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Cognitive Offloading in the AI Age: A Psychological Study of Mental Laziness Among Gen Z Employees

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Abstract

Rising of Artificial Intelligence into workplaces has changed the ways in which tasks are performed, decisions made, and knowledge processed. Despite making tasks more efficient and convenient to perform, this technology causes another psychological issue termed cognitive offloading, which implies the requirement for external devices to ease mental workload. This paper investigates the association between cognitive offloading and mental laziness among Generation Z employees.

By employing the descriptive and analytical approaches, main data which primary data was collected from 103 participants by using structured questionnaire google form. The aspects of using AI technology, independent problem-solving abilities, concentration levels, and perception of cognitive shifts have been studied.

It is evident that most participants actively use AI, and nearly 70% report that at times they have become mentally lazy due to AI technology. In addition, lower mental efforts, lower attention span, and lower motivation to think independently have been identified. If we look at other side, some participants have shown signs of being aware of and regulating their use of technology.

This research or study concludes that although using AI increases productivity immensely, too much dependency may lead to negative outcomes in terms of cognitive activity. Therefore, HR measures, such as AI technology education, should be recommended.

Keywords: Cognitive Offloading; Artificial Intelligence; Gen Z; Mental Laziness; Workplace Psychology; Digital Dependency.

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Introduction

AI is rising as one of the important factors in contemporary workplaces, which have been transformed by this technology into efficient environments where tasks are being done, decisions are made, and information processed. Recent studies revealed that a considerable number of workers make use of AI technologies in carrying out different kinds of work-related tasks. In spite of numerous benefits brought about by AI, such as increased efficiency and reduction of burdensome responsibilities for humans, there is a concern that the use of these technologies leads to certain changes in cognitive processes.

One of the emerging psychological concerns associated with AI usage is cognitive offloading, where individuals transfer mental effort to external systems. Although this behavior enables faster task completion, excessive reliance on AI may reduce cognitive engagement and independent thinking. This issue is particularly significant among Gen Z employees i.e current generation of who are digitally naties and have been exposed to advanced technologies from an early age. Their habitual use of AI tools for problem-solving and decision-making may lead to reduced persistence, shallow thinking, and a growing tendency toward mental laziness. In organizational contexts, such patterns can negatively impact creativity, innovation, and long-term skill development.

It is discovered from previous works done by cognitive psychologists that people make use of external information more easily when available, leading to changes in their memories and learning patterns. Research on technology dependency has shown that the use of technology can help conserve cognitive energy without affecting task completion. Similarly, studies done on AI-assisted work environments have highlighted that although AI makes for increased productivity, it could demotivate workers to put forth cognitive efforts. Most of such research is experimental and involves student samples rather than professionals.

Objectives & Structure

1. To assess the extent to which Gen Z employees rely on AI tools and how this impacts their analytical and critical thinking abilities and whether it leads to mental laziness.
2. To study and understand HR strategies that balance AI usage with active thinking and continuous learning among Gen Z employees.

Research Question

Is there any correlation or relationship between use of ai tools and cognitive offloading and mental laziness among Gen Z employees?

Literature Review

Concept of Cognitive Offloading

Cognitive offloading means the practice of using external tools or resources to decrease required mental efforts required for performing cognitive tasks. With the rise of digital technologies, particularly Artificial Intelligence (AI), individuals increasingly rely on external systems for memory, problem-solving, and decision-making.

The concept gained prominence through the study by Betsy Sparrow, Jenny Liu, and Daniel Wegner (2011), who introduced the "Google Effect." Their research demonstrated that individuals tend to remember the location of information rather than the information itself when they expect easy digital access. This finding highlighted a fundamental shift in human memory processes due to technological reliance.

Further expanding this idea, Evan F. Risko and Sam J. Gilbert (2016) explained cognitive offloading as a strategic behavior driven by cost-benefit analysis, where individuals prefer external aids to conserve mental effort. Their work emphasized that while offloading improves efficiency, it may reduce cognitive engagement over time.

Cognitive Offloading in the Digital and AI Era

With the emergence of AI-powered tools, cognitive offloading has evolved from simple memory aids to advanced decision-support systems. AI applications now assist in writing, analysis, communication, and even creative thinking, making them central to modern work environments.

