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THE IMPACT OF INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) ON PHYSICAL HEALTH AND STUDY HABITS OF HIGHER SECONDARY STUDENTS

Nitu Tomar[1], Dr. Daljeet Kaur[2]
Research Scholar, Prof. Emeritus
Department of Education,
Sparsh Himalaya University, Dehradun, Uttarakhand, India

Abstract: Information and Communication Technology (ICT) has revolutionized education, enabling higher secondary students to access vast resources and foster collaboration. However, the increased reliance on ICT tools raises concerns about its impact on students' physical health and study habits. This paper explores the positive and negative consequences of ICT on these aspects, focusing on sedentary behavior, postural issues, eye strain, and its influence on study routines and academic performance. Recommendations for balanced ICT usage are also discussed.

INTRODUCTION

In the digital age, ICT has become integral to education, transforming teaching methods and learning environments. Students at the higher secondary level often rely on ICT for research, assignments, and virtual classes. While these advancements offer numerous benefits, they also pose challenges to students' physical health and study habits. This paper examines these dual aspects, emphasizing the need for a balanced approach to ICT integration.

The scope of this paper includes an in-depth analysis of how ICT tools and devices influence the physical well-being of students and their approach to academic tasks. It highlights the interplay between technology and traditional learning practices, offering evidence-based insights and actionable recommendations for various stakeholders, including educators, policymakers, and parents.

Physical Health Implications of ICT Usage

1. **Sedentary Lifestyle:** The growing dependency on ICT for educational purposes has contributed significantly to sedentary behavior among students. Prolonged periods of sitting while using devices like laptops, tablets, and smart phones reduce overall physical activity levels. Studies indicate that such sedentary lifestyles increase the likelihood of obesity, cardiovascular diseases, and metabolic disorders in adolescents. Furthermore, the absence of regular physical movement impacts the students' physical fitness, stamina, and mental alertness.

2. **Postural Problems:** A significant proportion of students do not adhere to ergonomic practices when using ICT devices, resulting in poor sitting postures. Slouching, hunching over screens, and improper desk setups lead to musculoskeletal discomfort and long-term issues like chronic back and neck pain. Research highlights the prevalence of repetitive strain injuries (RSI) among youth, stemming from continuous typing and poor wrist positioning.

3. **Visual Health Concerns:** The increasing use of screens has led to a surge in cases of digital eye strain, also known as Computer Vision Syndrome (CVS). Symptoms such as blurred vision, dry eyes, headaches, and light sensitivity are commonly reported by students. Additionally, exposure to blue light emitted by digital screens disrupts circadian rhythms, contributing to sleep disorders. Insufficient sleep further exacerbates cognitive fatigue, mood disturbances, and reduced academic performance.

4. **Mental Health Impact:** Excessive ICT usage has psychological implications, including heightened stress, anxiety, and feelings of isolation. Constant exposure to social media and the pressure to remain "connected" digitally contribute to these issues. A lack of face-to-face interactions further diminishes emotional well-being and impairs students' social development.

Study Habits and Academic Performance

1. **Improved Access to Resources:** ICT offers students unparalleled access to a wealth of information and educational resources. Online databases, e-books, and learning management systems empower students to engage in self-directed learning, enhancing their research skills and knowledge acquisition. Additionally, ICT facilitates virtual classrooms, enabling students to attend lectures and interact with instructors remotely.

2. **Enhanced Collaboration:** Digital platforms such as Google Workspace, Microsoft Teams, and Zoom enable collaborative learning experiences. Students can work on group projects, share ideas, and communicate effectively with peers and teachers. These tools foster teamwork, creativity, and critical thinking.

3. **Distractions and Procrastination:** While ICT aids in academic pursuits, it also serves as a source of distraction. Social media platforms, online games, and streaming services often divert students' attention, leading to procrastination. The accessibility of entertainment content on the same devices used for education creates a dual-use dilemma, impacting focus and time management.

4. **Dependence on Technology:** An overreliance on ICT tools can hinder the development of essential cognitive skills. Students may prioritize shortcuts and quick solutions over in-depth analysis and critical thinking. Furthermore, dependence on technology for note-taking and calculations may reduce memory retention and mental arithmetic abilities.

5. **Time Management Challenges:** The integration of ICT in education necessitates effective time management skills. However, many students struggle to balance academic responsibilities with leisure activities facilitated by ICT. Poor time management leads to rushed assignments, inadequate preparation for exams, and reduced academic performance.

Case Studies and Empirical Evidence

To provide a comprehensive understanding of ICT's impact, this section examines case studies and empirical research findings:

Case Study 1: Impact on Physical Health A study conducted among higher secondary students in urban settings revealed that over 60% of participants experienced symptoms of digital eye strain. The same study highlighted a correlation between prolonged ICT usage and a 25% increase in reported back and neck pain.

Case Study 2: Academic Outcomes Research comparing traditional and ICT-supported learning environments found that students in ICT-enabled classrooms demonstrated a 15% improvement in collaborative skills and a 10% increase in subject-specific test scores. However, these benefits were offset by a 20% increase in reported distractions due to social media.

Case Study 3: Time Management A longitudinal study assessing time management among higher secondary students identified ICT as a double-edged sword. While students leveraged productivity apps for scheduling and task tracking, many struggled with impulsive browsing and gaming, resulting in missed deadlines.

Recommendations

1. **Promoting Ergonomic Practices:** Educators and parents should guide students on proper ergonomic setups, including adjustable chairs, desks, and screen heights. Regular breaks, stretching exercises, and wrist supports can alleviate physical discomfort.

2. **Encouraging Physical Activity:** Schools should prioritize physical education programs and integrate short physical activity breaks during virtual classes. Community initiatives promoting outdoor sports and fitness challenges can further motivate students.

3. **Implementing Screen Time Guidelines:** Students should adopt the 20-20-20 rule: every 20 minutes, look at something 20 feet away for 20 seconds. Blue light filters and "night mode" settings on devices can reduce eye strain. Parents and educators should collaborate to enforce reasonable screen time limits.

4. **Balancing ICT and Traditional Methods:** Blending digital tools with traditional learning methods ensures that students reap the benefits of technology without becoming overly dependent. Hands-on activities, in-person discussions, and physical textbooks can complement ICT-based learning.

5. **Fostering Digital Literacy:** Training programs on effective ICT usage can empower students to harness technology responsibly. Time management workshops, anti-procrastination strategies, and mindfulness exercises can help students maintain focus and discipline.
6. **Parental and Institutional Support:** Parents should monitor their children's ICT usage, providing guidance on healthy habits and leading by example. Schools and institutions should establish policies that prioritize students' well-being while embracing technological advancements.

Conclusion

ICT has undeniably transformed education, offering unparalleled opportunities for higher secondary students. However, its impact on physical health and study habits necessitates careful monitoring and strategic interventions. By promoting healthy ICT practices and balanced study routines, stakeholders can ensure that the benefits of technology are maximized while minimizing its adverse effects. Collaborative efforts from educators, parents, policymakers, and students are essential to create a sustainable and health-conscious digital learning environment.

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