

The Hourly Volume of Electronic Device Use and its Psychological and Social Impact on Social Sciences Students at Ziane Achour University of Djelfa

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Abstract

This study aimed to reveal the impact of the hourly volume of electronic device use on the psychological and social well-being of Social Sciences students at Ziane Achour University of Djelfa, amidst the accelerating digital transformations that have become an integral part of university students' daily lives.

The study adopted the descriptive analytical method and utilized a questionnaire comprising two main dimensions: the Psychological Dimension and the Social Dimension. Each dimension included a set of items designed to measure manifestations of anxiety, tension, psychological comfort, and social relationships among students.

The sample included (44) male and female students from the Sociology department. Data analysis was performed using appropriate statistical methods to test the hypotheses.

The results showed a statistically significant correlational relationship between the number of hours of electronic device use and students' psychological and social well-being. Specifically, excessive use was found to be associated with higher levels of anxiety and social withdrawal, while moderate use contributed to improved psychological adjustment and social communication.

The study concluded that technology is not a risk factor per se, but its effect depends on the style of use and the individual's awareness of it. Based on this, the study recommends the necessity of integrating digital literacy programs and psychological counseling within the university setting, and promoting a culture of conscious technology use to serve the students' psychological and social health.

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1. Introduction:

The contemporary world is witnessing a radical shift in the pattern of human life due to the accelerating digital revolution, where electronic device use has become an inseparable part of individuals' daily details. Smartphones, social media, and educational platforms are no longer mere tools for entertainment or communication; they have become media that frame thought, direct behavior, and profoundly influence the psychological and social structure of humans, especially among the university youth category who interact with technology as a means of expression, learning, and engaging with the outside world (Zochil, 2015).

However, this intensive immersion in the digital space is not without risks. Electronic use can transform from a normal practice into a maladaptive use characterized by excess or excessive psychological and social dependence on electronic means, which negatively reflects on the individual's psychological balance and affects their real-life social relationships. Many students now find their psychological comfort behind screens more than in their real-life interactions, and this is reflected in the increase in feelings of anxiety, poor concentration, isolation, and a decline in direct human communication (Lebni, Toghrol, Abbas, & NeJhaddadgar, 2020).

The importance of this study emerges from its endeavor to understand the psychological and social impact of maladaptive electronic use among Social Sciences students at Ziane Achour University of Djelfa, stemming from a tangible reality experienced by the

university student, who finds themselves between the hammer of academic pressures and the anvil of digital temptations. The university is no longer just a space for learning but has also become an open arena for virtual interaction, making it necessary to study this overlap and its effects on the student's personality.

Through a scale composed of two dimensions (psychological and social), this study attempts to reveal the nature of the relationship between maladaptive electronic device use and the students' psychological and social well-being, aiming to shed light on the manifestations of this use and understand its behavioral, emotional, and social repercussions. It also seeks to provide indicators that may help specialists in psychology and university education to design awareness and guidance programs that promote conscious and responsible technology use in the university environment. What distinguishes this research is its grounding in the student's direct human reality, not from a perspective of condemnation or rejection of technology, but from a balanced perspective that seeks to understand and analyze the phenomenon, with the aim of helping students regain their psychological and social balance in a world that is becoming increasingly digital every day.

2. Literature Review:

Study by Nasir Ben Sulaiman Ben Al-Hosni (University of Nizwa, Sultanate of Oman, 2011)

This study addressed the relationship between Internet addiction, depression, and social isolation among University of Nizwa

students. The main objective was to explore the relationship between Internet addiction and both depression and social isolation, focusing on measuring the prevalence of Internet addiction in the sample and analyzing the possibility of predicting depression and social isolation based on the level of addiction (**Al-Hosni, 2011**).

Key Findings:

- Increased Internet addiction is associated with higher rates of depression and isolation.
- A strong positive correlation between Internet addiction and depression.
- A moderate positive correlation between Internet addiction and social isolation.