A systematic review by Pandey et al. 2023 showed that digital dependency has significantly increased in the last decade, with individuals increasingly outsourcing cognitive processes to technology. The study found that frequent reliance on digital tools alters thinking patterns and reduces deep cognitive processing.

Similarly, a meta-analysis published in *Frontiers in Psychology* (2024) found a strong association between internet usage and changes in memory retention and attention span. The research suggested that individuals who frequently rely on digital tools tend to exhibit reduced cognitive persistence and shallow information processing.

Recent experimental research by Chen et al. (2025) examined human interaction with generative AI tools and found that while performance improved, cognitive effort decreased significantly. This indicates that AI enhances output quality but may simultaneously reduce mental engagement.

Cognitive Consequences: Effort, Memory, and Attention

A major concern in the literature is the trade-off between efficiency and cognitive effort. While cognitive offloading allows individuals to complete tasks faster, it may negatively impact memory retention and problem-solving skills.

Research by Meyerhoff et al. (2021) demonstrated that individuals differ in their tendency to offload cognitive tasks, influenced by various factors like working memory capacity and metacognitive beliefs. The study emphasized that excessive reliance on external tools can reduce opportunities for cognitive practice, leading to long-term skill decline.

Additionally, studies on attention span shows that regular interaction with digital tools reduces the ability to focus on complex tasks. According to Wilmer, Sherman, and Chein (2017), heavy technology usage is linked with decreased attentional control and increased distractibility.

These findings support the argument that cognitive offloading, while beneficial in the short term, may contribute to reduced cognitive stamina and engagement.

AI Usage and Cognitive Behavior Among Gen Z

Gen Z, often referred to as digital natives, represents the first generation to grow up with constant exposure to advanced technologies. Their familiarity with AI tools makes them highly efficient but also more prone to cognitive dependency.

According to the Deloitte Global Gen Z and Millennial Survey (2024), a significant proportion of Gen Z employees rely on AI tools for routine workplace decisions. The report highlights both the adaptability of this generation and the risk of over-dependence on technology.

Similarly, The Society for Human Resource Management (2023) report emphasizes that excessive AI reliance may weaken problem-solving skills and reduce independent thinking among employees.

The PwC Future of Work Report (2024) also suggests that while AI improves efficiency, it may limit experiential learning and critical thinking development if not used mindfully.

Mental Laziness as a Psychological Outcome

Mental laziness refers to a reduced willingness to engage in effortful cognitive activities, often resulting in avoidance of critical thinking and problem-solving. It is closely linked to cognitive offloading, as individuals increasingly depend on external tools instead of internal cognitive processes.

Research shows that when individuals repeatedly rely on technology for task completion, they develop habitual patterns of minimal effort thinking. Gerlich (2025) argues that AI dependency can lead to passive cognitive behavior, where users accept AI-generated outputs without critical evaluation.

Furthermore, studies suggest that reduced cognitive effort is associated with lower creativity, decreased motivation, and diminished learning capacity. This is particularly relevant in workplace settings where innovation and independent thinking are essential.

Research Gap

Increasing attention has been shown to the adoption of AI by scholars and practitioners alike, the relationship between cognitive offloading and the psychological consequences for Gen Z workers is under-researched empirically. Research in this area frequently investigates only either the adoption aspect or the cognitive one but does not combine these two perspectives together. Furthermore, the phenomenon of mental laziness resulting from such use of AI technology has not been verified in the organizational context yet.

Summary of Literature Review

The literature establishes that cognitive offloading is a widespread phenomenon in the digital age, significantly influenced by AI advancements. While it enhances efficiency and task performance, it also reduces cognitive effort, attention span, and independent thinking.

Existing studies highlight the psychological and behavioral implications of technology dependence but lack focused research on Gen Z employees in professional environments. This research addresses this gap by examining how AI-driven cognitive offloading contributes to mental laziness and reduced cognitive engagement in the workplace.

Research Methodology

Research Philosophy

This research follows a positivist research philosophy which focus on objective measurement and detailed analysis of relationships between mentioned variables.

Research Approach

This study or research, A deductive approach is used.. Previous theories on cognitive offloading are used to develop main hypotheses, which tested using empirical data.

Research Design

- The descriptive research along with analytical design were used by me
- The aims is to describe AI usage patterns and analyze their effect on cognitive behavior among Gen Z employees.

