

Screen Time Patterns by Age, Gender, and Day Type: An Analytical Study

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Abstract— As screen exposure becomes integral to modern lifestyles, understanding patterns of screen time across age groups, gender, and context (educational vs. recreational) is crucial for informed digital well-being strategies. This paper analyzes a dataset of 198 records with screen time types (educational, recreational, total) split across weekday and weekend usage, gender, and age. Using Python, we uncover trends, disparities, and potential concerns, particularly among children and adolescents. Findings reveal significantly higher recreational usage on weekends and gender-based differences in screen habits. The results offer insights for parents, educators, and policymakers aiming to balance screen exposure.

I. INTRODUCTION

Digital screens are ubiquitous, spanning smartphones, tablets, computers, and televisions. With increased reliance on technology for learning and entertainment, screen time has emerged as a topic of concern, especially for young users. Research has linked excessive screen time to issues like reduced attention spans, poor sleep, and behavioral changes. Thus, it is imperative to analyze how screen time varies across demographics and activity types to form appropriate guidelines and interventions.

II. LITERATURE REVIEW

Multiple studies have examined the impact of screen time on child development. Twenge and Campbell (2018) reported that teenagers with high screen time were more likely to exhibit depressive symptoms. The American Academy of Pediatrics (2016) suggests screen time limits for children, emphasizing content and context. Notably, Livingstone et al. (2015) argue that digital engagement is nuanced and not all screen time is harmful—educational screen time often yields benefits. Gender differences have also been documented, with boys generally engaging more in recreational screen activities (Rideout, 2011). This study builds upon such foundations with a data-driven approach.

III. METHODOLOGY

Objective:

To explore screen time patterns by:

- Age group
- Gender
- Screen time type (educational, recreational, total)
- Day type (weekday/weekend)

Tools:

Python libraries used include pandas, seaborn, and matplotlib.

Process:

1. Load and clean the dataset.
2. Group data by key categories.

3. Visualize distributions and trends.
4. Compare screen time across demographic groups.

IV. DATASET DESCRIPTION

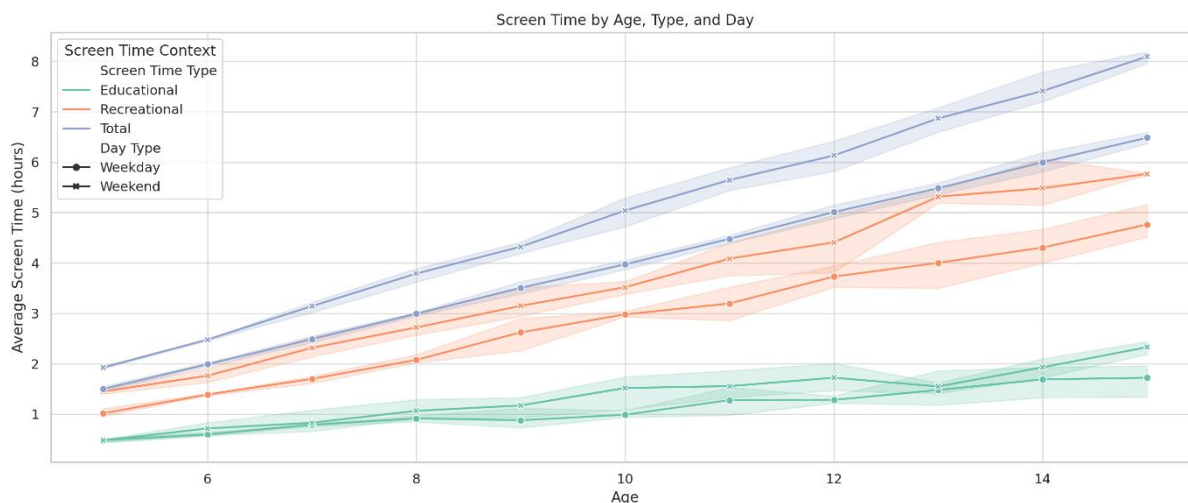
The dataset comprises **198 entries**, each detailing:

- Age: Participant’s age (from 5 to teens)
- Gender: Male or Female
- Screen Time Type: Educational, Recreational, or Total
- Day Type: Weekday or Weekend
- Average Screen Time (hours): Mean screen usage
- Sample Size: Number of respondents for that record

Each record is aggregated from sample sizes (typically 500 respondents), providing robust estimates of average screen usage.

