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ICT Uses, Academic Achievement and Mental Well-being among Adolescents: An Analysis of Screen Time and Study Habits

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ABSTRACT

This study investigates the relationship between Information and Communication Technology (ICT) use, academic achievement, and mental well-being among adolescents, focusing on screen time and study habits. Given the increasing role of ICT in both educational and recreational activities, understanding its impact on adolescent life is essential. Data from a sample of 500 adolescents (aged 13-18) was collected through surveys and academic records. The analysis reveals significant associations between screen time and both academic outcomes and mental well-being, highlighting that excessive ICT use is correlated with lower academic performance and poorer mental health. However, structured ICT use for academic purposes was found to improve achievement scores. Findings underscore the need for balanced ICT use and suggest recommendations for students, parents, and educators to support healthier academic and personal development.

Keywords: ICT, AcademicAchievement, Study habits, Mental Well-being, Adolescents, Self Efficacy, Cognitive engagement, Academic performance

Introduction

Information and Communication Technology (ICT) has become an integral part of daily life, significantly affecting the education sector. Adolescents now rely on ICT not only for entertainment but also for academic purposes. Previous research has shown mixed results regarding ICT's impact on academic achievement and mental well-being. This study aims to explore these relationships further, focusing on how screen time and study habits influence adolescents' academic success and mental health.

Need of the study

The need to study "ICT Use, Academic Achievement, and Mental Well-being among Adolescents" canters on understanding how digital tools impact learning, mental health, and study habits. With increased screen time, there are concerns about its effects on academic performance and well-being. This research can provide insights to balance beneficial ICT use with potential risks, guiding policies, educational practices, and parental guidelines to support adolescents' healthy development in a digital age.

Literature Review

Information and Communication Technology (ICT) has become a prominent feature in adolescent lives, particularly through smartphones, computers, and other digital devices. These technologies offer unparalleled access to information and resources that could enhance academic learning and achievement. However, increased screen time has also raised concerns over its impact on adolescents' mental health and overall well-being. This literature review examines research on the relationship between ICT use, academic achievement, and mental well-being among adolescents, focusing on the influence of screen time and study habits.

1. ICT Use and Academic Achievement

Sung et al. (2016): Found that adolescents who used ICT for educational purposes exhibited improved problem-solving skills and academic achievement. However, the specific ways in which ICT is used and the context of its

use significantly influence its impact on academic performance.
Junco and Cotten (2012): Reported that prolonged use of social media and entertainment applications can detract from study time, lead to procrastination, and decrease academic performance.
Kirschner and Karpinski (2010) found that multitasking between academic tasks and social media can impair concentration, resulting in reduced learning outcomes. These findings underscore that while ICT can serve as a valuable educational resource, its misuse or overuse may hinder academic success.

2. **Screen Time and Mental Well-being**

Twenge and Campbell (2018): Suggested that increased screen time is associated with higher rates of depression, anxiety, and sleep disturbances among adolescents. The passive consumption of digital content, as well as exposure to social media, can lead to comparisons and feelings of inadequacy that detract from mental well-being.
Przybylski and Weinstein (2017): Found that moderate digital device use for social and educational purposes can have positive social and psychological benefits, whereas excessive use is detrimental. These mixed findings suggest a nuanced relationship between screen time and mental well-being, emphasizing the importance of balancing screen time with offline activities that promote mental health.

3. **Study Habits and ICT Use**

Wood et al., 2012: Study has shown that students who use ICT for productive, academic-focused tasks tend to establish better study habits, such as setting aside dedicated time for homework and minimizing distractions from non-academic content In contrast, adolescents who lack self-regulation skills may struggle to balance ICT use with study time, leading to procrastination and ineffective study habits.
Padilla-Walker et al., (2019): The role of parental and institutional guidance is also significant. Parental involvement, such as setting boundaries around screen time and monitoring ICT usage, has been linked to more positive academic outcomes and healthier study habits. Educational institutions that promote digital literacy and responsible ICT use can further support students in developing habits that leverage technology for learning while mitigating distractions.

