

Excessive use of the Internet by the school-aged adolescent and its impact on his academic achievement - A field study in ALGERIA-

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Abstract

This field study investigated the effect of the schooled adolescent's excessive Internet use on his academic achievement. Where the descriptive approach was adopted, and two tools: a questionnaire on internet use by the schooled adolescent directed to parents, prepared by the researcher, as well as the transcript of records for the first semester of the academic year 2022/2023; The study included a sample of (145) schooled adolescents from Medea and Ain Defla states.

The results showed that there is a negative effect of excessive use of the Internet on the academic achievement of schooled adolescents through: the presence of statistically significant differences in the academic achievement rates of schooled adolescents due to the time of daily use of the Internet (less than 4 hours or more than 4 hours); the presence of statistically significant differences in the academic achievement rates of schooled adolescents due to the reason for using the Internet; absence of statistically significant differences in the rates of academic achievement among schooled adolescents due to the interaction between the time of daily use of the Internet and methods of monitoring the guardian.

Keywords: excessive use of the Internet; academic achievement.

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I- Introduction :

The modern and contemporary world is witnessing a massive technological revolution whose results have appeared in all humanitarian and industrial fields. The world has become a small virtual village where distances do not hinder communication between its parts through a digital information network known as the internet space. Social media, in particular, plays an increasingly important role in our lives, as it saves effort and time and overcomes distance. While the use of technology, especially the internet, has many advantages, it also has numerous disadvantages that affect individuals in many material and moral aspects, significantly if misused, whether by excessive time spent using it or the nature of the content accessed. Therefore, its adverse impacts on individuals may outweigh its positives. Among the groups most vulnerable to the adverse effects of excessive internet use are school students, especially children and adolescents, due to their lack of intellectual maturity, which may negatively affect their social lives, particularly their academic performance. This urgent issue requires immediate attention and action.

I.1. The problematic of the study:

The internet space is considered a rich source of information, especially with the knowledge explosion in today's world, where obtaining information can be done quickly and with minimal effort due to the ease of communication between those exchanging knowledge through the digital space. This is perhaps one of the most essential positive aspects of the internet space. However, there are also negative aspects to the internet, just as there are positive ones. Misuse of the internet, whether through time consumption or exposure to distracting content that wastes time and effort without any benefit, negatively impacts users, affecting their health, finances, effort, and time. It may even impact their intellectual abilities, such as accessing gaming sites with dangerous themes or pornographic sites, as well as unproductive and non-scientific chat sites that do not benefit the individual.

The student needs to access the internet space due to the requirements of their studies and their constant need for references and sources of information of all kinds to help them understand the knowledge they receive, as well as to develop their innate and scientific side and to keep up with all the new developments in all fields related to their studies. However, they may be more susceptible to the negative aspects of the internet, especially during adolescence, due to their incomplete mental development. Consequently, they may be significantly influenced by what they see in this vast digital space, particularly sites with harmful content, which can dramatically affect their social life in general and their academic life in particular. This has been revealed by many studies conducted on this topic. For instance, a survey by Kubey et al. (2001) found that the academic performance of some students may be affected by intensive internet use. It also established that using the internet for entertainment is closely related to

poor academic performance and that feelings of loneliness, staying up late, and fatigue, which often leads to absenteeism from classes or lectures, are results of excessive internet use. Furthermore, a study by Suphasawat et al. (2016) indicated that the time a student spends on the internet is negatively related to achieving good learning outcomes and that using the internet for entertainment and social communication is negatively associated with their academic achievement.

A study by Sylvia et al. (2017) found that internet addiction is positively related to emotional instability among students, which leads to poor academic performance. Regarding the direct relationship, internet addiction negatively affects students' academic performance. A study by Affum (2022) concluded that internet use greatly improved learning outcomes. However, there are adverse effects due to excessive internet use, as it leads to distraction, especially if the time spent on social media and other distractions is greater than the time allocated for studying online. Furthermore, According to the studies of Ghodban & Naamoune (2019) in Algeria and Chemnad et al. (2023) in Qatar, which were conducted on the adolescent age group, most of the study sample members who were addicted to the Internet neglected their private lives, whether social, academic or professional, and resorted to social escape from the family and from most duties

From this standpoint, the objective reasons for researching the negative impact of excessive internet use on students' academic achievement, especially adolescents, became apparent. The general question for this study was:

- Does excessive internet use affect the academic achievement of school-aged adolescents?

This general question gave rise to the following sub-questions:

- Are there statistically significant differences in the academic achievement rates of school-aged adolescents attributed to daily internet use time (less than 4 hours or more than 4 hours)?