Type of Data

- Primary data is major source
- Supporting details and insights are taken from secondary sources such as journals and reports.

Data Collection Method

- Survey method was used to collect the data data with structured questionnaire
- Google form was used to distribute questionnaire.
- A 5-point scale used to measure responses which included Strongly Disagree to Strongly Agree.

Population and Sample

- Target Population: Gen Z employees (mainly 18–30 years)
- Convenience sampling
- Total sample size is103 respondents
- The sample shows or represents people from various educational and professional backgrounds.

Research Instrument

The questionnaire consisted of three sections:

- Demographic details
- AI usage patterns
- Cognitive impact (effort, attention, decision-making, mental laziness)

Questions were designed based on existing literature on cognitive offloading and AI usage. A pilot understanding (informal testing) was conducted to ensure clarity.

Data Analysis Tools

Data was analyzed using:

- Descriptive statistics (percentages, frequency distribution)
- Also used Cross-tabulation analysis

For analysis MS Excel was used.

Hypothesis Testing

- H_0 (Null Hypothesis): There is no relationship between AI usage (cognitive offloading) and mental laziness among Gen Z employees.
- H_1 (Alternative Hypothesis): There is a relationship between AI usage (cognitive offloading) and mental laziness among Gen Z employees.

Data Analysis & Results

Introduction

This section presents the analysis of data collected from 103 Gen Z respondents through a structured questionnaire. The analysis focuses on demographic characteristics, AI usage patterns, and indicators of cognitive offloading and mental laziness.

Demographic Profile of Respondents:

Table 1: Distribution of Age

Age Group	Frequency	Percentage
18–25	88	85.44%
26–30	8	7.77%
30+	7	6.80%
Total	103	100%

The majority of respondents belong to the 18–25 age group.

Table 2: Gender Distribution

Gender	Frequency	Percentage
Female	64	62.14%
Male	37	35.92%
Prefer not to say	2	1.94%
Total	103	100%

AI Awareness and Usage

Table 3: Awareness of AI Tools

Response	Percentage
Yes	71.84%
Learning	17.48%
No	2.91%
Others	7.77%

Table 4: Frequency of AI Usage

Usage Level	Percentage
Often	46.60%
Sometimes	30.10%
Always	18.45%
Rarely	3.88%
Never	0.97%

Cognitive Offloading Indicators

Table 5: Time Spent Before Using AI

Time (Minutes)	Percentage
0–2	17.48%
3–5	37.86%

6–10	20.39%
10+	24.27%

Indicators of Mental Laziness

Table 7: Reduction in Mental Effort

Response	**Percentage**
Somewhat less effort	67.96%
Much less effort	16.50%
Same	11.65%
More effort	3.88%

Table 8: Impact on Attention Span

Response	**Percentage**
Decreased	57.28%
Same	33.01%
Increased	9.71%

Table 10: Perceived Mental Laziness

Response	**Percentage**
Agree	46.60%
Strongly Agree	18.45%
Neutral	23.30%
Disagree	9.71%
Strongly Disagree	1.94%

Confidence Without AI

Table 11: Confidence in Completing Tasks Without AI

Response	**Percentage**
Confident	36.89%
Not confident	9.71%
Not sure	37.86%
Can't say	15.53%

Hypothesis Decision

Based on the observed patterns and majority responses:

- The Null Hypothesis (H_0) is rejected
- The Alternative Hypothesis (H_1) is accepted

The results demonstrate a significant relationship between AI usage and mental laziness among Gen Z employees. Increased reliance on AI tools leads to cognitive offloading, which reduces mental effort, attention span, and motivation for independent thinking.

Although AI enhances productivity and efficiency, excessive dependence may weaken critical cognitive abilities over time. This highlights the need for balanced AI usage and cognitive skill development in organizational settings.

Discussion

The present research aimed to find and know the relationship between cognitive offloading through AI usage and mental laziness among Gen Z employees. Findings provide strong empirical support for the argument that increased reliance on AI tools is associated with reduced cognitive engagement and effort. The results indicate that an important proportion of respondents frequently use AI tools, primarily for saving time and enhancing efficiency. This matches with prior research by Evan F. Risko and Sam J. Gilbert (2016), shows that individuals tend to offload cognitive tasks when external tools offer convenience and efficiency. The dominance of AI usage for tasks such as research, writing, and problem-solving in this study further confirms that cognitive offloading has become embedded in everyday work behavior.

