work on your computer, mobile phone and/or the internet over other activities? Extrovert – left and Introvert – right.

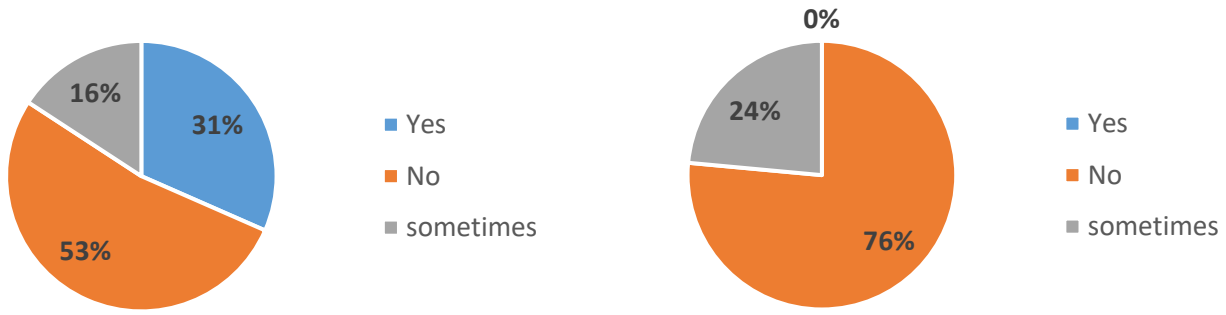

Fig. 7 Answers to the question: Have you ever preferred computers, mobile phones and/or the internet to your social contacts (family, friends, etc.)? Extrovert – left and Introvert – right.

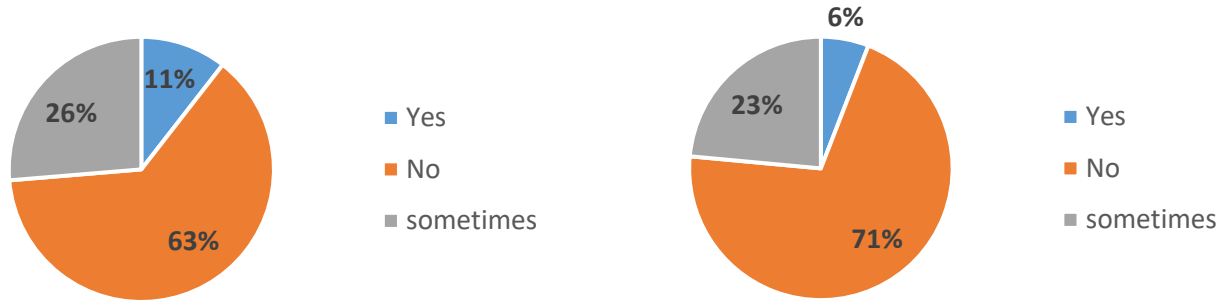

Fig. 8 Answers to the question: Do you often think about your computer, mobile phone and/or the internet while doing other activities? Extrovert – left and Introvert – right.

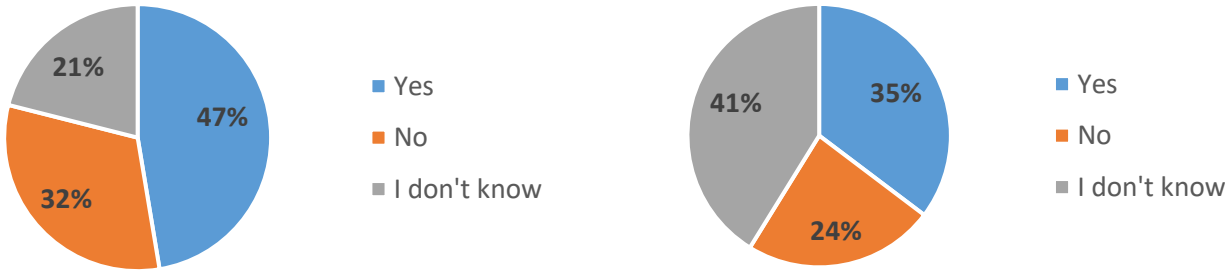

Fig. 9 Answers to the question: Do you think you have enough information about the risks of using computers, mobile phones and/or the internet for work and learning? Extrovert – left and Introvert – right.