- Are there statistically significant differences in the academic achievement rates of school-aged adolescents attributed to the reason for internet use?

- Are there statistically significant differences in the academic achievement rates of school-aged adolescents attributed to the interaction between daily internet use time and parental monitoring methods?

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I. 2. Hypothesis:**I. 2.1. General Hypothesis:**

Excessive internet use has a negative impact on school-aged adolescents' academic achievement.

I. 2.2. Sub-Hypotheses:

- There are statistically significant differences in the academic achievement rates of school-aged adolescents attributed to daily internet use time (less than 4 hours or more than 4 hours).
- There are statistically significant differences in the academic achievement rates of school-aged adolescents attributed to the reason for internet use.
- There are statistically significant differences in the academic achievement rates of school-aged adolescents attributed to the interaction between daily internet use time and parental monitoring methods.

I. 3. Objectives of the Study:

- To identify the impact of excessive internet use on the academic achievement of school-aged adolescents.
- To examine the differences in academic achievement rates among the study sample of adolescents attributed to daily internet use time.
- To verify the differences in academic achievement rates among the study sample of adolescents attributed to the reason for internet use.
- To study the differences in academic achievement rates among the study sample of adolescents attributed to the interaction between daily internet use time and parental monitoring methods. Enter your results in this section in the same format (font, size, dimension between lines). A summary of the collected data should be presented in the proportions or totals form, then review the analysis conducted on the collected data using both text and illustrative means (in the Appendix) in accordance with the method and tools reviewed above. After presenting the results, their contents can be evaluated and interpreted statistically in the light of the hypotheses and compared with previous studies results.

I. 4. Importance of the Study:

Several points collectively highlight the significance of this study, summarised as follows:

- It contributes to the psychology and educational sciences field regarding internet addiction and its various effects on individuals.
- It clarifies the different impacts of excessive internet use on various aspects of an individual's life, especially among school-aged adolescents.
- It alerts parents to this aspect of their children's lives and the need for vigilance and ongoing monitoring of what may negatively affect their adolescent students during internet use.
- It advises those responsible for internet spaces to provide them with the study results, which may offer a forward-looking perspective that contributes to severe considerations about creating or implementing safety

programs to prevent adolescents from accessing dangerous or unhelpful sites.

I. 5. Defining Concepts and Terms of the Study Operationally:

I. 5.1. Excessive Internet Use: This refers to a school-aged adolescent's use of an internet-connected device for long hours (20 to 30 hours per week), excluding weekends, and an inability to detach from it. This behaviour results in neglecting personal and academic life, and symptoms such as isolation, anger, aggression, and mood changes appear immediately upon disconnection from the internet. We will verify this through parental reports noting these symptoms in their adolescent child by answering questions related to this aspect in the questionnaire provided to parents in our study.

I. 5.2. Academic Achievement: This encompasses all intellectual or practical performance by the student in various academic subjects. It can be measured through test scores, or teacher evaluations, which quantitatively manifest in the grades and averages recorded on official report cards issued to the learner at the end of each semester or academic year by the educational institution's administration.

II- The Practical Aspect:

II. 1. Study Methodology:

Based on the characteristics of this study, the methodology employed is the descriptive approach.

II. 2. Sample:

The study sample included school-aged individuals in the intermediate and secondary education stages from the provinces of Médéa and Ain Defla, within the age range of 12 to 18, which corresponds to adolescence. Their parents filled out the questionnaire based on their observations of their children. The sample comprised 145 individuals, including 69 females.

II. 3. Data Collection Tools:

II.3.1. Internet Use by adolescent Questionnaire: This tool consisted of a questionnaire prepared by the researcher, which is directed to parents regarding their observations about their children's Internet usage and information related to their academic achievement. The validity of the questionnaire was verified by expert raters (10 evaluators) who are professors and specialists in psychology and educational sciences. Reliability was assessed through application and reapplication, with a stability correlation coefficient of 0.87, indicating a high and acceptable level of consistency for the questionnaire in producing similar results under the same conditions.

II.3.2. Report Cards for the First Semester of the 2022-2023 Academic Year: These report cards, obtained from the student's parents, showed the semester averages of their academic achievement for the study sample's students.

