Chapter 65
Computer Vision Syndrome among Internet Users

Liang Hu
Wenzhou Medical College, China

Fan Lu
Wenzhou Medical College, China

ABSTRACT

The chapter is intended to introduce Computer Vision Syndrome (CVS), a widely spreading but largely unknown epidemic among professional and ordinary computer users, especially internet users. Dr. Sheedy and Dr. Anshel are two leading researchers in the ergonomics and optometry fields, and CVS has been extensively studied in these fields. The authors have summarized their views about CVS, including five major symptoms of CVS, three key contributing factors of CVS, and basic preventive and treatment strategies. Future researches are needed to continue the advancement of current knowledge regarding computer screens, computer task, and computer environments, and to expand research in diverse computer user populations, especially younger computer users.

INTRODUCTION

Computers have significantly impacted cognitive, social, physical, and various other aspects of the modern daily lives of computer users, especially among internet users. In 2000, it was estimated that 75% of jobs involved computer use (Hayes, Sheedy, Stelmack, & Heaney, 2007). In 2009, U.S. Census Bureau's survey result showed that about 73.5% individual lives in household with Internet access (U.S.Census Bureau, 2009). Our life is inseparable from the internet, e.g., chatting, online shopping, gaming, video conferencing, and emailing. The extensive literature has indicated that computer use is closely associated with various visual problems, which are referred to as Computer Vision Syndrome (CVS) in medical science.

Computer vision syndrome (CVS) was defined by American Optometry Association (AOA) (1995) as: "the complex of eye and vision prob-

lems related to near work which are experienced during or related to computer use.'' As the most widely used definition of CVS, it has had deep and broad impacts on CVS research. However, this classic definition was developed by the American Optometric Association more than 10 years ago. Recently, AOA has added new interpretation of CVS, ''a group of eye and vision-related problems that result from prolonged computer use. Many individuals experience eye discomfort and vision problems when viewing a computer screen for extended periods. The level of discomfort appears to increase with the amount of computer use'' (American Optometric Association (AOA), 2006a). The new explanation added vision-related problems (e.g. headache), which are also commonly observed CVS symptoms. The original phrase ''eye and vision problems'' might be too vague in old definition. The new explanation also clarified ''viewing a computer screen for extended periods'', the original phrase ''near work'' at the computer might be too simple, and the new added phase "extended periods" points out one of main causes of CVS.

Nowadays the term of ''computer use'' become diversification. There are various types of professional or daily computer users. Computer use has expanded greatly from the initial area of professional work (e.g. office workers, website designers, telephone operators) to other areas such as learning and entertainment (e.g. online education, chatting, shopping). The types of computer also expanded to various computer screen devices, such as desktops, laptop, iPad, palm handhelds, and cell phones. Unquestionably, the number of computer user has now increased rapidly, and the computer usage is now almost universal. Consequently, the effects of differences in computer use on eyes and vision might vary.

OVERVIEW

Computer Vision Syndrome (CVS), a widely spreading but largely unknown epidemic among professional and ordinary computer users (Blehm, Vishnu, Khattak, Mitra, & Yee, 2005; Mutti & Zadnik, 1996; Sheedy, 2000; Sheedy & Parsons, 1990; Yan, Hu, Chen, & Lu, 2008). It has been extensively studied in the field of visual and computer ergonomics, and more recently in the field of environmental and occupational optometry. However, few behavioral studies (e.g. Dillon & Emurian, 1995) have been conducted to describe, analyze, and pose solutions for CVS, especially in cyber behavior area. So we need to call for more behavioral research programs to help computer users address this visual epidemic.

For researchers in the behavioral science of computer use, it is useful to learn from the current CVS research in ergonomics and optometry in order to help computer users to deal with CVS. The CVS research area includes the field of visual and computer ergonomics, environmental and occupational optometry, behavioral science of computer use etc. Dr Sheedy and Dr Anshel are two leading researchers in the ergonomics and optometry fields.

Dr. Sheedy received his optometry degree and his doctorate in physiological optics from the Ohio State University. He founded the first VDT Eye Clinic at the University of California at Berkeley School of Optometry in 1985. He has received the William Feinbloom award for his work in vision ergonomics. He has over 140 published articles and has participated in the development of numerous ANSI and ISO standards and regulations. Currently Dr. Sheedy is the head of the Vision Ergonomics Research Laboratory and professor of optometry at Pacific University. The Organizing Thesis of the Vision Ergonomics Laboratory is that better vision and a better visual environment improve the comfort and work efficiency of people who perform critical visual tasks. The Mission of the Vision Ergonomics Laboratory is to use scientific

14 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage: www.igi-global.com/chapter/computer-vision-syndrome-among-internet/64802

Related Content

Varieties and Skills of Cybercrime
Tansif Ur Rehman, Sajida Parveen, Mehmood Ahmed Usmaniand Muhammad Ahad Yar Khan (2023).
International Journal of Cyber Behavior, Psychology and Learning (pp. 1-13).
www.irma-international.org/article/varieties-and-skills-of-cybercrime/324091

Research Journey of Hate Content Detection From Cyberspace
Sayani Ghosaland Amita Jain (2022). *Research Anthology on Combating Cyber-Aggression and Online Negativity (pp. 542-567).*
www.irma-international.org/chapter/research-journey-of-hate-content-detection-from-cyberspace/301655

The Human Factor: Cyber Security's Greatest Challenge
George Platsis (2019). *Multigenerational Online Behavior and Media Use: Concepts, Methodologies, Tools, and Applications (pp. 35-53).*
www.irma-international.org/chapter/the-human-factor/220933

Social Capital, Self-Esteem, Popularity, Need for Accessibility to Friends, and Stress Predict Cyber Technology Use
Champika K. Soysaand Jennifer M. Gardner (2013). *International Journal of Cyber Behavior, Psychology and Learning (pp. 28-43).*
www.irma-international.org/article/social-capital-self-esteem-popularity-need-for-accessibility-to-friends-and-stress-predict-cyber-technology-use/102455

Eradicating World Poverty Requires More than Facebook Likes: The Academic Commitment to Educate Socially Responsible Leaders
Marco Tavanti (2012). *International Journal of Cyber Ethics in Education (pp. 55-71).*
www.irma-international.org/article/eradicating-world-poverty-requires-more-than-facebook-likes/98577