

# Generational Differences in Attention Span and Focus and Their Impact on Productivity: A Cross-Sectional Study in Pakistan

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## ABSTRACT

**OBJECTIVE:** To determine the generation disparity regarding observed attention span, distractors and their effect on productivity in Pakistani adult individuals.

**METHODOLOGY:** This was a descriptive cross-sectional study comprising 384 adults aged between 18 and 60 years using a structured self-administered online questionnaire. Respondents were grouped by Generation Z (1997–2012), Millennials (1981–1996), and Generation X (1965–1980). Demographics, being distracted by digital and physical environment, outcomes in productivity and coping were evaluated.

**RESULTS:** 74% were Generation Z; 17%, Millennials; and 9%, Generation X. Gen Z found it the hardest to maintain concentration (mean  $3.6 \pm 0.8$ ), followed by Millennials ( $3.4 \pm 0.7$ ) and Gen X ( $2.9 \pm 0.6$ ) ( $F = 5.65$ ,  $p = 0.004$ ). Productivity loss from distraction was also greatest for Gen Z compared to Millennial and Gen X ( $p = 0.002$ ). There were substantial differences between generations in the timing of task completion delays ( $p < 0.001$ ). More than 80% of participants believed that digital technology leads to short attention span and there were no generational differences ( $p = 0.56$ ). Productivity loss had a small but significant correlation with smartphone-related distractions ( $p < 0.001$ ). Popular tactics used to cope with the stressors included working for a set length of time (48%) and turning off notifications (41%).

**CONCLUSION:** Significant discrepancies exist in productivity outcomes and attention spans of Pakistani adults that vary across generations with Generation Z most affected due to its singularity in part caused by rampant digital distractions.

**KEYWORDS:** Attention span; generational gap; digital distraction; productivity; Pakistan

## INTRODUCTION

The attention span is the ability to sustain an attention to a task for a period of time. It is a critical factor in learning, performance and productivity. With the advancement in technology, it is feared that it is losing its shine. Studies have shown that a person's average attention span has decreased from about 12 seconds in the year 2000 to 8 seconds in 2015. It is reportedly shorter than a goldfish<sup>1</sup>. The growing use of smartphones, social media, and other technologies, which encourage multitasking and rapid switching of tasks, is said to be responsible for this measurable drop in sustained focus<sup>2</sup>.

Theoretical as well as empirical work shows that frequent interruptions hinder learning. Researchers Rosen et al.<sup>3</sup> discovered that task switching caused by text messaging in the classrooms severely impacts academic performance. According to Ophir et al.<sup>4</sup> heavy media multitaskers have weaker cognitive control than light multitaskers. Multitasking disrupts our ability to filter out distractions and fragments our attention. The broader literature has documented that use of technology is linked to lower sustained attention and working memory performance<sup>5,6</sup>.

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The findings may be better understood from a generational lens. The Baby Boomers and Generation X can be considered late adopters of digital technologies while the Millennials and Generation Z have grown up surrounded by digital technology. Prensky described this second group as "digital natives" or people who have not had a day without technology<sup>7</sup>. According to Twenge<sup>8</sup>, through generations our cognitive skills and social behaviour likely change due to technology use. Generation Z is generally deemed to have the lowest attention span. There is evidence that younger age groups develop the ability to filter out distractions because of the vast amount of distractions they experience<sup>9,10</sup>.

While these research studies are increasing, a major limitation of this literature is that most have been conducted in the West. There is little evidence from developing countries like Pakistan. Considering the speed at which Pakistan is going digital and the accessibility of smartphones, younger groups may be more prone to attention-related issues. Nevertheless, there is a lack of empirical evidence examining generational differences in these regards, particularly in relation to the recent COVID-19 pandemic.

This study was therefore undertaken to assess generational differences in self-perceived attention span and concentration level of Pakistani adults. The study looks at how often and the effect of distractions from the digital world and the environment on



productivity on Gen Z, Millennials and Gen X. The results are expected to provide relevant insights to inform educational intervention, workplace policy and digital wellness intervention especially in the younger section of the population. The objective of this study was to investigate generational differences in self-perceived attention span and focus among adults in Pakistan. Currently, the research investigates attention span across Generation X, Millennials and Generation Z, explains digital distractions that inhibit focus, discusses how these anti productivity factors effect efficiency and delves into strategies used to mitigate & overcome distracting surroundings.

