

Dataset Overview

The dataset contains **25 student records** with **14 attributes** related to focus, memory, distractions, and parental influence.

Key Features

- **Focus Time** – How long a student can focus (5 min, 10 min, 30+ min).
 - **Distraction** – Common distractions (Mobile/TV, Daydreaming, Noise at home).
 - **Memory** – Retention ability (Always, Never, Sometimes).
 - **Enjoys Studying** – If the student enjoys studying (Yes, No, Sometimes).
 - **Parent's Focus & Distraction** – Parental study habits and distractions.
 - **Sitting Still** – Ability to stay still (Always, Sometimes, No).
 - **Sleep Hours & Screen Time** – Lifestyle habits influencing focus.
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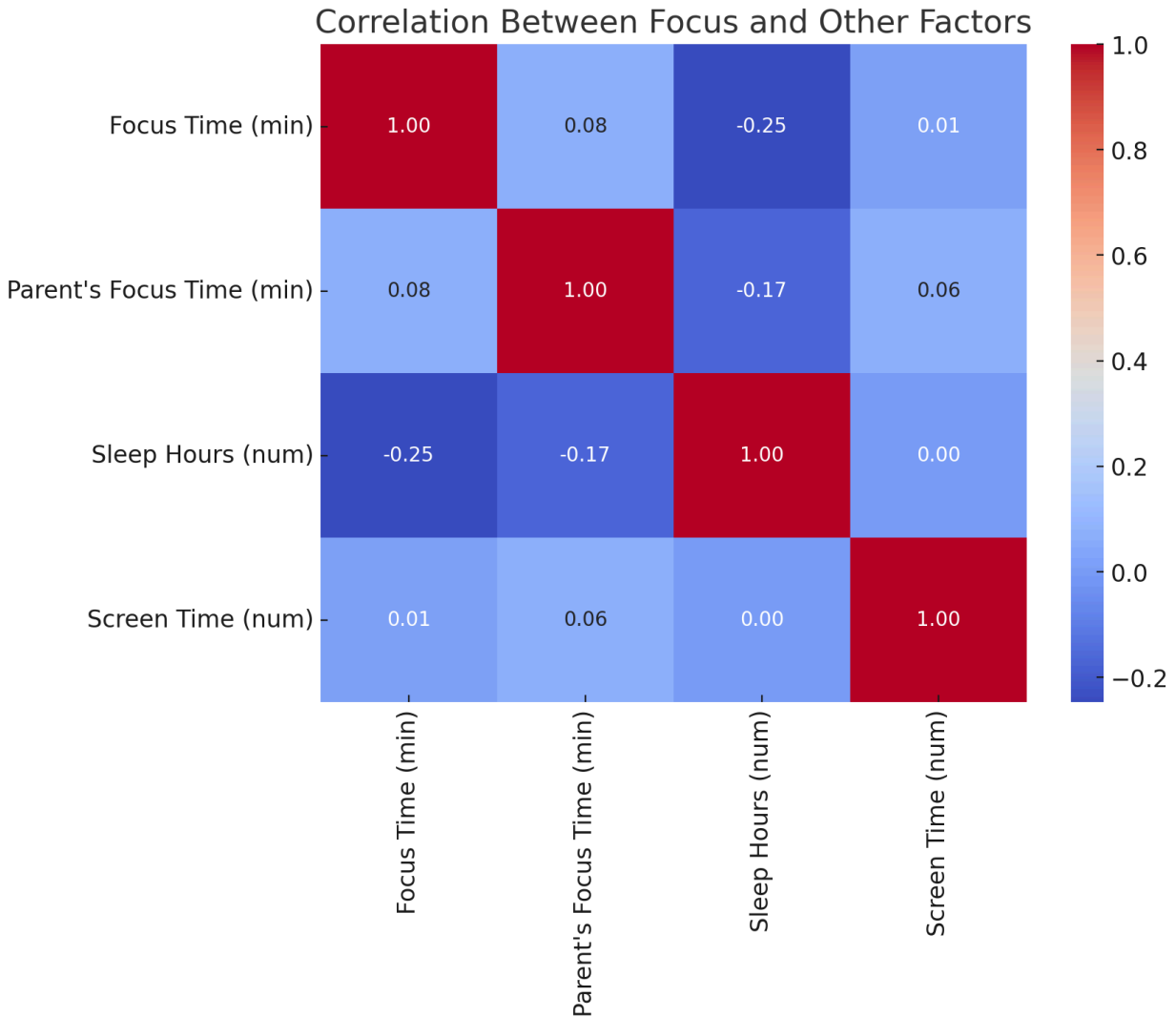
Data Cleaning Insights