Main finding of this report is the noticeable reduction in mental effort among respondents. More than 80% of participants reported experiencing lower effort levels when using AI. This supports experimental findings by Chen et al. (2025), who observed that while AI-assisted performance may improve outcomes, it simultaneously reduces cognitive effort. This indicates that AI functions not only as a productivity enhancer but also as an another for active thinking. A result was that most of the participants had a reduction in their attention spans after utilizing AI technologies. This corroborates the earlier results obtained by Wilmer et al. (2017), who linked heavy usage of technology with low attention control. Reduced attention spans in the current study suggest that constant use of instantaneous answers from AI could limit people’s capability to concentrate on intricate activities.

Another significant discovery is that there was a decrease in the participants' motivation to think creatively and generate ideas. Many of the participants were not motivated to think independently due to the availability of immediate solutions through AI. These results validate the position held by Gerlich (2025) regarding the development of passive thinking due to reliance on AI outputs. The most important outcome and findings of the study was that around 65% of people who filled form agreed that AI had occasionally made them mentally lazy. This confirmed the hypothesis posed by the study and illustrated the psychological implications of cognitive offloading to excess. While some people remained neutral about this assertion, almost none disagreed with it, showing that most Gen Z employees perceived the lack of cognitive effort associated with cognitive offloading.

In an interesting twist, despite their extensive use of AI, some respondents showed signs of mindfulness and self-control, such as consciously formulating prompt questions or trying to solve issues without resorting to AI assistance. It indicates that cognitive offloading is not always passive but can be conditional on attitudes and behavioral control. In terms of theory, this paper offers contributions in the expanding area by associating cognitive offloading with mental laziness. More importantly, the current paper expands the limited amount of existing literature in this regard through exploring real-world data involving employees, specifically Generation Z members.

From a practical point of view, the conclusion of this studty have various implications. While the use of AI is beneficial in increasing productivity, dependency on artificial intelligence can limit employees' capacity to think critically, be creative, and make decisions independently. It is necessary need for HR management to promote moderation when using AI technology. On balance, the results we got from this study are aligned with those found in the literature review. Specifically, this paper adds to the existing literature in highlighting the double-edged effect of artificial intelligence on employees' performance and cognition.

Conclusion

In this study, efforts were made to determine the correlation between cognitive offloading due to the use of AI and the occurrence of mental laziness amongst Gen Z employees. Considering the fast-changing nature of workplaces and technology in general, there arises a growing interest in the effects of AI on cognitive behavior. Results from the conducted research reveal that Gen Z workers tend to make heavy use of AI technologies, largely because of efficiency concerns. A number of participants noted having experienced a decline in their mental capacity, attentiveness, and motivational levels during the process of utilizing AI technologies. More importantly, it is found that many Gen Z employees have experienced mental laziness thanks to the use of AI. This paper provides various theoretical use and implication to literature on the subject matter, in which cognitive offloading and mental laziness are correlated in a real organizational context. This study adds to the literature by taking into account the experiences of Generation Z employees, who heavily rely on technology in their daily activities.

From an applied view, this research emphasizes the need of striking a balance between using AI technology to increase efficiency and protecting employees’ ability to think effectively. HR specialists may contribute greatly through developing activities like critical thinking seminars, rules for using AI systems, and courses aimed at fostering critical approaches to resolving problems. Nevertheless, the paper has several weaknesses. For example, convenience sampling and the small number of participants used may result in biased results since the generalizability of the findings is questionable. Besides, the research uses self-reporting and thus may face response bias. It also analyzes only one generation, namely Gen Z. Further studies in this regard may consider extending the scope of this experiment through sampling

large populations and using sophisticated methodologies like regression or structural equation modeling. Moreover, long-term research on the use of AI and its effect on cognitive behavior may prove to be insightful. Comparing different generations or industries might also give some valuable insights into how the impact of AI is evolving over time. In summary, even as AI becomes an indispensable tool for improving efficiency in the workplace, its overuse may slowly undermine cognitive engagement and induce mental lethargy.

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