Study by Marianna Diomidous and Costis Chardalias (National and Kapodistrian University of Athens, Greece, 2016)

This study addressed the social and psychological effects of Internet use in the Department of Public Health, Faculty of Nursing, School of Health Sciences. The main objective was to analyze the psychological and social impacts resulting from excessive Internet use through a comprehensive review of the scientific literature, focusing on the psychological and social effects of the Internet, Internet addiction, and digital risks (**Diomidous & Chardalias, 2016**).

Key Findings:

- Psychological Effects:
 - Decline in mental health through increased anxiety and depression among excessive users.
 - Behavioral disorders through Internet

addiction, especially games and social networking sites.

- Cyber-suicide through involvement in communities that encourage self-harm.
 - Social Effects:
 - Weakening of family ties and real friendships.
 - Neglect of academic and professional responsibilities.
 - Community isolation through decreased participation in real-life activities.

Study by Harayeria, Souhila (University of Bouzareah, Algeria, 2018)

This study addressed the impact of the smartphone on the social relationships of adolescents. The main objective was to identify the effect of smartphones on adolescents' social relationships, focusing on the impact of smartphone use on satisfying adolescents' social needs and the effect of smartphone use on relationships with friends (**Harayeria, 2018**).

Key Findings:

- Excessive smartphone use promotes individualism, deepens the adolescent's isolation, and reduces opportunities for social control, thus threatening the cohesion of traditional family values.
- Results indicated that females are more affected by social appearance pressures via the smartphone, while males are more prone to gaming addiction.
- Results indicated that adolescents from low-income families are more likely to resort to illicit methods such as phone credit theft.

Study by Ben Rached Rachid and Belhadj Hocina (Mohamed Ben Ahmed University Oran 2, Algeria, 2022)

This study addressed social bonds and social isolation. The main objective was to determine the dual effect of smartphones between enhancing virtual networks versus deepening social isolation, and to reveal the causes of social isolation and the disintegration of social bonds resulting from the irrational use of smartphones. This was achieved by focusing on clarifying the relationship between smartphone use and building social bonds and analyzing the repercussions of phone addiction on social isolation and weak relationships (Ben Rached & Belhadj, 2022).

Key Findings:

- Social isolation is an inevitable result of excessive use.
- The emergence of a new pattern of isolation despite physical presence in society.
- Social isolation is an inevitable result of irrational smartphone use, as immersion with the smartphone leads to a near-total cutoff from social reality.

3. Problem of study:

The rapid surge in digital penetration within academic institutions has rendered electronic devices, such as smartphones and computers, indispensable tools for university students. While these technologies facilitate access to knowledge and enhance communication capabilities, their unregulated and excessive use risks transforming them into a source of psychological stress and social dysfunction.

Based on preliminary observations within the Social Sciences Department at Ziane Achour University of Djelfa, an alarming

trend of extended hourly engagement with electronic media is noticeable, often at the expense of traditional academic activities and direct social interaction. This maladaptive use pattern raises critical scholarly concern: *To what extent does the excessive hourly volume of electronic device use impact the psychological well-being and social adjustment of students in a higher education context, particularly those specializing in the humanities and social sciences?*

This concern necessitates a rigorous empirical investigation to delineate the boundaries between beneficial engagement and pathological dependence, thereby guiding the formulation of effective digital intervention and psychological counseling strategies in the university environment.

4. Study Questions:

This study seeks to answer the following principal questions:

1. What is the average hourly volume of daily electronic device use among Social Sciences students at Ziane Achour University of Djelfa?
2. Is there a statistically significant effect of the hourly volume of electronic use on the psychological well-being of Social Sciences students at Ziane Achour University of Djelfa?
3. Is there a statistically significant effect of the hourly volume of electronic use on the social interaction of Social Sciences students at Ziane Achour University of Djelfa?

5. Study Hypotheses:

Based on the theoretical framework and the reviewed literature, the study tests the following hypotheses:

Main Hypothesis:

- There is a statistically significant, strong negative impact of the maladaptive hourly volume of electronic device use on the combined psychological and social well-being of Social Sciences students at Ziane Achour University of Djelfa.