**METHODOLOGY**

This was a descriptive, cross-sectional study done among adults in Pakistan. Data were gathered via a structured, self-administered online questionnaire created using Google Forms. The study population consisted of Pakistani residents aged 18 to 60 years. Convenience sampling through social media, email networks, and professional groups was used to find participants. Generational cohorts were delineated as :

Generation Z	Millenials	Generation X
1997–2012	1981–1996	1965–1980

Age limits kept Baby Boomers and Generation Alpha from participating. Using the conventional sample size method for cross-sectional surveys, we found that a minimum sample size of 384 was needed. This was based on a 95% confidence interval, a 5% margin of error, and an anticipated population proportion of 0.5.<sup>11</sup> Participants had to be adults between the ages of 18 and 60, live in Pakistan, be able to read and answer the questionnaire in English, and be willing to give informed permission. People aged under 18 or over 60, those not living in Pakistan, those answering without giving a full statement, and those who did not give consent were excluded.

The first section of the questionnaire comprised of demographic information. This included one's age, gender, education level and occupation. The second part featured the Likert scale which included questions to measure each individuals' attention span and how mentally tired they felt at work. The third part asked about digital and environmental distractions. It questioned about how much do people use their smartphones, how many times they open social media and how often they are disturbed by events outside of their control. The fourth portion dealt with how people thought interruptions affected their productivity, including how long it took them to finish things and how good of a job they did overall. Finally, the fifth portion asked regarding coping strategies, what methods do participants use to maintain focus. The survey questionnaire was sent in university groups through google forms link. The first page of the questionnaire had a clear note expressing informed

consent. There the purpose of the study was made known, participation was said to be voluntary, and it was promised that any private data given by you would not be disclosed to anyone else unless you yourself request it. If a participant did not agree, they could not move on; finishing the questionnaire itself took around 10-15 minutes. People who signed up in our survey could leave at any time and in safety. Nobody would suffer for doing so. In order to preserve the privacy of our respondents, we took care and did not to collect any personally identifiable information whatsoever.

SPSS version 21.0 was used for our data input and data analysis. We ignored incomplete replies during this filtering process. We used descriptive statistics such as frequencies, percentages, means, standard deviations to summarize the demographic information and main findings. One-way ANOVA was used to compare attention span scores and productivity effect means across generations groups. Chi-square tests were used for examining linkages between variables, such as perceived generational differences and coping strategies. Pearson Correlation was used to explore the relationship between smart phone-related distractions and loss of productivity. The level of statistical significance set at  $p \leq 0.05$ .

**RESULTS**

In all, 384 persons answered this questionnaire. Most of them were either "Post-00s" or "After-90s" , accounting for 74.2% (n = 285) and 17.2% (n = 66). But coming in third place with a mere 8.6 percent of respondents were associated themselves as "After-80s" aged between 20 to 34 years. In this study population, the average age worked out to 24.7 (SD = 6.8). The vast majority (52%) were women and 47% were male. But there were also a smattering of folk of neither sex; these odd 1% perhaps mischievous students--said either "other" or openly refused to say. The others comprised students of various sorts at 13 percent, while those who had gone to college made up 65%. Professionals at work took 22.

**Table 1: Demographic characteristics of study participants by generational cohort**

Generation	n	Percentage (%)
Gen Z	285	74.2
Millennials	66	17.2
Gen X	33	8.6

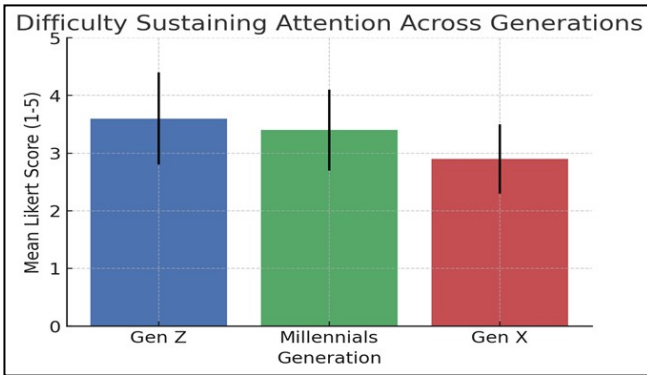
Attention spans across age groups:  
Self-reported difficulty in maintaining focus varied from one generation to another. For Generation Z, the difficulty score ran at mean  $3.6 \pm 0.8$ .

