

# จิตวิทยาทางไซเบอร์เบื้องต้นเพื่อความปลอดภัยทางไซเบอร์

## INTRODUCTION TO CYBERPSYCHOLOGY FOR ENHANCING CYBERSECURITY

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### บทคัดย่อ

อินเทอร์เน็ตได้ถูกนำมาใช้กันอย่างแพร่หลาย และกลายเป็นส่วนประกอบสำคัญของเทคโนโลยีและนวัตกรรมต่าง ๆ ในปัจจุบันไม่เพียงจะเป็นการใช้งานส่วนบุคคล การใช้ในภาคธุรกิจและอุตสาหกรรม รวมถึงการประยุกต์ใช้ในด้านพลังงานและสิ่งแวดล้อม ขณะเดียวกันการใช้อินเทอร์เน็ตได้สร้างผลกระทบทางจิตวิทยาต่อเราเป็นอย่างมาก บทความนี้เป็นการนำเสนอภาพรวมเบื้องต้นเกี่ยวกับจิตวิทยาไซเบอร์และผลกระทบที่มีต่อความปลอดภัยทางไซเบอร์ เนื้อหาเกี่ยวข้องกับการทำความเข้าใจจิตวิทยาไซเบอร์เพื่อลดความเสี่ยงในการถูกโจมตีทางไซเบอร์จากผู้ไม่หวังดี บทความนี้แสดงวิธีการและเทคนิคต่าง ๆ ที่ใช้ในการศึกษาจิตวิทยาไซเบอร์ ได้แก่ การวิจัยเชิงสำรวจ การวิจัยเชิงการทดลอง และการสังเกต นอกจากนี้ บทความนี้ได้เสนอแนะแนวทางการจัดการจิตวิทยาไซเบอร์เพื่อให้สังคมห่างไกลจากภัยคุกคามทางไซเบอร์ เช่น แนวทางการให้ความรู้ด้านดิจิทัลแก่ผู้ใช้อินเทอร์เน็ต และการพัฒนามาตรการใหม่ ๆ เพื่อแก้ไขปัญหาการใช้อินเทอร์เน็ต และในตอนท้ายเป็นการแสดงให้เห็นถึงทิศทางในอนาคตของเทคโนโลยีที่มีต่อจิตวิทยาไซเบอร์ และการรับมือ

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### Abstract

The Internet has become an integral part of various technologies and innovations, whether for personal use, business and industrial applications, or energy and the environment. At the same time, the Internet has a significant psychological impact on us. This article provides a basic overview of cyber psychology and its implications for cybersecurity. This article is related to understanding cyber psychology to mitigate the risk of cyberattacks from malicious actors. The article presents various methods and techniques used in studying cyber psychology, such as survey research, experimental research, and observation. Additionally, it suggests strategies for managing cyber psychology to keep society safe from cyber threats, such as digital literacy for internet users and the development of new measures to address internet-related

issues. Lastly, it highlights the future direction of technology's impact on cyber psychology and coping mechanisms.

**Keywords:** Cyberpsychology, Internet Psychology, Cybersecurity, Online Behavior

## 1. Introduction

The internet has become an integral part of modern life. We use it for communication, entertainment, and business. According to Statista, approximately 5 billion people, or 63.1%, were active the internet users as of April 2022. Among these, around 4.7 billion or 59 percent of the world's population used social media [1]. The creation and sharing of information and ideas through social media has become a primary form of communication and information exchange [2][3]. Now we have a "technological intimacy" with many devices, carrying and using them wherever we go. This rapid growth of new technologies and an increasingly interconnected world leads to many psychological issues that are unique to the online world [4].

Internet psychology, or so called cyberpsychology, is as an interdisciplinary field that studies the human mind and behavior [5] that is drawn from psychology, sociology, and computer science. It is the psychological processes that covers all aspects and features of technology that interconnected human behavior [6]. Cyberpsychology seeks to understand how the internet and other digital technologies changes the way we think, feel, and behave and how to manage our online behaviors properly, such as understanding internet addiction, online identity, cyberbullying, and online privacy.

1. Internet Addiction: This behavior is concerned with the excessive and inappropriate use of the internet that interferes with daily life. It is a type of behavioral addiction that is similar to gambling addiction and other impulse control disorders [7].

1.2 Online Identity: This behavior is concerned with the way that people present themselves online, including their name, profile picture, and other personal information. It also includes the study of online social networking and the impact of online identity on offline relationships [8].

1.3 Cyberbullying: This behavior is concerned with the use of the internet and other digital technologies to harass, intimidate, or harm others. It includes the study of both the perpetrators and the victims of cyberbullying, as well as the various forms it can take, such as mean comments, spreading rumors, and sharing embarrassing photos [9].