Sub-Hypotheses:

1. There is a statistically significant negative effect of the hourly volume of electronic use on the psychological well-being (e.g., increased anxiety and stress) of Social Sciences students at Ziane Achour University of Djelfa.
2. There is a statistically significant negative effect of the hourly volume of electronic use on the social interaction (e.g., increased isolation and decreased real-life communication) of Social Sciences students at Ziane Achour University of Djelfa.

6. Study Objectives:

This study is designed to achieve the following specific academic and practical objectives:

1. To quantify the average daily number of hours Social Sciences students, dedicate to using electronic devices (e.g., smartphones, laptops) outside of required academic tasks.
2. To determine the nature and strength of the correlational

relationship between the hourly volume of electronic use and students' psychological state, specifically assessing indicators such as anxiety, tension, and perceived psychological comfort.

3. To identify the impact of this hourly volume on students' social interaction patterns, including their relationships with family and peers and their participation in real-life social activities.
4. To provide empirical evidence and recommendations for university policymakers and psychological counseling centers to develop preventive and interventional programs aimed at promoting digital wellness and conscious technology use among the student population.

7. Study Importance:

The significance of this research is multidimensional, encompassing both theoretical and practical contributions to the fields of Educational Psychology and Sociology:

Theoretical Importance:

- It contributes to the growing body of literature concerning the psychosocial effects of Information and Communication Technology (ICT) addiction and maladaptive use in the Arab university context, which is often underrepresented in global scientific repositories (e.g., Web of Science, Scopus).
- It provides a measured conceptual framework linking the quantitative variable of "hourly volume" to distinct qualitative outcomes in psychological

adjustment and social dynamics.

- It offers valid and reliable psychometric tools (the study questionnaire) for measuring the psychological and social impacts of technology use, which can be adapted for future comparative studies.

Practical Importance:

- It serves as a baseline diagnostic tool for the Administration of Ziane Achour University of Djelfa, providing actionable data to inform student services and guidance departments.
- It aids in the design and implementation of targeted intervention programs, such as digital detox initiatives and workshops on responsible digital citizenship, to mitigate the adverse effects of excessive screen time.
- It enhances the preparedness of academic counselors and educational psychologists to address emerging mental health issues, such as social isolation and technology-induced anxiety, directly attributed to digital over-reliance.

8. Study Definitions:

Hourly Volume of Electronic Use:

Operationally defined as the average number of hours per day that a student spends engaging with electronic devices (smartphones, computers, tablets) for non-academic purposes, such as social media networking, gaming, entertainment browsing, or non-essential communication. This variable is measured quantitatively through a self-reported item on the study questionnaire (ranging from 3 to 7 hours in the sample).

Psychological Well-being/Impact:

Operationally defined as the student's self-reported state of emotional stability and

psychological comfort, measured by a set of items on the study scale that reflect the presence or absence of anxiety symptoms, excessive tension, low mood, and difficulties in concentration attributed to or exacerbated by their electronic use patterns.

Social Impact/Interaction:

Operationally defined as the student's self-reported level of effective engagement in real-life social settings and quality of personal relationships, measured by a set of items on the study scale that reflect the degree of social withdrawal, perceived isolation, neglect of face-to-face interaction, and the quality of relationships with family and non-virtual peers.

9. Study Methodology and Procedures:

9.1. Study Approach:

The study adopted the Descriptive Analytical Method. This approach is suitable for describing the characteristics of the phenomenon (the hourly volume of use) as it exists in the field and for analytically examining the correlational and predictive relationship between the independent variable (hourly volume) and the dependent variables (psychological and social impact).

9.2. Study Population and Sample:

- **Population:** The study population comprises all students enrolled in the Social Sciences Faculty at Ziane Achour University of Djelfa during the academic year 2024/2025.
- **Sample:** A convenience and non-probability sample of (44) male and female students from the Sociology Department was selected to represent the broader Social Sciences student body. The sample size was deemed

sufficient for preliminary statistical analysis and hypothesis testing in this specific field setting.

- **Study Sample:** The actual research sample consisted of 44 students, selected using a random sampling method.

Table (01): Distribution of the Study Sample According to the Gender Variable

Gender Variable	Frequency	Percentage %
Male	14	%31.81
Female	30	%68.18
Total	44	%100

Source: Prepared by the researcher

From Table (01), it is observed that the number of males was (14), representing (31.81%), while the number of females was (30), representing (68.18%) .