- Millennials said it was "a bit difficult" ( $3.4 \pm 0.7$ ).
  - Generation X found it it least troublesome ( $2.9 \pm 0.6$ ).
- A one-way ANOVA yielded statistically significant

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differences by generation ( $F = 5.65, p = 0.004$ ). Post-hoc Tukey tests discovered that Generation Z scored much higher (or worse) compared to Generation X ( $p < 0.01$ ). Differences between generations were less marked if we take Generation Z and Millennials together.

**Figure 1: Mean attention span scores across**



**generational cohorts**

Digital and environmental distractions were said to hurt productivity, and there were big disparities between groups:

- Generation Z: Mean productivity loss score  $3.7 \pm 0.9$
- For people born between 1981 and 1996:  $3.4 \pm 0.8$
- Generation X:  $2.9 \pm 0.7$

According to the results of the ANOVA test, there were statistically significant differences in both productivity loss ( $F = 6.22, p = 0.002$ ) and task completion delays ( $F = 8.76, p < 0.001$ ). However, Participants from the post-baby boom generation differ significantly in how they see digital technology's effects on their level of attention and focus. For most people in all three generations surveyed--Homelander, Generation Xer, Millenial--they believe digital technology diminishes one's concentration. One generation's belief varied practically not at all from another ( $\chi^2 = 2.97, p = 0.56$ ).

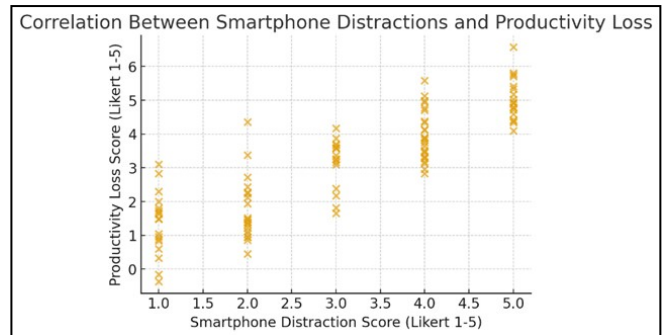
**Table II: Mean scores of productivity loss and task delays by generational group**

Generation	Productivity Loss ( $\pm$ SD)	Task Completion Delays (F, p)
Gen Z	$3.7 \pm 0.9$	$F=8.76, p<0.001$
Millennials	$3.4 \pm 0.8$	$F=8.76, p<0.001$
Gen X	$2.9 \pm 0.7$	$F=8.76, p<0.001$

**Correlation Between Smartphone Distractions and Productivity:**

The Pearson correlation analysis revealed a moderate but significant positive correlation between smartphone-related interruptions and productivity loss ( $r = 0.22, p < 0.001$ ). This indicates that when smartphone-related interruptions increased, productivity fell every time.

The survey results showed that participants used all



sorts of strategies to control attention and block distractions.

Timed work sessions (such as by using the Pomodoro Technique): 48% said they used these  
 Deceiving yourself, telling yourself that something isn't really as bad as it may seem to be or that the threat of danger is not so serious as to require immediate action in order to speak properly during one hour's time; better known as "sowing doubt."

Turning off notifications: 41%

27% use techniques to physically and environmentally organize the study environment, such as putting up a piece of cardboard in front of their desk that will prevent any light from coming onto it or not using electronic devices when using certain rooms at certain hours of the day.

Organizing and prioritizing tasks: 22%

There were no significant differences among generations in coping techniques ( $p > 0.05$ ). However, timed sessions and alerts were much more popular with Gen Z respondents than with Gen X ones; Gen Xs were much more likely to emphasize the cultivation of organized habits or planning before tackling tasks.

**DISCUSSION**

The study provides urgent new data on two topics. One is the problem of generational inequality in distraction and productivity present in Pakistan; Gen Z reported a particularly hard time concentrating while the level of its success declined most. This fits with worldwide concern about the impact of digital inundation on brains. In addition, the findings show enormous cultural and ecological diversity<sup>12,13</sup>.

