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The Effect of Screen Time on Academic Achievement and School Engagement among Students

1. **Abha Tiwari,** Gracious College, Abhanpur, Raipur, Chhattisgarh
2. **Dr. Riya Tiwari,** Principal, Gracious College, Abhanpur, Raipur, Chhattisgarh

- **Abstract**

In the current digital age, screen time has become a dominant aspect of students' daily lives, significantly influencing their academic and social development. This study explores the relationship between screen time and its impact on academic achievement and school engagement among high school students in Raipur and Abhanpur, Chhattisgarh. Utilizing a descriptive research design, data were collected from a representative sample of 500 students through a structured questionnaire. The findings revealed that excessive screen time—particularly for non-educational purposes such as social media and gaming—negatively correlates with academic performance and participation in extracurricular activities. Conversely, screen usage for educational purposes was associated with improved academic outcomes. The study also highlighted concerning trends related to students' physical and mental well-being, including eye strain, reduced attention span, and increased anxiety. Importantly, students who practiced better screen management and took regular breaks reported more balanced academic and social lives. The research underscores the need for regulated screen time, greater parental and institutional involvement, and promotion of non-digital extracurricular activities. These findings offer valuable insights for educators, parents, and policymakers aiming to foster a healthier, more productive digital learning environment.

- **Keywords**: Screen Time, Academic Achievement, School Engagement, Digital Learning, Student Well-being

- **Theoretical Background**

In today's digital era, technology has become an integral part of the educational system. The widespread use of smartphones, tablets, laptops, and other digital devices has significantly influenced many aspects of students' academic and social lives. However, the dramatic increase in screen time has raised concerns regarding its potential impact on students' academic achievements and their engagement in school activities. This study aims to investigate how screen time affects both academic performance and participation in school-based engagements.

Screen time refers to the amount of time an individual spends using digital devices such as mobile phones, computers, tablets, and televisions. Among children and adolescents, screen time has increased substantially and now constitutes a significant part of their daily routines.

Academic achievement pertains to the extent to which a student has successfully attained specific educational goals and standards. It is often measured through test scores, grades, skill acquisition, and the fulfillment of curriculum objectives.

School activities encompass a wide range of curricular, co-curricular, and extracurricular programs, such as sports, cultural events, arts and music, science fairs, debates, and community service projects.

- **Significance of the Problem**

The increasing penetration of digital technology into every aspect of daily life has brought immense benefits but also notable challenges, especially in the field of education. With the rise of online learning platforms, social media, digital games, and streaming services, students today are exposed to unprecedented amounts of screen time. While these digital tools have the potential to enhance learning through interactive and innovative content, there is growing concern that excessive screen exposure may negatively influence students' academic outcomes and their involvement in school-based activities.

- **Statement of Problem**

  Assessing the Influence of Screen time on Student's Academic Achievements and Engagement in School Activities

- **Objectives of Problem**

  1. To examine the relationship between screen time and students' academic performance.
  2. To explore the impact of screen time on students' participation in school activities.
  3. To analyze the effect of different types of screen time (educational vs. non-educational) on academic achievements.
  4. To identify how excessive screen time might affect students' focus and engagement in schoolwork.
  5. To compare the screen time habits of students who perform well academically with those who struggle.

- **Hypotheses of the Study**

H_1: Increased screen time negatively affects students' academic achievement.
H_2: Excessive screen time leads to lower engagement in school activities.
H_3: Educational screen time (e.g., online learning, educational apps) positively affects academic achievement.
H_4: Non-educational screen time (e.g., social media, gaming) negatively affects academic achievement and school activity engagement.
H_5: There is a significant difference in screen time habits between high-performing and low-performing students.

- **Review of Related Literature**

Anderson and Subrahmanyam (2017) conducted an in-depth study on children's digital media use and reported that while educational screen time can foster cognitive development, excessive use for entertainment and social media is linked to attention problems and reduced academic focus. Their research highlighted that **context and content of screen time are critical factors** in determining its effects.

Twenge and Campbell (2018) examined data from over 40,000 students in the United States and found a strong correlation between high screen time (more than 5 hours per day) and symptoms of depression and anxiety, which indirectly affected students' performance in school. They emphasized that screen time displaces essential activities such as sleep, physical exercise, and face-to-face interactions.

Cain and Gradisar (2010) conducted research focusing on the impact of screen time on sleep patterns. Their study demonstrated that screen exposure, especially before bedtime, delayed sleep onset and reduced sleep duration, which in turn impaired students' cognitive functioning and learning capabilities.

Further, **Domoff et al. (2020)** explored problematic smartphone use among adolescents and found associations between excessive screen time, emotional distress, and academic disengagement. The researchers emphasized the importance of digital literacy and self-regulation to mitigate negative effects.