Table (02): Distribution of the Study Sample According to the Academic Level Variable

Academic Level Variable	Frequency	Percentage %
First year licence	6	%13.63
Second year licence	5	%11.36
Third year licence	10	%22.72
First year Master	11	%27.27
Second year Master	12	%25
Total	44	%100

Source: Prepared by the researcher

From Table (02), it is observed that there were (6) first-year undergraduate students (13.63%), (5) second-year students (11.36%), (10) third-year students (22.72%), (12) first-year master's students (27.27%), and (11) second-year master's students (25%).

10. Research Tools:

A self-report questionnaire (scale) was developed by the researchers to measure the primary variables. The scale is composed of two principal dimensions:

10.1 Scale Construction:

Electronic Use Scale: Developed by the researcher, the scale in its final form consists of two dimensions: the psychological dimension and the social dimension.

The Psychological Dimension:

Measuring manifestations of anxiety, tension, and psychological discomfort. This dimension refers to all psychological indicators and symptoms resulting from excessive use of electronic devices, including feelings of distress, boredom, avoidance of problems, compulsive desire, frustration, daydreaming, persistent need, and attempts to escape intrusive thoughts.

Sample Items:

- I feel anxious or tense when I am unable to use electronic devices.
- I use electronic devices to escape from pressure or negative emotions.
- I only feel psychologically comfortable after spending a long time on electronic devices.
- I compare myself with others on social media and feel dissatisfied.
- My use of electronic devices negatively affects my mood.

Sources:

Ben Debli, Ismail. (2016). *Internet Addiction and Its Relationship with Depression and Social Isolation*. Faculty of Communication Sciences, University of Algiers 3, Algeria.

Banjanina, B., Banjaninb, N., Dimitri, E., & Pantic, I. (2015). The relationship between Internet addiction and depression among adolescents in Serbia. University of Belgrade, Serbia.

The Social Dimension:

Measuring social withdrawal, isolation,

and quality of real-life relationships. This dimension refers to social indicators and behaviors resulting from excessive electronic use, including spending time with friends, conflicts with peers, number of social connections, personal relationships, sports activities, social events, family visits, and new acquaintances.

Sample Items:

- My communication with friends has become superficial due to my reliance

N	Dimension	Correlate coefficient	Signification
01	Psychological Dimension	0.958 **	0.000
02	Social Dimension	0.834**	0.000

on electronic devices.

- I prefer digital interaction to real-life meetings.
- My participation in social activities has decreased because of the Internet.
- My ability to form genuine social relationships has diminished due to my dependence on the Internet.
- My preoccupation with electronic devices causes tension in my relationships with others.

Sources:

Ben Rached Rachid and Belhadj Hocina. (2022). The Social Bonds and Social Isolation: The Smartphone as a Model. *Al-Hikma for Philosophical Studies*. Mohamed Ben Ahmed University Oran 2, Algeria. pp 114-134

Safia Amina. (2016). *The Effects of Using Modern Technologies on Members of the Algerian Family: A Study of the Psychological, Social, Ethical, and Health Impacts of Internet Use on Adolescents*. Oum El Bouaghi: Faculty of Social Sciences, University of Oum El Bouaghi, Algeria.

10.2 Purpose of the Scale:

This scale aims to measure the level of electronic use through students' responses to written stimuli representing various

behavioral situations.

10.3 . Scale Description:

The scale consists of 10 items, rated on a five-point Likert scale: Always, Often, Sometimes, Rarely, never.

10.4. Instructions:

Participants are presented with a set of statements reflecting their thoughts, feelings, or behaviors in specific situations.

The responses are used only for self-assessment purposes to determine the level of healthy electronic use.

10.5. Scoring Key:

Response	Always	Often	Sometimes	Rarely	Never
Degree	5	4	3	2	1

The total score ranges from 10 to 50, indicating the degree of balanced electronic use.

