# FROM THOUGHTFUL ANALYSIS TO DIGITAL DEPENDENCE: IMPACT OF AI CONTENT CREATION ON STUDENT COGNITIVE ABILITIES AND MENTAL HEALTH

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**Abstract** : The urge towards AI tools like ChatGPT has reinstalled educational practices; however, there are sobering concerns about how they affect student's cognitive abilities and mental health. Article Overview: This study investigates the impact of this growing dependency on content produced by AI tools, such as Chat GPT, on learning and problem-solving abilities, as well as emotional health. Two consequences of heavy internet and overuse of AI systems is what some are calling "brain rot"- a declining ability to think rigidly and critically, intellectual fog, and neural exhaustion. Along with "doomscrolling" and increased screen time, such effects highlight the dangers of shorter attention spans, impaired critical thinking skills and academic cheating. Based on a survey of students from multiple disciplines, the study explores how AI can both help make students more productive but also undermine their creativity and intrinsic motivation to learn as well as their ability to think independently. Incorporating AI technologies into the classroom can be useful, but it also carries very serious challenges and potential risks, which these findings highlight. Advocates must consider this when promoting reform through this technology in educational systems. That should work towards both cognitive development and mental health.

**Keywords** : Artificial intelligence, Content, Mental Health, Brain Rot, Addiction, Cognitive Ability
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## 1.0 Introduction

The widespread availability of mobile phones in society has led to significant concerns related to excessive usage and addiction. Artificial Intelligence (AI) technologies are progressing swiftly and becoming more interwoven into all our lives. A considerable advancement is ChatGPT, a conversational AI chatbot developed by OpenAI. ChatGPT, a highly advanced AI application, has attracted considerable global attention (Tilli et al., 2023). A survey found that 30% of college students used ChatGPT for assignments, while 46% reported frequent use of the application for their academic tasks (Intelligent.com, 2023). The findings indicated that over fifty per cent of the students are inclined to engage in academic dishonesty and may utilize ChatGPT to produce content for their submissions (Ventayen, 2023).

AI-generated content significantly impacts students' internal thought processes, self-talk, and emotional regulation, which are key aspects of intrapersonal communication. "Intrapersonal communication has at times fallen into including all mental entities and processes of the mind: dimensions of personality, such as introversion and extroversion; evaluations, such as liking and satisfaction; memory and its many and complex subsystems such as short-term memory and long term memory, recall, recognition and rote learning; emotions; cognitive processes such as pattern recognition, comparing, judging, retrieving, organizing, forming associations, searching, and paying attention" (Shedletsky, (2017)). This form of communication involves internal dialogues, reflections, and emotions that shape how individuals perceive themselves and the world around them. It plays a crucial role in developing emotional intelligence and critical thinking, particularly for students navigating the educational field (Kasrah et al., 2024).

However, the increasing reliance on technology and prolonged exposure to digital media complicates this

dynamic. Excessive use of mobile phones and social media can lead to "brain rot," characterized by cognitive deterioration, mental fog, and reduced learning and memory capabilities (Lapsley, 2024; Wang et al., 2019; Chertkow, 2008). Stress-induced mental fogginess (Almadhor et al., 2023) further exacerbates these effects, disrupting the self-reflection and emotional regulation essential for intrapersonal communication. This highlights the intertwined relationship between technology, mental health, and students' cognitive and emotional well-being.

For a long time, cognitive ability was regarded as the most significant factor that influences people's lives (Huang, Xie, & Xu, (2015). Cognitive ability in psychology is the skill of performing any cognitive process such as problem-solving, understanding, reasoning, learning (acquisition of knowledge), abstraction and connection (Flavell, (1999). The authors (George, (2024) argue that increasing dependence on technological shortcuts reduces the effort students invest in difficult cognitive tasks, resulting in a decline in their cognitive capabilities. This trend is particularly evident in independent thought, self-learning, and problem-solving, which appear to weaken when technological tools or other aids are not accessible. Additionally, the authors emphasize that creativity, like critical thinking, requires active engagement and consistent practice to flourish. Without regular use and development, these essential skills risk further erosion.