Why the academic achievement rates for the first semester? Parents often do not know their school-aged children's level and how their results

will be before the first semester results are announced, especially since this is the first semester in the new academic level their children have entered. Therefore, they do not entirely prevent them from using the internet at home, especially if the children claim it is solely for study purposes and solving academic-related problems. However, after the first semester results are released, especially for students who appear to have low results and whose parents have noticed their internet addiction, parents may restrict their internet use, particularly before assessment periods for the second and third semesters. This could impact the results of our study; hence, the first semester was chosen, and its results were relied upon because they are closest to the condition of randomness.

II. 4. Statistical Methods:

The statistical methods used in this study were: Mean, Standard deviation, T-test, Levene's test, One-way and Two-way ANOVA. Using the Statistical Package for the (SPSS. v25) program.

III- Results and discussion:

III.1.Presentation and discussion of the first hypothesis results:

This hypothesis stated that there are statistically significant differences in the academic achievement rates of school-aged adolescents attributed to daily internet use time (less than 4 hours or more than 4 hours). An independent samples t-test was used after verifying its key assumptions to test this hypothesis. Levene's test for equality of variances resulted in a value of 5.593, statistically significant, and the p-value was 0.019. Therefore, the null hypothesis that the variances of the two groups are equal was rejected. Table 1 shows the mean and standard deviation for the two groups.

Table 1. Results of the Mean and Standard Deviation

Group	Number of Individuals	Mean of Academic Achievement Rates	Standard Deviation
Using the internet for less than 4 hours daily	67	14.747	2.413
Using the internet for more than 4 hours daily	78	10.593	2.124

We can see from Table 1 that the mean academic achievement rate for the first group (those using the internet for less than 4 hours daily), which was 14.747, is higher than the mean academic achievement rate for the

second group (those using the internet for more than 4 hours daily), which was 10.593. This initially indicates that prolonged internet use (over 4 hours) negatively affected the academic achievement of the second group, which has a lower mean. To verify the statistical significance of this difference between the means of the two groups (the group of students using the internet for less than 4 hours and the group using it for more than 4 hours) in academic achievement rates, an independent samples t-test for unequal variances was conducted. Table 2 shows the t-test results comparing the two groups' means.

Table 2. T-Test for the Difference Between the Means of the Two Groups

T Value	Degrees of freedom	P-value	Difference between group means	Standard error of the difference	95% Confidence interval for the difference	
					Lower	Upper
10.919	132.71	<0.001	4.154	0.381	3.402	4.907

We observe from Table 2 that the t-test value is statistically significant ($T(132.71) = 10.919$, $p < 0.001$, effect size = 1.836). Therefore, the observed difference between the means of the two groups is genuine and not due to chance. Thus, we conclude that the first hypothesis is validated, meaning there are statistically significant differences in the academic achievement rates of school-aged adolescents attributed to daily internet use time (less than 4 hours or more than 4 hours), with a large effect size indicating that daily internet use can significantly impact students' academic achievement.

This result demonstrates the impact of daily internet use time on academic achievement outcomes among the study's school-aged adolescents. It supports the findings in Table 1, showing that the mean academic achievement rate for the group using the internet for less than 4 hours daily was higher than that of the group using it for more than 4 hours daily, especially since the latter group's internet access was often for non-educational purposes and not for study or knowledge-seeking, such as entertainment sites and gaming. These results corroborate previous studies, including those mentioned in the problem statement, such as Kubey et al. (2001), Suphasawat et al. (2016), and Affum (2022).

III.2.Presentation and discussion of the second hypothesis results:

This hypothesis stated that there are statistically significant differences in the academic achievement rates of school-aged adolescents attributed to the reason for internet use. After verifying its fundamental assumptions, a

one-way ANOVA was used to test this hypothesis. Below is a presentation of the mean and standard deviations for each group, as shown in Table 3:

Table 3. Means and Standard Deviations for Each Group

Group	Number	Mean of Academic Achievement Rates	Standard Deviation
Group One	45	13.060	2.770
Group Two	70	12.645	2.904
Group Three	22	10.903	3.508
Group Four	8	12.696	3.852

Where:

- Group One: Represents individuals who use the internet for "study".
- Group Two: Represents individuals who use the internet for "gaming".
- Group Three: Represents individuals who use the internet out of "curiosity and others".
- Group Four: Represents individuals who use the internet for "social media: Facebook and others".

From Table 3, we observe that Group One, consisting of individuals who use the internet for "study," has a mean academic achievement rate of 13.60, which is higher compared to the means of the other groups for individuals who use the Internet for other reasons, respectively:: "social media: Facebook and others" with a mean of 12.69, "gaming" with a mean of 12.64, and "curiosity and others" with a mean of 10.90.

