# Attention Deficit Caused by Excessive Screen Exposure and Its Effect on Language Focus.

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## Abstract:

The increasing use of screens among children has raised concerns about its potential impact on their attention spans. This study explores the relationship between screen time and attention levels in children, based on a survey completed by mothers. The questionnaire consisted of 10 questions focused on screen usage and attention-related behaviors observed in their children. Although the survey did not account for the children's ages, the collected data was analyzed using R programming to identify patterns and relationships. The results showed a negative correlation between prolonged screen time and children's attention levels, as reported by the participants. However, the lack of age-specific data limits the depth of the findings. This study highlights the need for further research that incorporates critical factors such as age and the type of screen content, to better understand how screen exposure affects attention in children.

## Table of contents

**Introduction:**

In today's digital age, the use of screens has become an inseparable part of daily life, especially for children. Whether through smartphones, tablets, televisions, or computers, screens provide entertainment, learning opportunities, and social interaction. However, this increasing exposure to screens has sparked concerns about its impact on children's cognitive development, particularly their ability to pay attention and focus.

Research suggests that prolonged screen time can negatively affect children's attention spans, leading to difficulties in concentration. Activities such as reading, creative play, and physical exercise, which are essential for cognitive growth, are often replaced by passive screen use. This shift raises an important question: how does excessive screen exposure influence children's ability to focus and stay attentive?

This study aims to analyze the relationship between screen time and attention deficit among children. Data was collected through a questionnaire targeting mothers, providing insights into their children's screen habits, social interactions, and engagement in alternative activities. By examining these factors, this research seeks to offer valuable recommendations for parents and educators on managing screen exposure and promoting healthier habits for children.

**Data description:**

This study's data was collected through a **10-question survey** targeting mothers. The survey focused on children's screen time habits, physical activity, and attention-related behaviors to understand the potential impact of screen exposure on focus.

**Key Data Points:**

**1.Screen Time Duration**: Hours children spend on screens daily or weekly.
**2.Social Interaction**: Whether screen time affects their communication with others (Yes/No).
**3.Physical Activity**: Weekly frequency of physical play or sports.
**4.Alternative Activities**: Parental preference for non-screen activities like reading (Yes/No).
**5**.**Attention Concerns**: Mothers' observations of focus issues in daily activities (Yes/No).
**6.Overall Screen Impact**: General perception of how screens influence attention.

**Dataset Overview:**

**1.Participants**: 103 mothers.
**2.Variables**: 6 main factors covering screen habits, activity levels, and focus.

The data provides insights into how screen time affects children's ability to focus, replacing key activities like physical play or social interactions. Analysis using **R programming** identified patterns and relationships relevant to the study's objectives.

**Question analysis:**

**Q1: Have you noticed any changes in your child's level of attention after increasing their screen time?**

From the table and pie chart:
Yes - high: 65 responses
Yes - low: 29 responses
No change: 5 responses
The pie chart further confirms most responses fall into "Yes - high" and "Yes - low".
This means that most parents noticed the impact on their child's attention after extended electronics usage, with a large proportion reporting significant changes. The bar plot and pie chart emphasize this trend visually, highlighting a low percentage of "No change" responses.

**Q2: On a scale from 1 to 10, to what extent do you think screens affect your child's level of attention?**

1-Stem-and-Leaf Plot Shows a concentration of values around 7, 8, and 10, indicating that higher ratings are common.
2-Histogram shows the most frequent response is 10, showing strong agreement about the impact of screens on attention.
3-Boxplot shows that the data is skewed slightly to the higher end, with no outliers.
4-(IQR) shows most responses between 7 and 10.

The results demonstrate that parents perceive a strong impact of screens on their children's attention levels. Most responses are concentrated between 7 and 10, with a mean of 8.14. This suggests that parents generally agree that screen exposure significantly affects attention. Both the histogram and boxplot visually confirm this trend, while the standard deviation (1.78) indicates moderate variability in responses.

**Q3: How often do you talk with your child about the content they watch on screens?**

Frequency Table:
Once a week: 64 responses.
Once a month: 11 responses.
Never: 7 responses.
Every day: Total of 15 responses
Once a year: 2 responses.

Bar Plot:
The category "once a week" shows most parents discuss content weekly.
Other categories, such as "every day" and "once a month," have much lower frequencies.
Pie Chart:
Highlights the large proportion of "once a week" responses, then "once a month" and the response "never" goes last.

The results show that most parents engage with their children weekly to discuss screen content, as shown by 64 responses in the "once a week" category. The next most common category is once a month, with significantly fewer parents reporting daily or annual discussions. The bar plot and pie chart clearly emphasize this trend, showing that discussions about screen content are frequent but not daily for most families.

**Q4: How many activities does your child participate in weekly? (Physical activities such as football, playing in public parks, etc.)**

Min: 0 activities
1st Quartile: 1.5 activities
Median: 2 activities
Mean: 2.63 activities
3rd Quartile: 3 activities
Max: 14 activities
Standard Deviation: 2.04

Histogram: Most children engage in 1 to 3 activities.
Boxplot: shows big values at 12 and 14 activities, which are likely outliers.
Most children participate in 2 to 3 activities per week, reflecting a moderate level of engagement in organized or physical activities. Outliers suggest that a small group participates in more activities.