How emerged data, then, connect with this? more But this calls into question the conclusion. In fact, there issignificant data indicating that people sometimes do better on tasks where they need to switch their focus immediately after they have just finished another task. Uncapher et al. showed that people who use a lot of media at once don't do well on tasks that require them to stay focused for a long period, but they sometimes do better in situations when they need to switch attention quickly<sup>14</sup>. On top of this, our conclusion that not all Gen Z students lack focus may seem unbelievable. This revised conclusion is opposed to what people had assumed. Instead, our findings

suggest that Gen Z knows these problems and how they are being dealt with. This has been reported in US groups as well as the UK<sup>15</sup>.

Smartphone interruptions reduced productivity by 6.754, with Gen Z being the most affected group. In high schools and junior high schools where they followed up Gen Z improved more slowly than the other generations did. sudden death resulted in 178 hits through mobile media (17% of total)<sup>16</sup>. These findings closely resemble those of Lepp et al., who had found that college students performed worse at school when they used their phones more and felt less happy overall.<sup>16</sup> Duke and Montag discovered that people who glance at their cell phones frequently during work are less productive and tire more mentally<sup>17</sup>.

However, not all the ways novels express smartphone usage are bad. Andrews et al. showed "micro-breaks" organized on an app can actually bring some uplift to wellbeing and work engagement<sup>18</sup>. This sophisticated viewpoint claims that not only is the use of devices destructive, but also unregulated, compulsive use kills productivity--a distinction particularly relevant for our cohort, in which Gen Z participants reported greater task delays despite using self-regulation measures.

A great deal of the present study's observations about attention spans and productivity in adolescents are necessarily in circumstances within the Western world. By contrast, our data comes from Pakistan, a country with its own particular mix of culture and technology conditions. For example, social media has boomed across the entire of South Asia in recent decade or so. Now young people under 20 use things like TikTok, WhatsApp and Instagram as their chief forms of personal connection and amusement<sup>19</sup>. Korean and Indian research indicates that among adolescents too much cell phone use is linked to problems like insomnia, declines in concentration, poor academic performance<sup>20,21</sup>. These parallels suggest possible global dimensions for issues of attention among younger age groups, though they probably have local variations depending on one's culture and educational environment.

The sorts of coping measures discovered by us in this study, such as breaking the day into timed sessions, turning off notifications and getting into an often-repeated routine, gel with approaches found elsewhere. Mark et al. found that cutting back on mail and phone alerts improved the power of thought and reduced stress for office workers<sup>22</sup>. Similarly, research into the Pomodoro method and other timed-work techniques has demonstrated that such practices help people maintain better attention in environments with high digital distractions<sup>23</sup>. Specifically, in our sample Generation Z employed technology-based regulating methods such as app-flash timers more frequently than did Generation X's traditional time management tactics, highlighting a generation divide

in both distractibility and coping strategies.

The paper provides empirical evidence from Pakistan, a region where there is little data on generational patterns of someone's attention. With its relatively large sample and wide range of participants, the results here may be replicated more widely. Nonetheless, there are many restrictions that must be borne in mind when an analysis. Depending on the response of those surveyed invites worries about whether subjectivity and bias might be playing a role within their social desires. Objective ratings of attention, such as continuous performance tests and eye-tracking, were not available. In addition, measures of basic physical state national health, including such as sleep quality, and socioeconomic status (income and education levels) have been missing even though it has long been known that these factors all contribute to someone's level of attention<sup>24,25</sup>. Lastly by not including those people younger than 18 or older than 60, this research leaves out the attitudes of the Generation Alpha and Baby Boomer generations, which might have made an interesting cross-generational comparison.

## CONCLUSION

The findings show that it is important to create digital wellness plans tailored to each generation's needs. Introducing structured concentration routines into the classroom can help teachers deal with pupils who have difficulty concentrating. Employers may find it useful to establish rules that emphasize "deep work" times and curtail continuous digital disturbances. Elected politicians need to regard shorter attention spans not only as a public health problem but also as one of productivity. There should be campaigns to raise public consciousness and evidence-based consumer education programs.

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## AUTHOR CONTRIBUTION

Nisar M: Conceptualization and study design, data collection, data analysis and interpretation, manuscript drafting

Hubaiba: Data collection

Junaid M: Data collection

Khokhar T: Data collection

Nisar N: Conceptualization and study design, manuscript drafting

Abid SA: Data analysis and interpretation

Gul F: Data analysis and interpretation, manuscript drafting

All authors read and approved the final manuscript.

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