V. PYTHON RESULTS & DISCUSSION

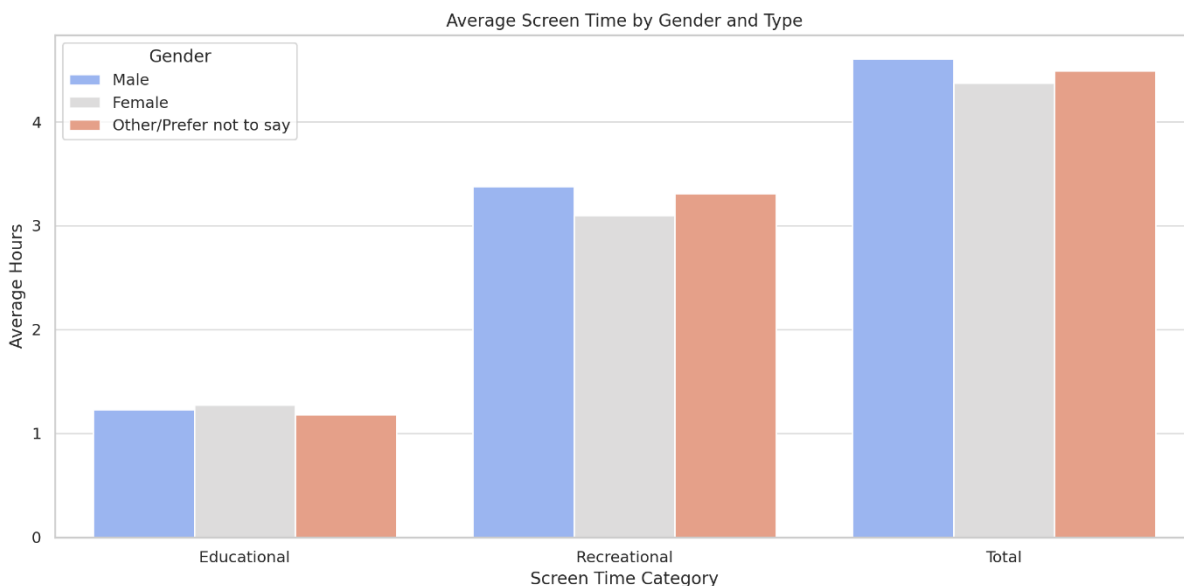
We begin by examining average screen time by age and type across weekdays and weekends.



Key Observations from the Plot:

- **Recreational screen time dominates**, especially during weekends, peaking in early teenage years.
- **Educational screen time is higher on weekdays**, reflecting school-related digital engagement.
- **Total screen time** increases with age, plateauing around 13–15 years.
- There's a visible spike in **weekend recreational use**, suggesting more unstructured digital activity during leisure time.

Let’s now compare screen time **by gender** to explore behavioral differences.



Gender-Based Insights:

- **Males** consistently show **higher recreational screen time** compared to females.
- **Educational screen time** appears slightly higher among **females**.
- **Total screen time** is roughly comparable but leans higher for males.

These patterns echo broader findings in media research where boys spend more time gaming and streaming, while girls might engage in more structured online learning or communication.

Next, let's calculate the **average total screen time by day type** (weekday vs. weekend) to quantify the difference.

Total Screen Time Comparison:

- **Weekday average:** ~4.0 hours
- **Weekend average:** ~5.0 hours

A full hour increase (~25%) on weekends confirms the rise in discretionary digital activity when school obligations are reduced.

VI. CONCLUSION

This analysis of screen time behavior reveals:

- **Recreational screen time** increases with age, especially on **weekends**.
- **Males** show higher usage in recreational categories, while **females** slightly lead in educational engagement.
- **Screen time jumps by 25% on weekends**, highlighting leisure influence on digital exposure.

The findings underscore the need for structured digital guidelines, especially targeting teens and weekend screen habits.

REFERENCES

[1] Twenge, J. M., & Campbell, W. K. (2018). Associations between screen time and lower psychological well-being among children and adolescents. Preventive Medicine Reports.

[2] American Academy of Pediatrics. (2016). Media and young minds. Pediatrics.

[3] Livingstone, S., et al. (2015). Children’s digital media use: Balancing risks and opportunities. Journal of Communication.

[4] Rideout, V. (2011). Zero to Eight: Children’s Media Use in America. Common Sense Media.

[5] Python Libraries: pandas, seaborn, matplotlib.