Yadav (2021) conducted a comparative study on the academic achievements of students from science, arts, and commerce streams. The research demonstrated that science students tended to outperform their peers, likely due to more rigorous study habits and curriculum structure. Moreover, **Mishra and Tripathi (2018)** explored how stress and anxiety impact academic achievement, concluding that moderate stress can act as a motivator, but excessive stress negatively affects performance.

Singh and Kaur (2016) investigated the relationship between co-curricular activities and academic performance among secondary school students. The study found that students actively participating in sports, debates, and cultural events demonstrated better academic performance and higher self-esteem compared to non-participating peers.

Verma (2018) studied the impact of participation in school clubs and extracurricular groups on students' leadership qualities and teamwork abilities. The results revealed that such activities significantly enhanced students' communication skills, problem-solving abilities, and leadership traits, which indirectly contributed to academic success.

In a more recent study, **Mishra and Singh (2022)** assessed how participation in school-organized educational trips and excursions affected students' learning motivation. The research concluded that such experiential learning opportunities enriched students' practical knowledge and increased their enthusiasm toward academics.

- **Research Design**

The research design for this study is descriptive in nature. A descriptive design is used to provide a clear depiction of the phenomenon under investigation, i.e., the relationship between screen time, academic achievement, and school activities. The study was conducted in a quantitative research framework, with an emphasis on numerical data collection and statistical analysis.

Population and Sample

- **Population**: The population for this study consists of high school students (grades 9-12) studying in various schools of Raipur and Abhanpur, Chhattisgarh. The total population includes students enrolled in both public and private schools in the region.
- **Sample Size**: The sample size consisted of 500 students selected from 10 schools. The selection of these students considered a balanced representation of gender, socioeconomic background, and academic performance.
- **Research Tool**

The primary research instrument was a structured questionnaire designed to collect data on the following:

- **Demographic Information**: Gender, age, grade level, and type of school.
- **Screen Time**: A scale measuring average daily screen time across various activities (entertainment, education, social media, etc.).
- **Academic Achievement**: Self-reported grades and teacher assessments in key subjects (Math, Science, English, etc.).
- **School Activities**: A section on the types of extracurricular activities the student participates in, and the time spent on each activity.
- **Statistical Analysis of Data**

The analysis involved the following steps:

- **Descriptive Statistics**: This included the calculation of means, medians, and standard deviations to provide an overview of screen time, academic achievement, and participation in school activities across the sample population.
- **Interpretation of Results**: The results were interpreted to determine if there is a statistically significant relationship between screen time and the dependent variables (academic achievement and school activities).
- **Analysis and Interpretation of Data**

The present study aimed to explore the relationships between screen time, academic achievement, and participation in school activities among students. To systematically analyze the collected data, **descriptive statistical techniques, primarily percentage analysis, were employed.** This method allowed for a clear representation of the frequency and distribution of responses across various questionnaire items.

Each item in the questionnaire was analyzed **independently** to identify trends, patterns, and variations in students' screen usage habits, academic performance, and engagement in extracurricular and co-curricular activities. The responses were tabulated, and percentages were calculated to show the proportion of respondents selecting each option. This approach facilitated easy comparison and interpretation of the data.

The interpretation of each table is provided alongside, highlighting key findings, notable differences, and implications where relevant. Through this analysis, the study was able to derive meaningful insights into:

- The extent of mobile and gadget use among students
- The impact of screen time on physical and mental health
- Students' perceptions of the influence of screen time on academic achievement and participation in school activities

Furthermore, the analysis helped to identify groups of students who may be at higher risk of negative outcomes due to excessive screen time, as well as those who reported positive effects, such as enhanced learning experiences through digital devices.

The findings presented in this section serve as the foundation for drawing conclusions and making recommendations in the subsequent chapters of the study.

- **Summary of Research Finding**

The objective of the research was to understand the relationship between screen time and students' academic achievements, as well as their participation in school activities. The study aimed to investigate the following:

- The amount of time students spends on screens.
- The impact of screen time on academic performance.
- The effect of screen time on engagement in extracurricular activities and schoolwork.
- The role of social media, online learning, gaming, and other digital platforms in influencing students' academic focus and participation.

The research utilized a sample of 500 students and analyzed their responses to a comprehensive questionnaire regarding screen time usage, academic performance, and school activities.