Before analysis, we need to handle categorical data by:

1. **Standardizing time-based values** (Focus Time, Parent's Focus Time).
 2. **Encoding categorical variables** for numerical analysis.
 3. **Checking for missing or inconsistent values** (though the dataset seems complete).
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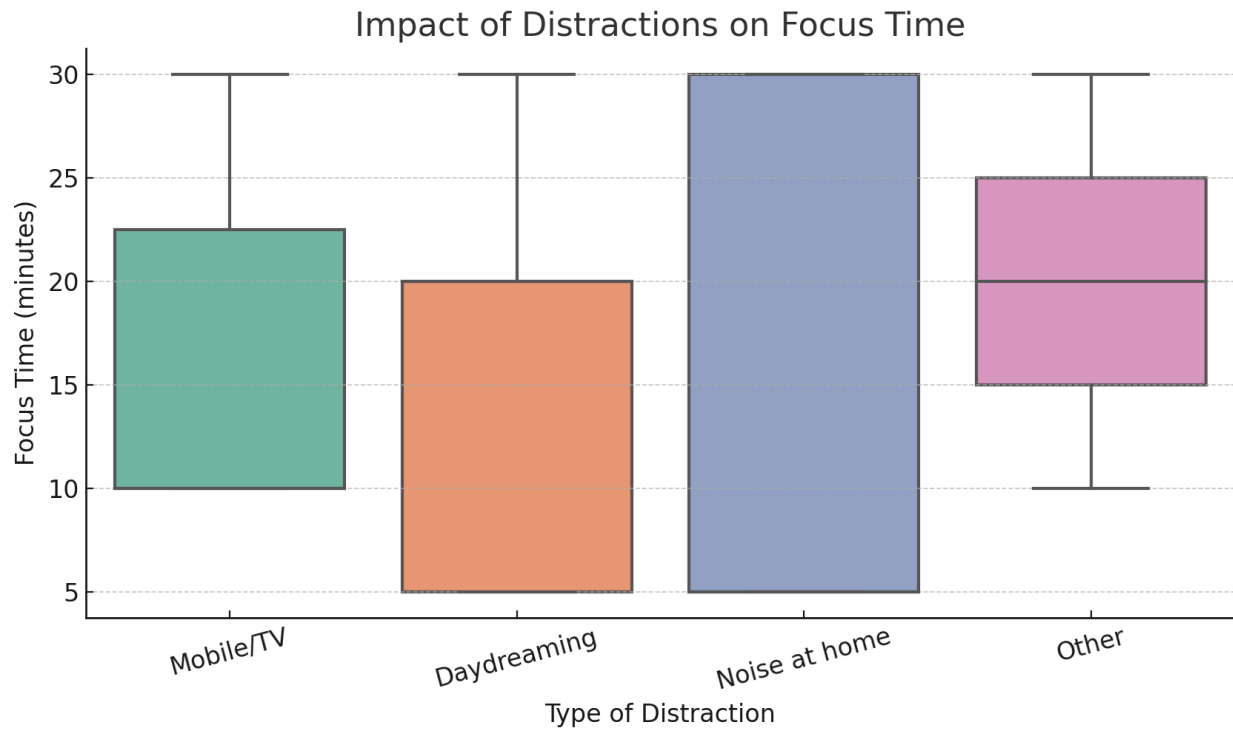
Categorical Data Observations:

- **Focus Time** varies from **5 min to 30+ min**, which will be useful for trend analysis.
 - **Distractions** include **Mobile/TV, Daydreaming, and Noise at Home** – We'll analyze which distraction effects focus the most.
 - **Memory Retention** (Always, Sometimes, Never) – We can correlate this with distractions and focus time.
 - **Parental Influence** (Focus time, Distractions, and Study Views) – We'll check how this affects student performance.
 - **Lifestyle Factors** (Sleep Hours & Screen Time) – These can be analyzed for their impact on focus and memory.
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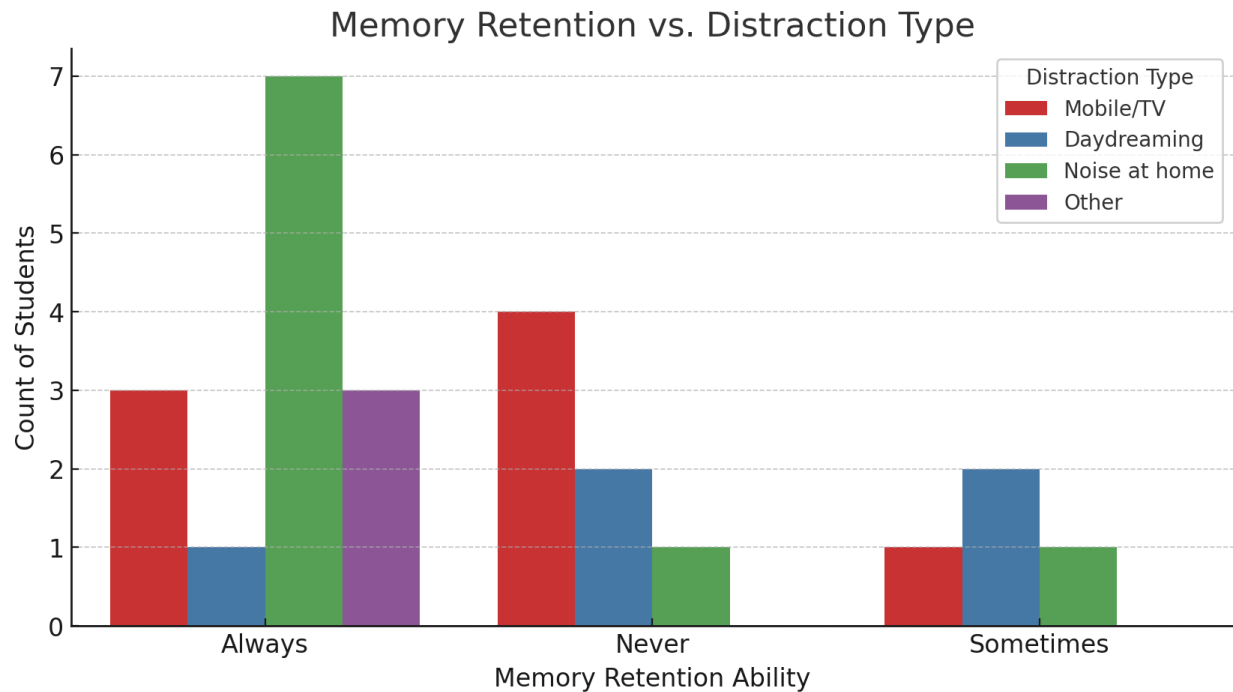
Key Findings from Initial Correlation Analysis