10.6. Classification:

Result	Justification
20 – 10	Healthy Use
30 – 20	Moderate Healthy Use
40 – 30	Moderate Unhealthy Use
50 – 40	Unhealthy Use

10.7. Psychometric Properties of the Scale:

10.7.1. Validity:

10.7.1.1. Internal Consistency Validity:

Table (04): Correlation Coefficients between Each Dimension and the Total Score of the Scale

Source: Prepared by the researcher based on SPSS outputs

It is evident that all correlations are statistically significant at $\alpha \leq 0.05$, indicating high internal consistency and acceptable construct validity.

10.7.1.2. Discriminant Validity Extreme Groups Method

Table (05): Independent Sample t-Test for Discriminant Validity Extreme Groups Method

Group	Number of persons	Mean	SD	d=20	t-value	T. table	Signification
High	11	33.034	3.112	10	8.56	2.845	0.01
Low	11	44.672	3.254	10			

Source: Prepared by the researcher based on SPSS outputs

The calculated t-value ($t = 8.56$) is much higher than the tabulated value at the 0.01 significance level, indicating strong discriminant validity of the scale.

10.7.2. Reliability:

10.7.2.1. Cronbach's Alpha Reliability Coefficients:

Table (06): Cronbach's Alpha Reliability Coefficients

N	Dimension	Cronbach's Alpha
01	Psychological Dimension	0.918
02	Social Dimension	0.875
03	Total score	0.897

Source: Prepared by the researcher based on SPSS outputs

These coefficients indicate high internal consistency reliability for all dimensions and the total score.

10.7.2.2. Split-Half Reliability:

Table (07): Split-Half Reliability Results

Scale	Sample volume	Pearson correlation coefficient	Guttman formula
Individual items	10	0.786	0.893
Pair items	10		

Source: Prepared by the researcher based on SPSS outputs

The Pearson correlation coefficient ($r = 0.786$) increased to (0.893) after applying the Guttman formula, confirming a high level of split-half reliability.

We can be concluded that the Electronic Use Scale demonstrates high

levels of validity and reliability, making it a psychometrically sound instrument suitable for use in psychological and educational research.

11. Results Presentation, Analysis, and Discussion of Hypotheses:

11-1. Main Hypothesis:

Hypothesis: We expect a weak impact of maladaptive electronic device use on the psychological and social well-being of Social Sciences students at Ziane Achour University of Djelfa.

Table (08): Descriptive Statistics for the Main Variables

Variable	Sample	Mean	Standard Deviation	Minimum	Maximum
Hours of Use	44	4.91	0.94	3	7
Psychological Dimension	44	4.33	0.35	3.6	5
Social Dimension	44	4.22	0.37	3.4	5

Source: Prepared by the researcher based on SPSS outputs

Table (08) indicates that the Mean was (4.91), (4.33), and (4.22), respectively, for Hours of Use, Psychological Dimension, and Social Dimension. The Standard Deviation was (0.94), (0.35), and (0.37), while the hours of use ranged between 3 and 7 hours. From this, it is concluded that the average daily hours of use are relatively high (about 5 hours). Furthermore, high scores appear in both the Psychological and Social dimensions, indicating a general awareness of the impact level of electronic use.

**Table (09): Correlation Coefficients
Between Variables**

Variables	Daily Hours of Use	Psychological Dimension	Social Dimension
Daily Hours of Use	1	/	/
Psychological Dimension	0.35*	1	/
Social Dimension	0.45*	0.42**	1

*Source: Prepared by the researcher
based on SPSS outputs*

Table (09) shows a positive and statistically significant correlation between the number of hours of use and both the Psychological Dimension and the Social Dimension.

Based on Tables (08) and (09), it is concluded that there is a significant correlation between hours of use and the psychological and social dimensions, meaning that the greater the hourly volume of use, the more negatively it reflects on both the psychological and social dimensions. Therefore, the Main Hypothesis is rejected, and the Alternative Hypothesis is accepted, indicating that there is a strong impact of maladaptive electronic use on both the psychological and social aspects of Social Sciences students at Ziane Achour University of Djelfa.

