

Eye Strain, Reduced Attention, And Emotional Fatigue: The Problem Of The Digital Generation

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Abstract: This article explores the growing issues of eye strain, attention decline, and emotional fatigue among students and young people in the digital age. Based on the research of Professors Sheppard and Wolffsohn, the paper discusses the symptoms and causes of “Digital Eye Strain” and its effects on mental and physical health. It also presents findings from studies conducted in Singapore, highlighting how excessive screen time negatively affects focus, sleep quality, and overall well-being. The article emphasizes preventive strategies such as applying the 20-20-20 rule, performing eye exercises, limiting blue light exposure, and maintaining proper rest and sleep schedules. In conclusion, while complete avoidance of digital devices is unrealistic, responsible and balanced use of technology can help preserve visual health and psychological stability.

Keywords: Eye strain, attention decline, emotional fatigue, digital technology, computer vision syndrome, 20-20-20 rule, psychological balance.

Introduction: In the 21st century, the rapid development of digital technologies has led students to conduct a significant portion of their learning process through computers and mobile devices. This phenomenon has attracted the attention and analysis of many researchers. In particular, according to scientific studies conducted by British professors Anthony L. Sheppard and James S. Wolffsohn, approximately 80–90% of students spend an average of 6–8 hours per day in front of screens during their studies. Around 2,000 participants took part in their research. It was found that excessive and prolonged use of computers, tablets, and mobile phones leads to the widespread occurrence of what is known as Digital Eye Strain (DES), or more simply, Computer Vision Syndrome (CVS).

During the study, students reported several symptoms such as dryness of the eyes, burning sensation, blurred vision, and, most commonly, headaches and tension in the neck and shoulder muscles. Based on the research findings, the most frequently reported symptoms were headaches and eye muscle strain, which caused

significant discomfort for many students. It was also revealed that eye muscle tension not only reduces visual performance but also negatively affects brain function, leading to psycho-emotional exhaustion, general fatigue, and decreased motivation to study.

The main cause of these effects, according to scientists, is headache, which results from the influence of blue light. Blue light overstimulates brain activity and reduces the production of the melatonin hormone, which disrupts normal sleep and, consequently, leads to chronic headaches. In the study by Sheppard and Wolffsohn, the incidence of headaches among students reached 65–70%, making it one of the main clinical indicators of digital eye strain.

Experts note that this issue is not limited to students but also affects office workers, designers, and all individuals who actively use digital technology. Currently, various preventive measures are being implemented to address and reduce the risk of visual fatigue. One of the most widely recommended solutions is the “20-20-20 rule”, proposed by Sheppard and Wolffsohn. According to this rule, after every 20

minutes of screen time, a person should look at an object 20 feet (approximately 6 meters) away for 20 seconds. This helps relieve the tension in the eye muscles.

In addition, it is important to adjust screen brightness, maintain a 50–70 cm distance between the monitor and the eyes, regularly perform eye exercises, and keep adequate humidity in the environment. Using glasses with blue-light filters, reducing screen exposure time, and maintaining a healthy sleep routine significantly help alleviate symptoms of eye strain.

Although it is impossible to completely abandon digital devices in today's world, rational and mindful usage can help preserve eye health. For this reason, many educational institutions are introducing "digital hygiene" classes or holding educational seminars, where students receive valuable advice on eye protection and digital health management. Gestalt is a form, configuration, a certain form of organization of separate parts that creates a whole. The subject of Gestalt psychology is the human mind, which should be studied according to the principle of integrity. The method of studying Gestalts is observation, monitoring one's own perception, reaction to events. The central mental process is visual perception. The process of solving a problem is thinking that is carried out not by selecting skills formed through errors and trials, but by systematizing the field, in other words, by understanding the insight of the present moment.

Creating a healthy learning and working environment requires not only technical but also psychological considerations. For example, taking short breaks during study or work, engaging in physical exercise, walking outdoors, and drinking enough water all positively affect the human body. These practices help reduce eye muscle tension, improve oxygen flow to the brain, and prevent overall fatigue. Stress also affects a person's intellectual potential. The state of strong and long stress reduces cognitive functions, such as attention, memory, decision-making, solving a problem. Professional reflection is an important tool in the teacher's pedagogical activity improving the teacher's own skills and students' personal, social and emotional contributes to development. Empirical research results of reflective approach confirmed the positive impact on students' social skills and academic success. Reflective teachers are highly effective in understanding students' individual needs, analyzing their own behavior, and improving instructional strategies showed.

Many researchers agree that it is impossible to completely disconnect from the digital world, but wise and moderate use of technology can help maintain

physical health, psychological balance, and intellectual activity. Male psychotypes on the stability of family relationships influence typologies of temperament, emotional intelligence, affective regulation mechanisms and multifaceted and deep, based on the complex interaction of socio-cultural contexts feature. These psychological determinants affect the structural integrity of the family ecosystem, decisive in the formation of the effectiveness of affective communication and long-term harmony plays a role. Global socio-cultural transformations, in particular, re-establishment of gender norms within the framework of formation, digitized communication paradigms and economic pressures these effects are more complicated, which is to the psychotype to ensure family stability requiring the development of specific, culturally adapted and empirically based strategies does. Research shows that it is based on psychodynamic and social-cognitive paradigms approaches are important in strengthening the psychological stability of family relationships is important, mitigating family conflicts in transnational and local contexts and creates a fundamental basis for increasing psychological well-being.

Looking at research conducted in Singapore, a study by Nanyang Technological University (NTU) involving 583 participants aged 13–25 found that many experienced difficulties in maintaining attention and reported being distracted by social media during study sessions. This indicates that digital device use and social media activity significantly affect young people's learning, focus, and emotional state.

In Singapore, cases of eye strain and sleep disturbances among children and youth have also increased. One study noted that excessive screen time in children leads to Digital Eye Strain and poor posture. Another study involving 969 university students found that nighttime use of social media reduced sleep duration and increased daytime sleepiness.

These findings align with previously discussed mechanisms, such as the effects of blue light exposure and sleep disruption, though the scale of screen time and its impact appeared higher in Singapore.

Furthermore, Singaporean health authorities reported that myopia (nearsightedness) affects 38.9% of people aged 40 and above. It is projected that by 2040, the number of individuals suffering from visual disorders, including refractive errors, will reach 2,393,000 people, which is approximately 58% higher than in 2015. However, only 38% of people over 50 undergo annual eye examinations, which limits early diagnosis and treatment of eye diseases.

In conclusion, it is impractical to completely eliminate

the use of digital devices, as education, work, and daily life today are closely intertwined with technology. Nevertheless, organized and balanced screen usage can help protect vision. Planning screen time, taking short breaks every 20–30 minutes, doing eye exercises, and maintaining a healthy sleep routine significantly reduce eye and muscle strain. Parents' words generally have much more significance in a child's fate than parents would like. Therefore, they should be handled very carefully. It is very important for a child to distinguish between the attitude towards him and his behavior. The child's actions, deeds, words may not please, make him angry. But the child himself must be loved, this is important.

Moreover, responsible use of digital technologies positively affects not only visual health but also overall well-being. Regular physical activity, outdoor walks, adequate sleep, and proper nutrition improve brain oxygenation, reduce fatigue, and stabilize psychological health. These habits enhance concentration and increase learning motivation.

By regulating screen exposure time and practicing proper digital hygiene, students and young people can improve their learning efficiency, preserve their physical and mental health, and ensure a more productive educational experience in the digital era.

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