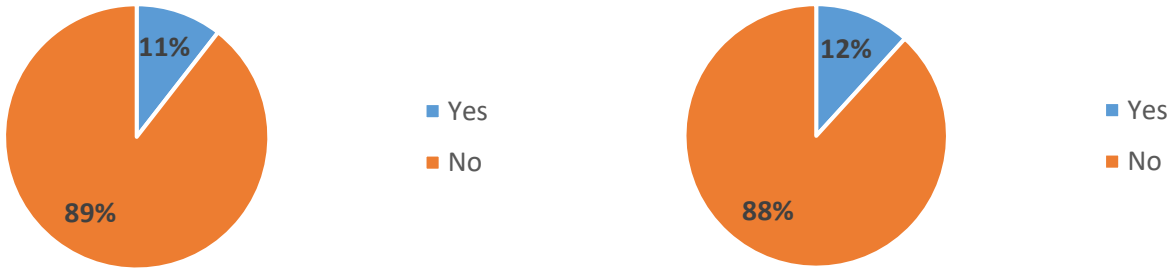

Fig. 10 Answers to the question: Has anyone informed you about the potential risks? Extrovert – left and Introvert – right.

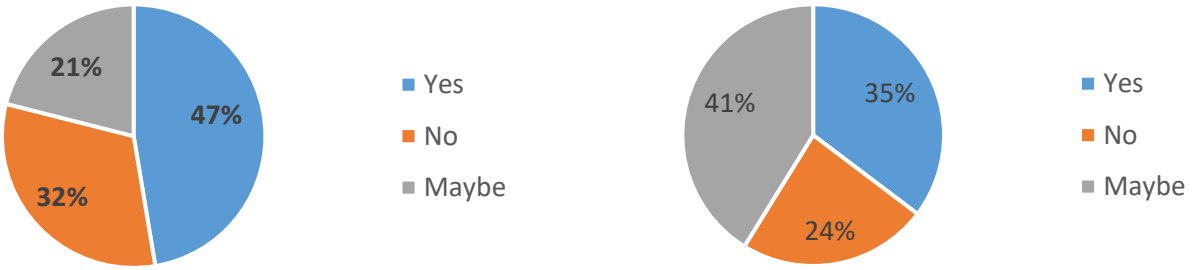

Fig. 11 Answers to the question: Did you use your computer, mobile phone and/or the internet while completing the questionnaire? (Facebook, social networking sites, etc.) Extrovert – left and Introvert – right.

IV. DISCUSSION

A growing body of research has explored the relationship between personality traits and the use of information and communication technologies (ICT).

Gombachika and Khangamwa [10] examined the relationship between personality traits and ICT readiness and acceptance among technical and vocational education and training (TVET) students. They found that personality traits, such as optimism and innovativeness, significantly explained variations in technology readiness, highlighting the importance of individual differences in shaping technology adoption and usage.

Overall, the existing literature suggests that personality traits, particularly the dimensions of introversion and extroversion, can play a significant role in shaping individuals' preferences, behaviors, and engagement with various information and communication technologies [11-14]. However, the relationship is complex and may be influenced by various contextual and situational factors, as well as the specific domain of ICT usage being examined [15-16].

Further investigations examined the dimensions of introversion and extroversion in relation to various aspects of ICT usage. Mark and Ganzach Mark & Ganzach [17] reported that extroversion was positively related to overall internet usage, while introversion was negatively associated with it.

As noted above, we used our modified personality type rating scale to interpret the results. This modification allowed us to focus more precisely on the dominant traits of introversion and extroversion, which provided clearer contours in the respondents' behaviour in relation to the use of information and communication technologies. The results of our research are primarily indicative and serve as a basis for further, deeper investigations in this area. They allow us to identify underlying trends and relationships between personal characteristics and respondents' ICT behaviour.

V. CONCLUSION

Although this is a pilot study, the results already suggest some variation in respondents' answers to several investigated questions, which we have outlined above. These differences may be due not only to the modified scale, but also to respondents' individual preferences, habits and differences in their experiences with ICT. We venture to suggest that the results of this research provide a useful basis for further analysis and help to identify key questions for further research.

Finally, it should be mentioned that the questionnaire survey was carried out completely anonymously and with the respondents' consent.