The escalating utilisation of ChatGPT has engendered a growing dependence on AI, culminating in instances of misuse and excessive reliance (Kasneci, et al. (2023), King, (2023). Students might depend longer on AI for quick answers instead of tackling problems on their self (Zhang, (2024). The capacity of the human brain to reason for itself may be severely limited by greater use and dependence on AI. As a result, people's cognitive capacities rapidly deteriorate, reducing their inherent intelligence and increasing their reliance on artificial systems (Ahmad (2023). According to the Lazy User Theory, people choose the option that would help them reach their objectives with the least amount of work (Pinto, et al. (2019). A key ethical concern surrounding AI in education is the worry that it might foster passive and laziness among students. This stems from the notion that heavy reliance on AI-powered tools or virtual assistants AI for tasks and information could make students passive learners, dependent on technology rather than actively participating in their own education. Such dependence may hamper the development of critical thinking, reduce motivation, and weaken their ability to learn independently (Sabharwal, (2023). AI is increasingly reducing our independent decision-making, replacing our choices with its own and encouraging laziness in different areas of life (Danaher, (2018).

Doom scrolling's ("Can't stop scrolling") dangers appear through visible symptoms such as anxiety and insomnia. "Define doomscrolling as obsessively consuming a stream of negative online content, fuelled by algorithms that promote controversial posts" (George, (2024).  Social media users are experiencing anxiety and stress from constant connectivity, often describing the habit of aimlessly "scrolling through nothing" (Lupinacci, (2021). It goes beyond simply spending too much time online, including compulsive checking for updates, experiencing anxiety when disconnected, and facing adverse effects on real-life relationships and responsibilities (Andreassen, et al., (2016).

To address this issue, we conducted a questionnaire survey among students from several academic departments to aim of this study is to find the impact of AI-generated content on students' cognitive abilities and mental health.

## Review of literature

The rising use of Artificial Intelligence (AI) tools in education, such as ChatGPT, has attracted significant study interest, particularly in terms of their impact on students' cognitive ability and mental health. Many people, particularly young adults and adolescents, spend plenty of time on social media platforms. AI is increasingly being employed in a range of scenarios, including professional environments, education and gaming (Akkas, et al. (2024). According to (Oravec, (2023) The widespread use of AI-generated chatbot content has made it easier to access materials for cheating and greatly contributed to academic dishonesty.

Various research has revealed that habitual social media users are more likely to experience anxiety, depression, and an overall decrease in life satisfaction (Amirthalingam & Khera, 2024). Fonia et al. (2016) previously discovered a detrimental relationship between students' mental health and dependence on the internet. Spending a longer period on social media was significantly associated with higher levels of dispositional anxiety (Vannucci, 2017). Using multiple social media platforms is independently linked to symptoms of depression and anxiety (Primack, 2017). While AI might improve learning and productivity, it can also cause fear and anxiety, particularly when students perceive a decline in their abilities (Chan & Tsi, 2024; Kim et al, 2023).

AI use may have detrimental consequences on memory retention, critical thinking abilities, and attention span (Savin, et al. (2024). Undergraduate students in the digital age have an extremely short attention span (Silapachote, Srisuphab, (2014). Dementia is recognized as a significant neurocognitive impairment characterised by a

deterioration in memory, problem-solving, language, and other advanced cognitive functions (Spiegel, (2011). The use of AI tools in academic environments has created a nuanced dynamic in which students may feel judged or ridiculed by their peers. The research highlights "fear of judgment" as a significant component contributing to AI-related guilt among students, indicating that mockery or negative impressions from peers may intensify feelings of moral unease with the utilization of AI tools in academic endeavours (Chan, (2024).