4. **Screen Time and Sleep Patterns**

Padilla-Walker et al., (2019): An important aspect of the relationship between screen time, academic achievement, and mental well-being is the impact of screen use on sleep patterns. The blue light emitted by screens can interfere with melatonin production, delaying sleep onset and leading to shorter sleep duration and lower sleep quality.
Carter et al. (2016): A meta-analysis by found that adolescents with higher screen time are at greater risk of sleep difficulties, which, in turn, are associated with poor academic outcomes and diminished mental health. Adolescents who prioritize studying over sleep due to excessive ICT use may experience cognitive fatigue, which negatively impacts learning and retention.

Objectives of the study

1. How does ICT screen time correlate with academic achievement among adolescents?
2. What is the relationship between ICT screen time and mental well-being?
3. Does structured ICT use for academic purposes have a positive impact on academic performance?
4. How do study habits moderate the effects of ICT use on academic outcomes and mental health?

Methodology

Research Design

This study employs a quantitative cross-sectional design.

Sample

A sample of 500 adolescents (ages 13-18) from five high schools was selected using stratified random sampling. Demographic factors such as gender, socioeconomic status, and academic performance were considered to ensure representativeness.

Data Collection

Data was collected through two main instruments:

1. **Survey**: A self-administered questionnaire was used to measure ICT use (screen time and purpose), study habits, and self-reported mental well-being using standardized scales.

2. **AcademicRecords**: Students' academic scores were obtained from school records to measure achievement.

Variables

- Independent Variables: ICT screen time, study habits.
- Dependent Variables: Academic achievement (measured by GPA), mental well-being (measured by the General Well-being Schedule).

Statistical Analysis

Data was analyzed using:

- Descriptive Statistics for demographic distribution.
- Correlation Analysis to examine relationships between ICT use, academic achievement, and mental well-being.
- Multiple Regression Analysis to identify predictors of academic success and mental well-being.

Results

Descriptive Statistics

- Screen Time: Average screen time was 4 hours/day, with 2 hours for academic purposes and 2 hours for entertainment.
- Academic Achievement: The mean GPA for the sample was 3.2, with slight variations across screen-time groups.
- Mental Well-being: Students with moderate screen time reported better mental health than those with high or very low screen time.

Correlation Analysis

- ICT screen time had a negative correlation with academic achievement ($r = -0.35$, $p < 0.05$).
- ICT screen time was also negatively correlated with mental well-being ($r = -0.27$, $p < 0.05$).
- Study habits showed a positive correlation with academic achievement ($r = 0.46$, $p < 0.01$) and mental well-being ($r = 0.30$, $p < 0.05$).

RegressionAnalysis

- ICT use was a significant predictor of both academic achievement and mental well-being, with excessive non-academic screen time predicting lower academic scores ($\beta = -0.29$, $p < 0.01$).
- Study habits moderated the relationship, where students with structured study habits showed higher academic performance despite high screen time for academic purposes ($\beta = 0.32$, $p < 0.01$).

Discussion

The study's findings suggest that unregulated screen time for non-academic purposes negatively impacts both academic performance and mental health. However, when ICT is used constructively (e.g., for learning or structured study), it can enhance academic achievement. These results align with prior research indicating that balanced ICT use, supported by effective study habits, promotes positive outcomes in adolescent development.

Implications

The findings suggest several implications:

1. Policy Recommendation: Schools could implement guidelines promoting balanced ICT use for academic purposes.
2. Parental Guidance: Parents should monitor and encourage constructive screen time, balancing study and leisure.
3. Student Support Programs: Schools could provide workshops on effective study habits to improve academic achievement and mental well-being.

Conclusion

The study concludes that while ICT use is an essential part of adolescent education, excessive screen time for non-educational purposes can detract from academic success and mental health. Structured ICT use combined with

strong study habits serves as a protective factor, fostering academic achievement and better mental well-being. Future research should explore longitudinal data to assess causal relationships further.

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