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REFERENCES

[1] Prakash, V. 2024. Investigating the effect of a software intervention based on a theoretical behavior framework to encourage ergonomic compliance during computing device usage. DOI: 10.1016/B978-0-443-22038-8.00011-8.
[2] Tolstykh, Olesya. 2024. Cognitive load management through ergonomic design in a digital learning environment. In: IX Annual International Conference “EAP / ESP / EMI IN THE CONTEXT OF HIGHER EDUCATION” National University of Science and Technology “MISIS”At: Moscow.
[3] Tolstykh, Olesya. 2023. Влияние цифровой образовательной среды на когнитивную нагрузку студентов. In: ПОЗНАНИЕ И ДЕЯТЕЛЬНОСТЬ: ОТ ПРОШЛОГО К НАСТОЯЩЕМУ Материалы V Всероссийской научной конференции. Омск, 2023At: Омский государственный педагогический университет.
[4] Robertson, M. 2011. Ergonomics and Health Aspects of Work with Computers. In: International Conference, EHAWC 2011, Held as Part of HCI International 2011, Orlando, FL, USA, July 9-14, 2011. Proceedings. 10.1007/978-3-642-21716-6. ISBN: 978-3-642-21715-9. DOI: 10.1007/978-3-642-21716-6.
[5] Winnie, S.; Vivian, A.; Novia, R. 2024. Ergonomic Workspace Design to Reduce the Risk of Musculoskeletal Disorders. In: E3S Web of Conferences. 10.1051/e3sconf/202450003045.
[6] Machaiová, H.; Krajňák, S.; Dankvá, S. L. 2022. BOZP pri práci z domu a zabezpečenie ergonómie pracoviska. In: www.ip.gov.sk.
[7] Carter, P.; Russel, K. 2002. Testy osobnosti. Computer Press. ISBN 8072267051.
[8] Nagy, M., Szőköl, I., & Zahatňanská, M. (2015). A pedagógus jogtudatos magatartása az egészséges iskolai környezet kialakításában = Právne vedomie učiteľa pri vytváraní zdravého školského prostredia. In M. Nagy & T. Strédl (Eds.), *A jogtudatosság, mint az egészséges életmód része* (pp. 76–81) [CD-ROM]. Univerzita J. Selyeho. ISBN 978-80-8122-157-6.
[9] Nagy, M.; Szőköl, I.; Zahatňanská, M. 2014. Az egészséges környezet kialakítása az iskolai tanteremben = Creating a healthy environment in the school classroom. In M. Nagy (Ed.), *Környezeti hatások és biológiai perspektívák: A SJE TKK Biológia Tanszékének tudományos tanulmánykötete* (pp. 88–93) [CD-ROM]. Univerzita J. Selyeho. ISBN 978-80-8122-115-6.
[10] Gombachika, H.; Khangamwa, G. 2012. Ict readiness and acceptance among tevt students in university of malawi. Campus-Wide Information Systems, 30(1), 35-43. https://doi.org/10.1108/10650741311288805.
[11] Wolverton, C. C.; Stevens, D. P. 2019. The impact of personality in recognizing disinformation. Online Information Review, 44(1), 181-191. https://doi.org/10.1108/oir-04-2019-0115.
[12] Mark, G.; Ganzach, Y. 2014. Personality and internet usage: a large-scale representative study of young adults. Computers in Human Behavior, 36, 274-281. https://doi.org/10.1016/j.chb.2014.03.060.
[13] Schoedel, R.; Au, Q.,; Völkel, S. T.; Lehmann, F.; Becker, D.,; Bühner, M.; Stachl, C. 2018. Digital footprints of sensation seeking. Zeitschrift Für Psychologie, 226(4), 232-245. https://doi.org/10.1027/2151-2604/a000342.
[14] Stachl, C.; Hilbert, S.; Au, J.; Buschek, D.; Luca, A. D.; Bischl, B.; Bühner, M. 2017. Personality traits predict smartphone usage. European Journal of Personality, 31(6), 701-722. https://doi.org/10.1002/per.2113.
[15] Matha, R.; Geetha, E.; Acharya, R.; Kishore, L.; Shivaprasad, S. P. 2022. Role of big-five personality traits in predicting behavioral intention: a case of indian corporate bond investors. Problems and Perspectives in Management, 20(4), 638-652. https://doi.org/10.21511/ppm.20(4).2022.48.
[16] Zhang, H.; Zhao, H. 2022. How is virtuous personality trait related to online deviant behavior among adolescent college students in the internet environment? a moderated moderated-mediation analysis. International Journal of Environmental Research and Public Health, 19(15), 9528. https://doi.org/10.3390/ijerph19159528.
[17] Mark, G.; Ganzach, Y. 2014. Personality and internet usage: a large-scale representative study of young adults. Computers in Human Behavior, 36, 274-281. https://doi.org/10.1016/j.chb.2014.03.060.