11-2. Sub-Hypotheses:

- First Sub-Hypothesis:

Hypothesis: There is no statistically significant effect of maladaptive electronic use on the psychological well-being of Social Sciences students at Ziane Achour University of Djelfa.

**Table (10): Results of Regression
Analysis Between Hourly Volume of
Electronic Use and Psychological Well-
being**

Variable	B	Standard Error	Standardized Beta	t	Significance (Sig)
Hourly Volume	-0.482	0.116	-0.467	-4.16	0.000
Psychological Well-being	28.843	1.374			

*Source: Prepared by the researcher
based on SPSS outputs*

Table (10) indicates that the value of (B = -0.482), which means that for every one-hour increase in electronic use, psychological well-being decreases by an average of 0.482 points. The value of (Beta = -0.4675) suggests a severely negative impact. Furthermore, the value of (Sig = 0.000 < 0.05) indicates a strong statistically significant relationship. This means that excessive use has a clear negative impact on psychological well-being. Therefore, the First Null Hypothesis is rejected, and the Alternative Hypothesis is accepted, indicating that there is a statistically significant effect of maladaptive electronic use on the psychological well-being of Social Sciences students at Ziane Achour University of Djelfa.

- Second Sub-Hypothesis:

Hypothesis: There is no statistically significant effect of maladaptive electronic use on social interaction among Social Sciences students at Ziane Achour University of Djelfa.

**Table (11): Results of Regression
Analysis Between Hourly Volume of
Electronic Use and Social Interaction**

Variable	B	Standard Error	Standardized Beta	t	Significance (Sig)
Hourly Volume	-0.291	0.132	-0.294	-2.20	0.033
Social Interaction	28.843	1.374	/	/	/

*Source: Prepared by the researcher
based on SPSS outputs*

Table (11) indicates that the value of (B = -0.291), which means that every additional

hour of use reduces the level of social interaction by 0.291 points. The value of (Beta = -0.294) suggests a moderate to severe negative impact. Furthermore, the value of (Sig = 0.033 < 0.05) indicates a strong statistically significant relationship, although it is weaker than the psychological relationship. This means that excessive use has a clear negative impact on the student's social interaction. Therefore, the Second Null Hypothesis is rejected, and the Alternative Hypothesis is accepted, indicating that there is a statistically significant effect of maladaptive electronic use on social interaction among Social Sciences students at Ziane Achour University of Djelfa.

12. Conclusion:

The accelerating technological development characterizing our era has transformed the nature of university life and reshaped individuals' relationships with themselves and the world around them. However, despite the opportunities for learning and communication it carries, this digital transformation has given rise to new patterns of behavior that may affect the psychological and social balance of students.

Through this study, which investigated the impact of the hourly volume of electronic use on the psychological and social well-being of Social Sciences students at Ziane Achour University of Djelfa, it became evident that excessive use of digital devices and applications is associated with varying degrees of anxiety, distraction, and social isolation. In contrast, conscious and moderate use contributes to improving academic efficiency and enhancing positive social bonds.

These results confirm that the problem is not in the technical tool itself, but in how it is managed and controlled. Technology remains a tool in human hands; it can elevate awareness and communication ability, but it can also cause an individual to lose their balance if misused. Hence, the importance of spreading a culture of proper digital use within the university and preparing students to be critical and conscious users of technology, not excessive consumers of it.

13. Recommendations and Future Prospects:

- Organizing university awareness campaigns concerned with rationalizing the use of electronic media and demonstrating its impact on psychological and social health.
- Integrating educational units on digital literacy within the Social Sciences curricula, to equip students with skills in time management and conscious technology use.
- Encouraging comparative field research across different specializations and colleges to determine the extent of the influence of specialization culture on the pattern of electronic use.
- Designing psychological and social guidance programs to assist students suffering from digital addiction or isolation resulting from excessive use.
- Utilizing the results of this study to develop student support strategies that balance digital learning and direct human interaction.

Thus, it can be said that the real challenge lies not in halting technological development, but in redirecting it to serve humanity. When the student is aware of the

limits of their use of digital tools and invests them in self-development and healthy communication, technology transforms from a source of anxiety and distraction into a means of building a new, balanced consciousness between the real and virtual worlds.

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