To verify the statistical significance of the differences between the means, a one-way ANOVA was conducted, the results of which are shown in Table 4:

Table 4. Differences in Academic Achievement Rates Attributed to the Reason for Internet Use

Source of Variance	Sum of Squares	Degrees of Freedom	Mean Square	F value	P-value
Between Groups	72.006	3	24.002	2.640	0.05
Within Groups	1281.935	141	9.092		
Total	1353.941	144			

We observe from Table 4 that the F value is statistically significant ($F(3, 141) = 2.640, p = 0.05$). Therefore, we will conduct post-hoc comparisons using the Scheffé test to determine the statistically significant differences between the means of the four groups.

Table 5. Results of the post-hoc Comparisons

Groups	Difference Between Means	Standard Error	P-value	Significance Level
Group One and Group Two	0.414	0.576	0.915	Not Significant
Group One and Group Three	2.157	0.784	0.050	Statistically Significant
Group One and Group Four	0.363	1.156	0.992	Not Significant
Group Two and Group Three	1.742	0.736	0.138	Not Significant
Group Two and Group Four	-0.050	1.125	1.000	Not Significant
Group Three and Group Four	-1.793	1.244	0.558	Not Significant

Table (05) shows that the difference between the first and third groups is statistically significant, indicating that it is a fundamental difference and not due to chance. Thus, we conclude that the second hypothesis has been confirmed, meaning There are statistically significant differences in the academic achievement rates of school-aged adolescents attributed to the reason for internet use.

The first group represents individuals who use the internet for "studying," while the third group represents those who use it for "curiosity and others." The difference between the means of the two groups is statistically significant, with the average academic achievement rates for individuals using the internet for "studying" being (13.06), which is higher than the average rates for those using it for "curiosity and others," which was (10.90). This indicates that using the internet for study purposes contributed to these students achieving an excellent academic average

(13.06). Conversely, using the internet for "curiosity" and accessing unrelated sites led to a lower academic average (10.90), with some students in this latter category scoring below 10. Additionally, the educational achievement rate for the second group, representing individuals using the internet for "games," was (12.64). For the fourth group, representing those using it for "social media," it was (12.69), both of which were lower than the average for the first group using the internet for "studying" (13.06).

This result aligns with some previous studies, including the study by Islam et al. (2020) in Australia, which indicated that internet and video game addiction negatively correlates with academic achievement. Similarly, the survey by Kolhar et al. (2021) in Saudi Arabia found that only 1% of students use social media for academic purposes, and 52% of university students reported that social media use affected their educational activities. The study by Tafesse (2022) in East Africa found that social media use negatively affects academic performance. Furthermore, the study by Sun et al. (2023) in China showed that online gaming addiction among students adversely affected their behavioural, emotional, and cognitive engagement (the three dimensions of learning engagement); learning engagement mediated the relationship between online gaming addiction and decreased academic motivation. Additionally, the study by Ghodban & Naamoune (2019) in Algeria indicated that 77% of study participants do not adhere to specific websites but instead navigate various sites with topics and interests that do not support their academic or professional lives.

This result indicates that the reason for using the internet and various websites accessed by adolescent students may affect multiple aspects of their lives, including their academic achievement, especially if the time spent on them is substantial (more than 4 hours daily), as evidenced by the statistical analysis results to verify the first hypothesis in our study. It has been found that the duration of internet use (more than 4 hours or less than 4 hours daily) has a clear and statistically significant impact on academic achievement rates among adolescent students in our study sample. There was a clear and statistically significant difference in averages between the first and third groups, between the group using the internet for studying purposes and the group using it for satisfying curiosity and other non-academic purposes. "Curiosity" encompasses several meanings and may lead people to become addicted to websites that meet their curiosity regardless of their nature. Consequently, this leads to a distraction and lack of focus, especially on academic subjects, often consuming a significant amount of their daily time, distancing them from following their studies or preparing for exams and various academic evaluations.

III.3.Presentation and discussion of the third hypothesis results:

This hypothesis stated that there are statistically significant differences in the academic achievement rates of school-aged adolescents attributed to the interaction between daily internet use time and parental monitoring methods. Daily internet usage time is more than 4 hours or less than 4 hours

daily. Parental monitoring methods proposed in the questionnaire include direct supervision, indirect monitoring (history monitoring, electronic monitoring programs), joint internet browsing, awareness and guidance. To test this hypothesis, we will use analysis of variance (ANOVA), the results of which are presented in Table 6:

Table 6: shows the results of the ANOVA analysis

Source of Variance		Sum of Squares	Degrees of Freedom	Mean Square	F value	P-value
Daily Internet Usage Time *	Parental Monitoring Methods	36.432	3	12.144	2.561	0.057
Error Variance		649.591	137	4.742		
Total Variance		24055.464	145			

From Table 06, we observe that the "F" value is not statistically significant ($F(3, 137) = 2.561, p = 0.057$), indicating that the observed differences are not fundamental and are likely due to chance. Therefore, Hypothesis 3 has not been supported, meaning there are no statistically significant differences in the academic achievement rates of school-aged adolescents attributed to the interaction between daily internet use time and parental monitoring methods.