According to (Abd Rahman (2023) the adverse impacts of AI in this educational setting encompass personal alienation, insufficient personalization, the spread of erroneous information, privacy and security issues, heightened screen time, and excessive dependence on technology. As AI becomes more involved in each task, such as organizing and planning, it will eventually deprive the human brain of consideration and mental effort. When physical or mental measures are required, a heavy dependence on AI leads to stress and a decline in professional skills (Gocen, & Aydemir, (2020). AI is reducing our independence, substituting its decisions for our own, and fostering laziness in different aspects of life (Danaher, 2018). Students are using AI to assist with homework, but they worry that relying on generative AI might impact their motivation, creativity, and critical thinking skills, and could even contribute to widespread academic dishonesty (Lo, (2023). Depend on technology is linked to various adverse effects, such as mental health issues, sleep disturbances, reduced task efficiency, physical discomfort, and interference with real-life relationships (Busch, & McCarthy, (2021).

### 2.0 Objective

- To quantify the effect of AI-generated content on mental health and cognitive ability among users.
- To evaluate how exposure to AI-generated content affects various demographic groups' cognitive and mental health.

### 3.0 Theoretical Framework

**3.1 Intrapersonal Communication:** Larry Barker and Gordon Wiseman developed one of the earliest definitions of "intrapersonal communication" in the industry. Intrapersonal communication is "the creating, functioning, and evaluating of symbolic processes which operate primarily within oneself" (Barker, & Wiseman, (1966). Intrapersonal communication refers to the internal conversation and psychological processes people use to understand themselves, which is essential for developing a self-concept. It entails self-reflection and personal assessment, influencing one's motives and achievements (Aulia, & Deni, (2022).

### 3.2 Framing Theory

The notion of framing was initially proposed by Gregory Bateson in 1972, who described psychological frames as a "temporary and spatial bounding of a set of interactive messages" (Bateson, 1972, p. 197). Frames can be used as cognitive shortcuts to connect stories to the larger picture or to improve comprehension. Framing theory describes how media shapes and presents issues to viewers, thereby altering their perception and understanding. It highlights how context and presentation influence how consumers understand and process information (Al-Obaidi, (2024).

### 4.0 Methodology

This study employed a survey methodology to explore the effect of AI Content on Student's Cognitive Abilities and Mental Health. The researchers designed a questionnaire using Google Forms, facilitating structured questions for data collection. The survey included multiple-choice questions that allowed respondents to provide clear, quantifiable answers, making it easier to analyze trends and patterns across the dataset.

A Likert scale was applied to capture nuanced responses, enabling the assessment of varying levels of agreement or disagreement with the given statements. A five-point Likert scale was specifically selected to ensure a broader range of attitudes could be represented, offering respondents ample options to convey their views accurately (Martins, Shahzad, et al. (2023).

The questionnaire focused on several key aspects: Cognitive Consequences of AI: The Effects on Critical Thinking, Memory and Attention Span. Decoding AI usage and mental health: Exploring Anxiety, Stress and the Curse of "Brain Rot" Due to Reliance on Artificial Intelligence. Broader Issues in Behaviour: Academic dishonesty and diminished incentive to work due to reliance on AI.

### 5.0 Analysis and Results

**5.1 Demographic Analysis :**This study sought to investigate the effects of AI content addiction on students' mental health and cognitive capacities. Data was analyzed using IBM SPSS Statistics. The research utilized a

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random sampling technique, collecting data from 100 students. The demographic profile of the respondents offers a detailed perspective on the study's target population. Shahzad, et al. (2024). Among the participants, 33% (n = 33) were male, and 66% (n = 66) were female. Most respondents (40%) fell within the age group of 17–20 years. Regarding educational qualifications, 56% of participants were undergraduate students, 41% were postgraduate students, and 3% reported other academic backgrounds. A detailed breakdown of the demographic profile is provided in Table 1.

**Table 1. Respondent demographics (N=100)**

| Demographic and variable | Frequency |
|---|---|
| **Gender** | |
| Male | 33 |
| Female | 66 |
| **Age (year)** | |
| 17-20 | 40 |
| 20-23 | 30 |
| 24-26 | 19 |
| 27- Above | 11 |
| **Education** | |
| Undergraduate | 56 |
| Postgraduate | 41 |
| Others | 3 |
| **Academic Score (12th)** | |
| 50-60% | 9 |
| 60-70% | 16 |
| 70-80% | 32 |
| 80-90% | 28 |
| 90-100% | 15 |

Analyzing respondents' academic scores (12th grade) demonstrates a varied distribution across performance ranges. Out of the total sample (n=100), the highest representation is observed in the 70-80% range, comprising 32% (n=32) of participants. This is followed by 28% (n=28) of respondents scoring within the 80-90% range, indicating a strong presence of individuals in the upper-middle performance bracket. Approximately 16% of respondents fall within the 60-70% range, while 15% of students in the 90-100% range represent the top-performing group. The lowest category, 50-60%, accounts for 9% of the sample.