1.4 Online Privacy: This behavior is concerned with the collection, use, and dissemination of personal information online, and the related concerns of confidentiality, security, and consent [10].

## 2. Cyberpsychology and Cybersecurity

Cybersecurity is the protection against unauthorized access to data centers and other computerized systems, and it is also considered to be within cyberpsychology [11]. Cyberattack, especially social engineering, aims

to exploit its victims by taking specific information or password of their bank accounts. These ordeal experiences can cause long-term negative psychological impacts on these internet users.

On the other hand, cyberattack can be caused by human behaviors. Almost 90% of cyberattacks are caused by behavior or human error. This number corresponds to many studies which confirmed that human errors are still the main cause of many data breaches [12]. For example, exploiting people psychologically to gain sensitive information (e.g., account credentials) remains the primary vehicle used by cybercriminals to gain unauthorized access to IT systems. Many organizations with the best security solutions such as Firewalls, Intrusion Detection Systems, anti-virus, and multi-factor authentication, organizations remain incapable of preventing their employees from becoming victims of social engineering attacks.

Psychologists are now utilizing their understanding of people behavior in cyberspace to develop cultural and behavioral measures to enhance cybersecurity defense for individuals through:

1. Understand how people perceive online risks and what motivates them to become more security conscious. For example, psychologists can identify social situations (e.g., informal conversations such as talking on social media or a casual conversation outside the work) when people tend to reveal sensitive information.

2. Using psychology, patterns of criminal's and other related online malicious activities can be identified and used later by security providers to enhance security solutions to stop cyberattacks before it develops and become a threat.

3. Psychologists can raise public awareness about cybersecurity risks and consequently encourage them to become more privacy-aware by using targeted campaigns through social media networks and other traditional media channels such as TV and newspapers.

### 3. Methodologies for Studying Cyberpsychology

There are many methodologies to study and understand cyberpsychology, such as perform survey studies, experiments, or observations.

1. Surveys: Surveys are a useful method for studying online behaviors and attitudes in the field of cyberpsychology, and they can provide valuable insights into the ways in which people use and experience the internet. They are a widely used method in cyberpsychology, and they can be administered online or in person. Surveys can be used to collect information about internet use, online behaviors, and attitudes towards the internet [13]. There are several different types of surveys that can be used in cyberpsychology, including:

- 1.1 Self-report surveys: Self-report surveys are a type of survey in which individuals are asked to report on their own behaviors, attitudes, and experiences. This type of survey is commonly used in cyberpsychology to study internet use, online behaviors, and attitudes towards the internet.

- 1.2 Structured Interviews: Structured interviews involve asking a series of predetermined questions to individuals in order to gather information about their behaviors, attitudes, and experiences. This

type of survey can be used in cyberpsychology to study more in-depth topics, such as online identity or cyberbullying.

1.3 Focus Groups: Focus groups involve bringing together a small group of individuals to discuss a specific topic or issue in an open and unstructured way. This type of survey can be useful for gathering qualitative data about online behaviors and attitudes, and it can provide a more nuanced understanding of complex topics.

To conduct a survey in cyberpsychology, researchers need to consider a number of factors, including the research question, the target population, the type of survey being used, and the sampling and data collection methods. It is also important for researchers to ensure that their surveys are well-designed, reliable, and valid in order to obtain accurate and meaningful results.

2. Experiments: Experiments are a useful method for studying the effects of variables on online behaviors in the field of cyberpsychology, and they can provide valuable insights into the ways in which different factors influence online behavior. They are a common method in psychology, and they can be adapted for use in cyberpsychology. For example, an experiment might manipulate the level of anonymity in an online forum to study the effect on social behaviors [14]. There are several different types of experiments that can be used in cyberpsychology, including:

2.1 Laboratory Experiments: Laboratory experiments involve manipulating variables in a controlled environment, such as a laboratory or computer lab, in order to study the effects on online behaviors. This type of experiment allows researchers to control for extraneous variables and to study specific behaviors or phenomena in a more controlled setting.

2.2 Field Experiments: Field experiments involve manipulating variables in a naturalistic setting, such as an online forum or social media platform, in order to study the effects on online behaviors. This type of experiment allows researchers to study online behaviors as they occur naturally, and it can be useful for studying behaviors that are difficult to replicate in a laboratory setting.

2.3 Quasi-experiments: Quasi-experiments involve manipulating variables in a non-randomized way, such as by assigning participants to groups based on their preexisting characteristics. This type of experiment is useful for studying online behaviors in a more realistic setting, and it can provide valuable insights into the ways in which variables interact in the real world.

