

**Summary of the doctoral thesis written under the scientific direction of
Assoc. Prof. Irena Pilch, Professor of University of Silesia
and Assoc. Prof. Eng. Adam Galuszka, Professor of the Silesian University of Technology
"Problematic Internet Use - causes, picture of the phenomenon and its prevention.
Interdisciplinary approach"
Eryka Probierz, MA**

The dissertation addresses the topic of Problematic Internet Use (PIU). The presence of the Internet for more than twenty years in the day-to-day space of most people has resulted in a number of negative consequences in addition to its many positive aspects. One of them is PIU, or Problematic Internet Use, which significantly affects a person's emotional, behavioral, cognitive and social experience, manifesting itself in the form of negative consequences, both observable and internal ones concerning a person's psychological sphere. The purpose of the doctoral dissertation is to analyze and undertake research on this phenomenon from an interdisciplinary perspective, i.e. psychology and computer science.

The main objectives of the dissertation are defined in the form of three theses. The first thesis postulates that the analysis of variables and the study of interrelationships between specific constructs and PIU will provide important information on those phenomena that have the strongest relationships with PIU. The first study conducted showed significant associations of early maladaptive schemas, pathological personality traits and emotional reactivity. Single significant associations were also obtained with the other variables studied. The results showed some consistency in obtaining the strongest associations with those variables that manifest some constancy over the life course and are due not only to situational factors, but also to biological factors constituting the individual.

The second thesis of the study postulated that the proposed prevention program, which allows personalization and was developed based on the results of study one, will reduce the risk of PIU in the subjects. To achieve this, study two was conducted to test whether the developed and implemented prevention program was effective. The study was conducted on a study group that participated in the program and a control group. The results showed the overall effectiveness of the program (with no breakdown by program type - representing the possibility of personalization) and effectiveness in 11 out of the 12 groups studied, in the context of specialized programs. In addition, it was shown that despite the unified form of program delivery, the strength of the studied phenomenon varied, depending on the type of program chosen.

The third thesis of the study indicated that the selected artificial intelligence methods, i.e. machine learning and decision trees, as well as web development solutions, would allow partial automation of the prevention program and its implementation on the Internet. In order to realize the above thesis, an algorithm scheme was prepared to automatically assign a person to a certain type of program and its duration. The algorithm itself was then implemented on a dedicated website for the prevention program, which allowed the entire process of recruiting people for the program, providing materials and surveying participants after the program was completed, to be placed on a single website. The site was constructed in such a way that the required input variables for the

algorithm are taken from a database that, with each successive program participant, is updated with his or her results.

The results obtained in the study indicate that the PUI phenomenon is a multidimensional and complex problem. It shows significant relationships with many variables, especially those of a pathological nature. Importantly, these associations are shown regardless of what pathological personality trait or early maladaptive pattern it is, indicating that any pathology in this area can lead to PIU. In addition, based on the results of the prevention program obtained, it should be noted that despite the observably similar characteristics of the problems, the very genesis of the problems can be radically different. Such a conclusion postulates further development of prevention programs seeking to maximize personalization and customization. The implemented algorithm and website allowed the program to be implemented in an automated manner on the web, and made it possible to standardize the recruitment, conduct and collection of information from the subjects. The lack of IT solutions would not have allowed such a wide scope of the program, its accessibility and implementation during the Covid-19 pandemic. It should also be noted that the work on the program will be further developed to increase its effectiveness.

The results demonstrate that the topic of PIU, is an important phenomenon among people using the Internet. Most of the scientific papers address the topic of studying the interrelationships between PIU and other variables, a significant minority propose preventive measures. These measures, are most often carried out as separate studies, and the results of the interrelationships of variables with PIU do not continue to create a program. An approach combining both the first and second types of research, presented in this paper, has the potential to make the solutions created more personalized and to analyze the topic in greater depth, starting with the variables that are in a reciprocal relationship with PIU, through the current picture of the phenomenon in the person under study, and then closing with a prevention program that allows changing current behavior and comparing it to the analyzed picture before the program.