## 5.2 Descriptive Analysis

The descriptive analysis summarises participants' survey responses, highlighting major patterns and notable differences in their opinions. The dataset, comprising responses from 100 individuals, includes various questions about using AI tools in academic work, opinions on using AI-generated material, and the impact on mental health and cognitive abilities. A summary of the results for these questions is presented below:
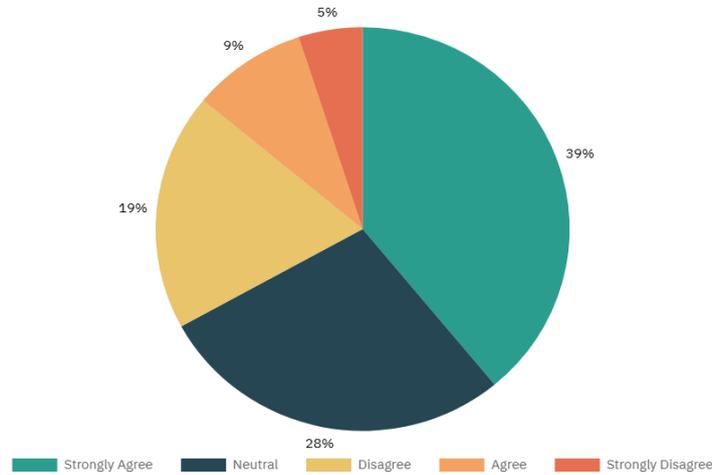


**Figure1. I often rely on AI tools (like chatbots or writing assistants) for completing my assignments.**

Figure 1 shows that participants were questioned regarding how much they depended on AI tools to finish their assignments. The majority of students rely on AI technologies, according to the data, with over 39% strongly agreeing and other participants agreeing. This shows that AI is becoming more and more integrated into academic workflows.  Surahman, & Wang, (2022) identified various types of academic dishonesty (AD) among students in online learning, including plagiarism, cheating, collusion, and the use of proxies or "jockeys." It highlighted that individual factor, such as a lack of motivation to learn, insufficient skills, and low awareness, along with situational factors like peer influence, course-related pressures, and easy access to information, were closely linked to academic dishonesty.
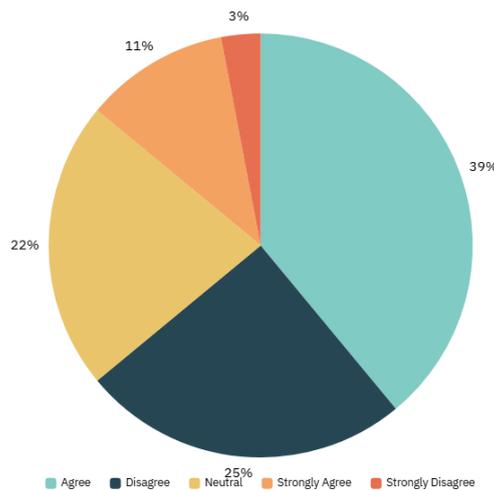


**Figure 2. Frequent use of AI tools negatively affects my ability to think creatively.**

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The chart shows responses to the statement: "Frequent use of AI tools negatively affects my ability to think creatively." Among 100 participants, 50% (39% Agree, 11% Strongly Agree) believe AI usage hampers cognitive ability, and 28% (Disagree + Strongly Disagree) do not see such an impact. Neutral: A significant number of respondents stated neutrality, indicating that they were indecisive or saw the impact of AI on their creativity as neither strongly positive nor negative.