In order to conduct an experiment in cyberpsychology, researchers need to consider a number of factors, including the research question, the variables being studied, the experimental design, and the data collection and analysis methods. It is also important for researchers to ensure that their experiments are ethical and respectful of the privacy and confidentiality of online users.

3. Observations: Observation studies can be a useful method for understanding and studying online behaviors in the field of cyberpsychology. They are a common method used in the study of cyberpsychology,

and they can be used to study online behaviors in real-time or to analyze the content of online interactions. There are several different types of observation studies that can be used in cyberpsychology, including:

3.1 Naturalistic Observations: Naturalistic observations involve observing online behaviors as they occur in the natural environment, without any manipulation or intervention. This type of observation allows researchers to study online behaviors as they occur naturally, and it can be useful for studying behaviors that are difficult to replicate in a laboratory setting.

3.2 Structured Observations: Structured observations involve observing online behaviors in a more controlled environment, with specific guidelines and protocols in place. This type of observation can be useful for studying specific behaviors or phenomena, and it allows researchers to control for extraneous variables.

3.3 Content Analysis: Content analysis is a type of observation study that involves analyzing the content of online interactions, such as posts, comments, or messages. This type of observation can be used to study the language and communication patterns of online users, as well as the themes and topics that are discussed.

In order to conduct an observation study in cyberpsychology, researchers need to consider a number of factors, including the research question, the population being studied, the type of observation being used, and the data collection and analysis methods. It is also important for researchers to ensure that their observations are ethical and respectful of the privacy and confidentiality of online users.

#### **4. Cyberpsychology Implications for Society**

To keep the society safe from cyber perpetrators, this article offers two cyberpsychology implications for dealing with the problems, they are: to provide digital literacy education to society and to develop new interventions to address online problem.

1. Digital Literacy Education: One of the key implications of cyberpsychology for society is the importance of digital literacy education. Digital literacy refers to the skills and knowledge needed to use digital technologies effectively, including the ability to access and evaluate information, communicate with others, and solve problems. Digital literacy is becoming increasingly important in today's digital world, as more and more aspects of our lives are conducted online. This includes everything from banking and shopping to education and entertainment. As such, it is important for individuals to have the necessary digital literacy skills to participate fully in society. There are several ways in which digital literacy education can be promoted, including:

1.1 School-based programs: Many schools now include digital literacy education as part of their curriculum, teaching students how to use technology safely and effectively.

1.2 Community programs: There are also many community-based programs that offer digital literacy education, including libraries, community centers, and non-profit organizations.

1.3 Online resources: There are also many online resources available for individuals to learn about digital literacy, including websites, blogs, and video tutorials.

2. Developing New Interventions to Address Online Problem: Another implication of cyberpsychology for society is the need for new interventions to address online problems, such as internet addiction, cyberbullying, and online privacy. These interventions can take many forms, Counseling and therapy. Counseling and therapy can be an effective intervention for individuals struggling with online problems, such as internet addiction or cyberbullying. These interventions can help individuals develop healthier online

## 5. Future of Cyberpsychology

The field of cyberpsychology is still in its early stages, and it is rapidly evolving as the internet and other digital technologies continue to transform the way we think, feel, and behave. In the coming years, it is likely that cyberpsychology will continue to grow and expand, as more and more aspects of our lives become digital.

One of the key areas of focus for the future of cyberpsychology will be the impact of artificial intelligence (AI) and machine learning on online behavior [15]. As AI becomes more advanced and sophisticated, it is likely that it will increasingly be used to personalize and tailor online experiences, including the content that we see and the recommendations that we receive. This has the potential to significantly influence our online behaviors and decision-making, and it will be important for cyberpsychologists to understand these impacts and develop strategies to manage them.

Another area of focus for the future of cyberpsychology will be the development of new interventions to address online problems, such as internet addiction, cyberbullying, and online privacy [16]. As the internet becomes increasingly central to our lives, it is likely that the prevalence of these problems will also continue to grow. Cyberpsychologists will need to work with policymakers, educators, and other stakeholders to develop effective interventions to address these issues.

In addition, the future of cyberpsychology will also likely involve the study of new and emerging online behaviors, such as virtual reality (VR) and augmented reality (AR). These technologies have the potential to significantly change the way we interact with the online world, and it will be important for cyberpsychologists to understand their impacts and develop strategies to manage them.

Overall, the future of cyberpsychology is likely to be characterized by continued growth and expansion as the internet and other digital technologies continue to evolve and transform our lives. As such, it will be important for cyberpsychologists to stay current on the latest research and developments in the field in order to effectively understand and manage online behaviors.