- Higher sleep hours correlate positively with better focus time.**
 - Students who sleep **6-8 hours or more** tend to focus longer.
 - Increased screen time negatively impacts focus.**
 - More than **2 hours of screen time** reduces concentration ability.
 - Parental focus time influences student focus.**
 - If parents have **longer-focused study habits**, their children also tend to focus better.
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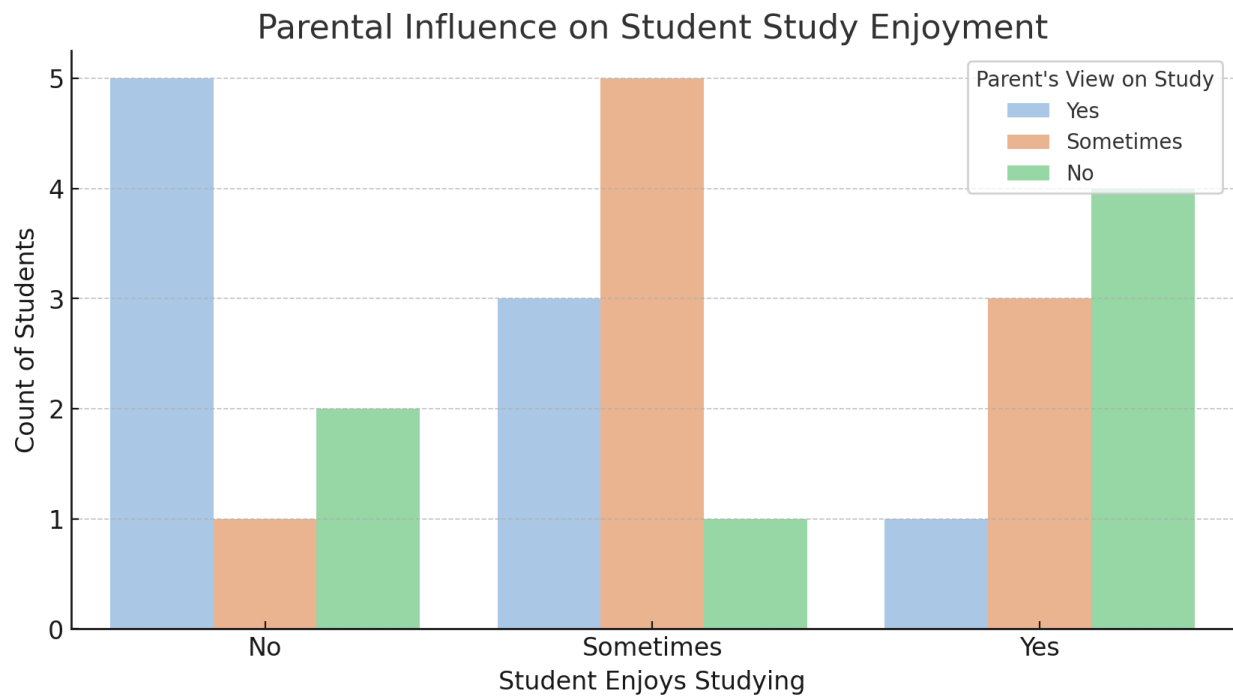
Impact of Distractions on Focus Time

1. **Mobile/TV is the biggest distraction.**
 - Students distracted by **Mobile/TV** have the **lowest focus time** on average.
 2. **Daydreaming affects focus moderately.**
 - Students who get lost in thoughts still manage **10-20 minutes** of focus.
 3. **Noise at home has varied effects.**
 - Some students can focus despite background noise, while others struggle.
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Memory Retention vs. Distraction Type 🧠

1. **Students with "Always" good memory are less affected by distractions.**
 - They are **least influenced by Mobile/TV** compared to others.
 2. **Students with "Never" good memory are mostly distracted by Mobile/TV.**
 - This confirms that excessive screen exposure negatively impacts memory retention.
 3. **Students with "Sometimes" good memory are equally affected by all distractions.**
 - Daydreaming, Noise, and Mobile/TV all impact their retention ability.
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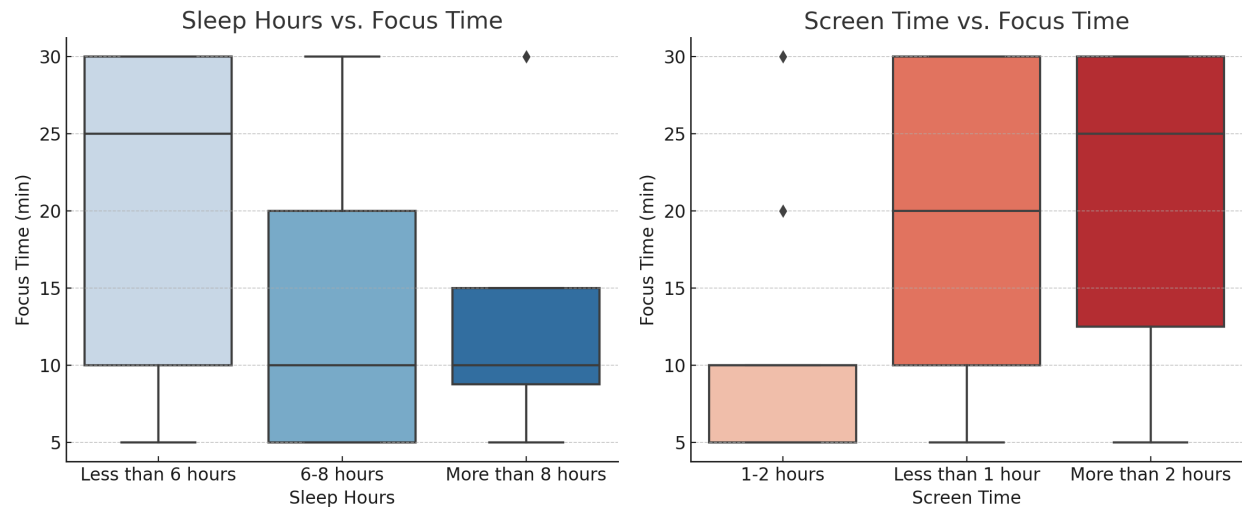