According to Preiss, (2014), "the decline in cognitive abilities caused by the excessive use of digital technology is called "digital dementia." "The term *digital dementia* is that overindulgence on the internet and internet-enabled devices causes cognitive impairment such as reduced attention and decreased memory span and can even expedite early-onset dementia" (Baek, & Park, (2013).
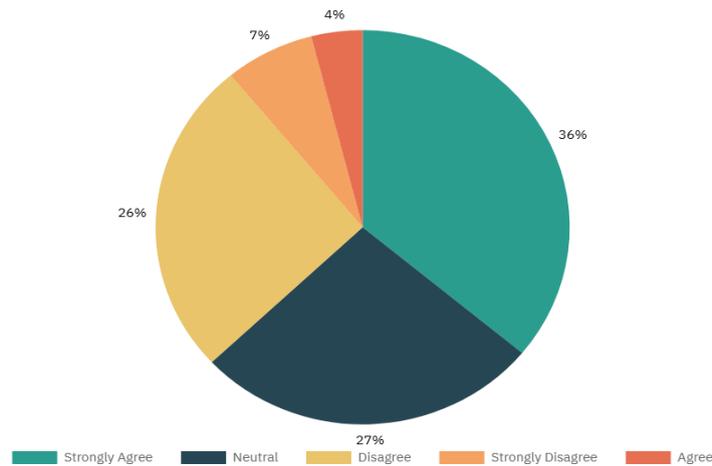


**Figure 3. I often feel distracted by AI tools when trying to focus on my studies.**

The chart shows responses to the statement, "I often feel distracted by AI tools when trying to focus on my studies." Among 100 participants, 40% (36% Agree,4% Strongly Agree) feel distracted when trying to study by AI tools. Meanwhile, 34% (27% disagree, 7% strongly disagree) oppose this viewpoint. The remaining 26% are neutral, indicating mixed feelings about AI tools as a source of distraction. According to the respondent, they are easily distracted by artificial intelligence and cannot focus on their studies because they are addicted to it.

According to research, depending too much on AI algorithms can cause users to think more slowly and participate in less cognitive tasks, which can shorten their attention span (Zhang & Nauman, 2018). A prior study found a negative connection between self-control and a dependency on the internet (Mei, (2016).
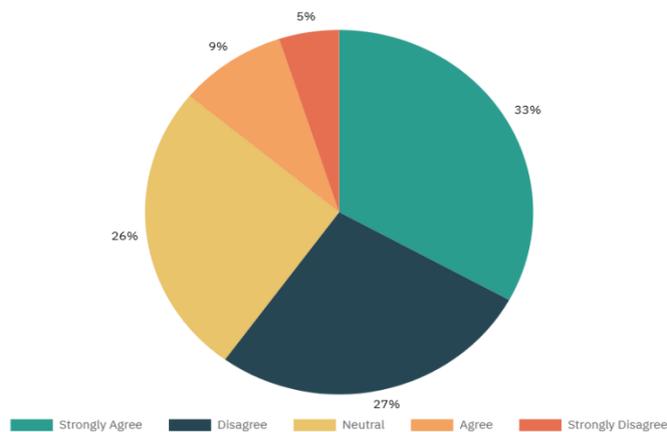
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**Figure 4. Relying on AI for academic tasks reduces my motivation to learn independently.**

The pie chart shows that 42% of participants believe AI dependence negatively affects their motivation for independent learning, while 31% disagree, and 27% remain neutral. The findings suggest that students may become lazier as a result of their dependence on AI. The study shows that relying on AI can lead to dependency, limiting students' knowledge, inventiveness, and self-sufficiency, ultimately lowering willingness to learn independently and encouraging laziness in academic activities. According to Calzada, (2024). "Lazy because the student will become dependent to AI tools and they will not use their skills and abilities to do the requirements."
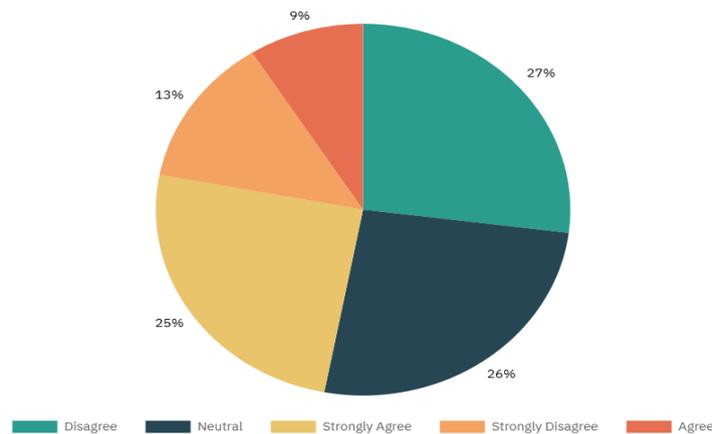