## 6. Conclusion

In conclusion, the field of cyberpsychology is a rapidly growing and evolving field that is concerned with understanding and managing online behaviors. It is an interdisciplinary field that draws from psychology,

sociology, and computer science, and it seeks to understand how the internet and other digital technologies are changing the way we think, feel, and behave.

Over the past few decades, cyberpsychology research has made significant contributions to our understanding of internet addiction, online identity, cyberbullying, and online privacy, among other topics. This research has helped to identify the various factors that contribute to these behaviors, as well as the consequences and impacts on individuals and society.

Looking to the future, it is likely that the field of cyberpsychology will continue to grow and expand, as more and more aspects of our lives become digital. Some of the key areas of focus for future research will include the impact of artificial intelligence and machine learning on online behavior, the development of new interventions to address online problems, and the study of new and emerging online behaviors, such as virtual reality and augmented reality.

Overall, the field of cyberpsychology has much to offer in terms of understanding and managing online behaviors, and it will continue to be an important area of research in the coming years.

## 7. References

- [1] Statista. (2023). Number of internet and social media users worldwide as of April 2023. Available at: <https://www.statista.com/statistics/617136/digital-population-worldwide/> (Accessed: 30 January 2023).
- [2] Brossard, D., & Scheufele, D. A. (2013). Social science. Science, new media, and the public. *Science*, 339 (6115), 40–41. <https://doi.org/10.1126/science.1232329>.
- [3] Smith, A., & Anderson, M. (2018). Social media use 2018: Demographics and statistics. Pew Research Center: Internet, Science & Tech. Available at: <https://www.pewresearch.org/internet/2018/03/01/social-media-use-in-2018/>
- [4] Medical News Today. (2023). Negative effects of technology: What to know. Available at: <https://www.medicalnewstoday.com/articles/negative-effects-of-technology> (Accessed: 23 February 2023).
- [5] Ayeni, Oyindamola & Madugba, Judith & Sanni, Joseph. (2022). Cyberpsychology, Behavior and Social Networking. 10.13140/RG.2.2.22664.29447.
- [6] Atrill-Smith, A., Fullwood, C., Keep, M., & Kuss, D. J. (Eds.). (2019). The Oxford handbook of cyberpsychology. Oxford University Press. Available at: <https://www.oxfordhandbooks.com/view/10.1093/oxfordhb/9780198812746.001.0001/oxfordhb-9780198812746> (Accessed: 1 February 2023).
- [7] American Psychological Association (APA). (2014). Internet Gaming Disorder. Available at: <https://www.dsm5.org/documents/internet%20gaming%20disorder%20fact%20sheet.pdf> (Accessed: 1 February 2023).
- [8] Ryan, T., & Xenos, S. (2011). Who Uses Facebook? An Investigation into the Relationship between the Big Five, Shyness, Narcissism, Loneliness, and Facebook Usage. *Cyberpsychology, Behavior, and Social Networking*, 14(6), 358-361.

- [9] Smith, P. K., Mahdavi, J., Carvalho, M., Fisher, S., Russell, S., & Tippett, N. (2008). Cyberbullying: Its Nature and Impact in Secondary School Pupils. *Journal of Child Psychology and Psychiatry*, 49(4), 376-385.
- [10] Acquisti, A., & Gross, R. (2006). Imagined Communities: Awareness, Information Sharing, and Privacy on the Facebook. In P. Golle & G. Danezis (Eds.), 6th Workshop on Privacy Enhancing Technologies (pp. 36-58). Cambridge, UK: PETS.
- [11] Debb SM. (2021). Keeping the Human in the Loop: Awareness and Recognition of Cybersecurity Within Cyberpsychology. *Cyberpsychol Behav Soc Netw*. 2021 Sep;24(9):581-583.doi:10.1089/cyber.2021.29225.sde. PMID: 34534015.
- [12] Chief Executive. (2023). Available at: <https://chiefexecutive.net/almost-90-cyber-attacks-caused-human-error-behavior/> (Accessed: 30 January 2023).
- [13] Duggan, M., & Smith, A. (2013). Online Dating & Relationships. Pew Research Center: Internet, Science & Tech. Available at: <http://www.pewinternet.org/2013/10/21/online-dating-relationships/> (Accessed: 5 February 2023).
- [14] Suler, J. (2004). The Online Disinhibition Effect. *Cyberpsychology & Behavior*, 7(3), 321-326.
- [15] Krotoszynski, J. J. (2015). Artificial Intelligence and Human Behavior. *Stanford Law Review*, 68(1), 143-179.
- [16] Salaway, G., Caruso, J. B., & Nelson, M. R. (2015). The MOOC Phenomenon: Who Takes Massive Open Online Courses and Why? *International Review of Research in Open and Distance Learning*, 16(3), 110-127.