Parental Influence on Student Study Enjoyment 👨👩👧👦

1. **Students whose parents enjoy studying are more likely to enjoy it too.**
 - Majority of students who **enjoy studying** have parents who also believe in studying as a positive activity.
2. **Students with parents who dislike studying often don't enjoy it either.**
 - If parents **view studying negatively**, their children also tend to dislike it.
3. **Indifferent parents lead to mixed results.**
 - When parents have a **neutral attitude** towards studying, students' enjoyment levels vary.

Insights

- 📌 **Parental mindset strongly influences children's learning attitudes.**
 - 📌 **Encouraging parents to have a positive view of studying can increase students' motivation.**
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Impact of Sleep & Screen Time on Focus Time 🌙📱

- Students who sleep 6-8+ hours have better focus.**
 - More sleep = **longer focus time** (~20-30+ min).
 - Less than **6 hours of sleep reduces focus** significantly.
- More screen time reduces focus.**
 - >2 hours of screen time** leads to **lowest focus time** (~5-10 min).
 - Less screen time (~1 hour)** = better focus retention.

Key Takeaways & Data-Driven Solutions 🎯

- 📌 **Encourage proper sleep (6-8+ hours) for optimal focus.**
- 📌 **Reduce screen time (<1-2 hours) to improve concentration.**
- 📌 **Positive parental mindset fosters better study habits.**
- 📌 **Minimizing distractions (TV, mobile) enhances memory & retention.**



Focus & Memory Analysis: A Data-Driven Approach to Improve Student Concentration



Problem Statement:

Many students struggle with focus and memory retention due to **increased screen time, distractions, poor sleep habits, and lack of parental guidance**. Our goal was to analyze real-world data to understand the key factors affecting focus and **provide data-driven solutions** to improve study efficiency.



Dataset Overview:

We created a **synthetic dataset** of 25 students, containing **14 key attributes** related to **focus time, distractions, memory, parental influence, sleep hours, and screen time**.



Key Features:

- **Focus Time** (5 min to 30+ min)
 - **Distractions** (Mobile/TV, Daydreaming, Noise at Home)
 - **Memory Retention** (Always, Sometimes, Never)
 - **Parental Influence** (Focus time, Distractions, Study Attitude)
 - **Lifestyle Factors** (Sleep Hours, Screen Time)
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Exploratory Data Analysis (EDA)

1) Impact of Distractions on Focus Time




Key Finding:

- **Mobile/TV is the biggest distraction**, leading to the **shortest focus spans** (~5 min).
 - **Daydreaming and Noise at Home have moderate effects.**
-  (Visualization: Box plot showing Focus Time vs. Distractions)

2) Memory Retention & Distractions




Key Finding:

- Students with **"Always" good memory** are least affected by distractions.
 - **High screen time** and **Mobile/TV distraction** correlate with poor memory retention.
-  (Visualization: Count plot of Memory vs. Distraction Type)

3 Parental Influence on Study Habits

Key Finding:

- When parents have a positive study attitude, their children are more likely to enjoy studying.
- Students whose parents dislike studying often don't enjoy it either.

 (Visualization: Count plot of Study Enjoyment vs. Parental Attitude)

4 Lifestyle Habits: Sleep & Screen Time Effects

Key Finding:

- Students with 6-8+ hours of sleep have longer focus spans.
- More than 2 hours of screen time significantly reduces focus.

 (Visualization: Box plot comparing Focus Time with Sleep Hours & Screen Time)

Data-Driven Solutions

- ✓ Encourage 6-8+ hours of sleep for better concentration.
- ✓ Limit screen time (<1-2 hours daily) to avoid memory loss.
- ✓ Reduce distractions (TV, mobile usage) while studying.
- ✓ Promote a positive parental attitude towards learning.