This result does not demonstrate the role and impact of parental monitoring methods for their adolescent children during Internet usage, whether it leads to improvement or decline in their academic achievement rates. Since the hypothesis 1 was confirmed, indicating differences in academic achievement rates of school-aged adolescents attributed to Internet usage time. While the result of verifying the hypothesis 3 showed that the interaction between daily Internet usage time and parental monitoring methods does not affect academic achievement in adolescents, the result excludes parental monitoring methods from this interaction mentioned in the text of Hypothesis 3. This further confirms the result of testing Hypothesis 1, which affirmed statistically significant differences in academic achievement among adolescent students attributed to daily Internet usage time (less than 4 hours) or (more than 4 hours - assumed to represent addiction in the adolescent). This result may be attributed to the multiple methods and approaches proposed in the questionnaire presented to parents in this study, and may also be to the use of various methods by parents.

However, this does not negate the role of parental monitoring methods for their adolescent children during Internet usage to improvement or

decline in their academic achievement rates, direct monitoring and the parent's presence with the child while using the Internet may be more effective than electronic monitoring programs or reviewing the history of visited websites, which the child could manipulate or alter if he has the skills to do so.

III.4.Summary of results:

After statistical analyses of the collected data to verify the hypotheses of this study, the following results were obtained:

- There are statistically significant differences in the academic achievement rates of school-aged adolescents attributed to daily internet use time (less than 4 hours or more than 4 hours). . This result demonstrates the impact of daily internet usage on the academic achievement of adolescent learners, especially when internet access is not for studying purposes but for non-academic activities such as entertainment websites and gaming.
 - There are statistically significant differences in the academic achievement rates of school-aged adolescents attributed to the reason for internet use . This finding indicates that among the factors affecting academic achievement is the purpose that drives individuals to use the internet and the nature of the websites they visit, particularly if the daily access time exceeds 4 hours.
 - There are no statistically significant differences in the academic achievement rates of school-aged adolescents attributed to the interaction between daily internet use time and parental monitoring methods. this result does not negate the role of parental monitoring methods for their adolescent children during Internet usage on their academic performance. Still, this result may be influenced by the variety of approaches proposed in the questionnaire presented to parents in this study, and may also be attributed to the use of multiple methods by parents.
- Based on these results, we can conclude that the general hypothesis has been confirmed, namely that excessive internet use has a negative impact on the academic achievement and thus on the academic performance of school-aged adolescents.

Conclusion:

Based on the results obtained in this study, it is imperative to draw attention to the importance of addressing this issue by all stakeholders, including officials, specialists, and educators in the education sector. Parents especially need to be vigilant about monitoring their children's internet usage. This monitoring should not be temporary or limited to specific locations but continuous, mainly through electronic monitoring programs. Parents should also prevent their adolescent children from acquiring or using electronic devices that allow internet access unless supervised by an

adult family member, such as an older sibling or parent, with usage restricted to a specified period and under strict supervision, especially with regard to the period and time of use, which should not exceed (4) hours per day.

It is crucial to emphasise using the internet primarily for educational purposes rather than other activities.

Accordingly, here are some recommendations and Suggestions:

- Alerting parents to the necessity of continuous monitoring, whether through direct supervision and presence with their children during internet use or utilising electronic monitoring programs and checking browsing history when constant supervision is not possible. Employing programs that block access to dangerous or explicit websites is also crucial.
- Providing parental education, primarily through media channels, on practical methods and techniques for monitoring their children's internet use, and how to deal with addicts among them .
- Developing alternative means to supplement internet spaces for students to continue their studies and access information. This could involve creating educational television channels tailored to different academic levels and offering rich and diverse programs with scientifically appropriate entertainment segments.
- Using awareness and guidance methods by parents towards their children, highlighting the drawbacks of excessive internet use and alerting them to its dangers on individuals from all: psychological, physical, and intellectual aspects.
- To effectively address the issue of Internet addiction among both schooled and non-schooled individuals, future studies should be conducted on diverse societal samples to develop effective solutions.

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