The study analyzed the academic performance, mobile phone usage patterns, screen time habits, and perceptions of 500 students. The key findings are:

1. **Academic Performance**:
   - 83% scored above 65%, with 36% scoring 75-90% and 15% scoring 90-100%.
   - 17% scored below 65%, indicating a minority needing academic support.
2. **Mobile Phone Ownership & Use**:
   - 84% own personal mobile phones; Android dominates (88%).
   - Main uses: online learning (43%), social media (26%), gaming (24%).
   - 78% engage in online learning; 64% are active on social media, primarily Instagram (44%).
3. **Social Media Engagement**:
   - 44% spend 1–2 hours daily, 31% spend 2–4 hours, and 25% exceed 4 hours.
   - 31% post weekly; 22% post daily.
4. **Gadget Use**:
   - Besides mobiles, 44% use TV, 32% laptops/PCs, 16% gaming consoles.
   - 70% use mobile as their primary screen device.
5. **Extracurricular & Sports Participation**:
   - 70% engage in extracurricular activities; 72% prefer outdoor sports.
   - Most popular activities: music/dance (40%), art/craft (26%), debate (17%).
6. **Screen Time Impact**:
   - 56% believe screen time negatively affects academics; 60% report reduced attention span.
   - 62% report physical symptoms; 55% specifically report eye strain.
   - 54% believe screen time affects mental health, mainly causing stress (37%) and anxiety (30%).
7. **Parental Control & Screen Management**:
   - 40% have parental time limits; 45% find them effective.
   - 58% take regular breaks; 42% do not.
8. **Educational Benefits of Screens**:

- 76% use screens for studying; 78% report benefits; 74% believe it enhances learning.
- 56% believe screen time has positively impacted academics.

- **Findings of the Study**

Key findings from the study include:

- **Screen Time and Academic Performance**: A significant relationship was found between increased screen time and lower academic performance, especially among students spending more than 4 hours per day on screens. Students who spent less time on social media and more time on online learning platforms showed improved academic results.
- **Social Media and Academic Distraction**: A large proportion of students reported that excessive use of social media platforms, such as Instagram and Facebook, affected their focus and contributed to decreased academic performance.
- **Engagement in School Activities**: Students who spent more time on screens, particularly gaming and social media, reported lower levels of engagement in extracurricular activities. The study found that physical and artistic activities were significantly impacted by excessive screen usage.
- **Physical and Mental Health Impact**: Many students reported experiencing physical symptoms such as eye strain, headaches, and fatigue due to prolonged screen exposure. Additionally, a notable number of students reported mental health issues, such as increased stress and anxiety, linked to screen time.
- **Time Management and Screen Breaks**: Students who actively took breaks from screens and managed their time better were able to balance academics and extracurricular activities more effectively.

- **Conclusion**

The study concluded that excessive screen time has a negative impact on both academic performance and involvement in school activities. Students who balanced their screen usage with adequate study time, breaks, and participation in extracurricular activities tended to show better academic results and a healthier overall lifestyle. The findings suggest that while digital tools can be beneficial for learning, excessive use of screens, especially for non-educational purposes, can detract from students' educational outcomes.

- **Suggestions and Recommendations**

Based on the study findings, the following recommendations are proposed:

1. **Regulation of Screen Time**: Schools should implement guidelines for appropriate screen time usage, both for academic and non-academic purposes. Regular workshops and sessions can be conducted to educate students about the risks of excessive screen time.
2. **Parental Involvement**: Parents should play an active role in monitoring and limiting screen time, setting clear boundaries for its usage at home. Implementing a balanced routine for students that includes physical activities, outdoor play, and hobbies is important.

3. **Use of Educational Technology**: Encourage the use of digital tools for educational purposes, while limiting time spent on non-educational content such as gaming and social media. Schools can promote the use of online learning platforms, but it should be balanced with offline study time.
4. **Promoting Physical and Extracurricular Activities**: Schools should organize regular extracurricular activities that do not involve screens, such as sports, arts, and debates, to ensure students remain active and engaged in non-digital areas.
5. **Mental Health Awareness**: Schools and parents should be mindful of the psychological effects of screen time. Regular mental health check-ups and counseling services should be made available to students facing stress or anxiety related to excessive screen use.

- **Recommendation for Further Studies**

Further research can explore the following areas:

1. **Longitudinal Studies**: Future studies could track students over a longer period to assess the long-term impact of screen time on academic achievements and overall development.
2. **Impact of Different Types of Screen Time**: Research can be conducted to evaluate the effects of various screen activities (e.g., social media, online gaming, online learning) separately to determine which activities have the most detrimental effects on academic performance.
3. **Intervention Studies**: Future studies can test the effectiveness of specific interventions, such as screen time management programs, on improving students' academic outcomes and mental health.
4. **Focus on Diverse Populations**: Research could also be expanded to include a more diverse population, considering factors such as socioeconomic status, geographical location, and cultural differences, to understand how screen time impacts different student groups.

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