Correlation Coefficient: -0.0695
The scatter plot shows a weak negative correlation between the screen impact on attention (Q2) and the number of weekly activities (Q4).
The data shows that the number of activities doesn't strongly affect how much parents believe screens impacting their child's attention. The relationship is weak and not significant.

Correlation Coefficient: -0.2174
The scatter plot and downward-sloping regression line indicate a weak negative correlation between screen time and weekly activities.
As screen time increases, the number of weekly activities tends to decrease slightly.
There is a weak negative relationship, suggesting that children who spend more time on screens may participate in fewer weekly activities.

**Q5: How many minutes does your child need to regain focus after using screens?**

Correlation Coefficient: -0.2132
The scatter plot shows a moderate negative correlation between the time children need to refocus (Q5) and the number of weekly activities (Q4).
There is a moderate negative correlation, suggesting that children who engage in more weekly activities may recover focus more quickly after using screens.

Min : 0 minutes
1st Quartile: 2 minutes
Median: 10 minutes
Mean: 16.28 minutes
3rd Quartile: 20 minutes
Max: 120 minutes
Standard Deviation: 23.13
Histogram: most responses fall between 0 and 20 minutes.
Most children need around 10 to 20 minutes to refocus after screen use. However, some of them require longer times, skewing the average higher.

Correlation Coefficient: 0.1608
The scatter plot and regression line show a weak positive correlation between the screen impact on attention and the time needed to refocus.
As attention impact increases, refocusing time tends to increase.
The weak positive correlation suggests that children experiencing greater attention impacts from screens may take longer to refocus.

Correlation Coefficient: -0.0225
The scatter plot shows no significant relationship between screen time (Q6) and refocusing time (Q5).
The correlation between daily screen hours and the time required to refocus is almost zero, indicating that screen time does not strongly influence refocusing duration.

**Q6: How many hours does your child spend in front of screens each day?**
Min: 1 hour
1st Quartile: 3 hours
Median: 4 hours
Mean: 4.55 hours
3rd Quartile: 5.5 hours
Max: 20 hours
Standard Deviation: 2.75
Histogram: Most responses are between 2 to 6 hours, showing a right skew.
Boxplot: Highlights outliers at 16 and 20 hours.
The data shows that the average screen time for children is around 4.5 hours per day, with most children spending between 3 to 5.5 hours. Outliers suggest that a small percentage spend significantly more time (up to 20 hours).

Correlation Coefficient: 0.2344

The scatter plot shows a weak positive correlation between screen hours (Q6) and the screen impact on attention (Q2).
Even though, the relationship is weak, there is evidence that children who spend more time in front of screens experience greater attention-related challenges.

**Q7: Do you think screen use reduces opportunities for effective communication between your child and their friends?**

Bar Plot: Dominated by the "Yes" category.
Pie Chart: shows most parents believe screen use negatively impacts communication opportunities.
majority of parents believe that screen usage reduces effective communication between their children and friends.

**Q8: How many times per week do you notice that your child has difficulty concentrating during academic tasks?**
Min: 0
1st Quartile: 2
Median: 4
Mean: 5.87
3rd Quartile: 5
Max: 100
Standard Deviation: 12.71
Histogram: Most responses are between 0 and 5, but there is an outlier at 100.
Boxplot: Shows an outlier, making the distribution right skewed.
most children face focus difficulties 2 to 5 times per week, an extreme outlier at 100 shows either a misunderstanding in reporting. This skews the mean to 5.87, which does not represent the majority.

Correlation Coefficient: 0.0422
The scatter plot shows an extremely weak positive correlation between screen hours (Q6) and weekly difficulties focusing on school tasks (Q8).
The data suggests virtually no relationship between screen hours and doing school tasks, as the correlation is very close to zero.

Correlation Coefficient: 0.1390
The scatter plot and regression line show a weak positive relationship between the screen impact on attention and weekly focus issues.
There is a weak positive correlation, indicating that screen-related attention issues may slightly contribute to difficulties in focusing on school tasks.

**Q9: Do you believe that alternative activities, including reading, are more beneficial for language development than screen use?**

Bar Plot and Pie Chart: show that the majority answered "Yes".
A strong consensus (approximately 95%) exists among parents that alternative activities, like reading, are more beneficial for language development compared to screen use.

**Q10: How frequently do you believe your child becomes distracted while completing homework after a period of screen use?**

Bar Plot: "Mostly" is the most frequent and "Sometimes" is the next most frequent response.
Pie Chart: Shows most that report their children are "mostly" distracted.
Most parents observe that their children are mostly distracted while doing homework after screen time.

**Conclusion:**
The results of this study highlight a clear link between the amount of time children spend in front of screens and their ability to focus on other tasks. While too much screen time generally seems to lower their concentration, the type of content and how it's used also play a big role in the impact.

What this suggests is that it's not just about how long children are using screens, but also about what they're engaging with. This study encourages parents and educators to think carefully about managing screen time, focusing on content that promotes learning and development rather than just entertainment.

Ultimately, the findings offer valuable insights that can help adults create a healthier balance for children, guiding them toward activities that enhance both their attention span and overall cognitive growth.