**Figure 5. I spend more time interacting with AI tools compared to traditional learning methods (books, lectures, etc.).**

The answers to the question "I spend more time interacting with AI tools compared to traditional learning methods (books, lectures, etc.)" show that the 100 participants had a range of viewpoints. 40% (27% Disagree, 13% Strongly Disagree) still place a higher priority on conventional learning techniques, despite 39% (25% Agree, 9% Strongly Agree) reporting using AI tools more frequently. Although these results point to a move toward AI tools, they also raise questions about the overuse of AI, which may lead to "brain rot"—a possible deterioration in cognitive abilities brought on by a lack of critical thinking skills and an excessive dependence on technology. "The Oxford Word of the Year for 2024 is "brain rot" describe both the cause and effect of this, referring to low-quality, low-value content found on social media and the internet, as well as the subsequent negative impact that consuming this type of content is perceived to have on an individual or society" (Heaton, (2024).
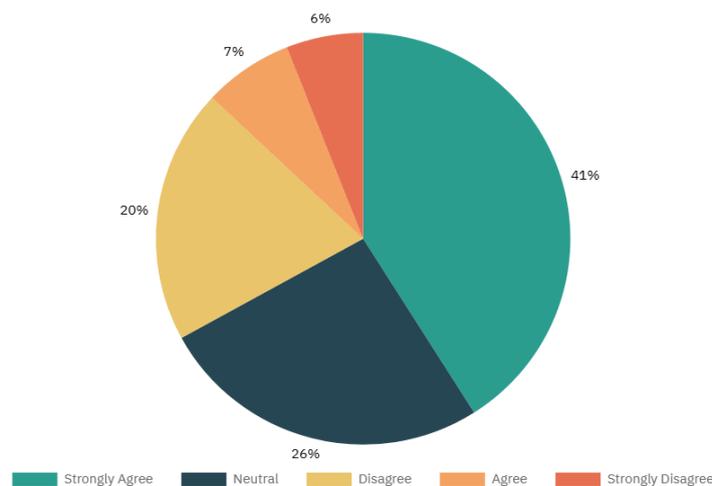


**Figure 6. Using AI-generated content leads to a decline in my problem-solving skills.**

The responses to the statement "Using AI-generated content leads to a decline in my problem-solving skills" show that 48% (41% Agree, 7% Strongly Agree) believe AI tools limit their ability to solve problems independently. Meanwhile, 26% stay indifferent, while 26% (20% Disagree, 6% Strongly Disagree) disagree, implying no such effect. In addition to impairing problem-solving abilities, an over-reliance on AI may make students feel less confident in their cognitive abilities, which may lead to elevated depression and anxiety. Overreliance on AI according to (Çela, M. & Potluri, (2024) impedes the cultivation of autonomous problem-solving skills. A study of adolescents by the Office of the Surgeon General. (2023) aged 12 to 15 discovered that those who spent greater than three hours per day on social media had "double the risk of experiencing poor mental health outcomes, including symptoms of depression and anxiety."

## 6.0 Conclusion

In the digital age, the growth of Artificial Intelligence is increasing day by day. Nowadays, its use is growing rapidly. In recent years, technical advances have occurred in the modern world. (Lebni, Toghroli, et al. (2020). AI is a super-smart technology that generates text, images, movies, and sounds depending on the information you input. Popular systems such as ChatGPT, Gemini AI, Bard, Bing AI, and Microsoft Copilot use learning algorithms to interpret your input and respond appropriately. However, AI does not generate wholly fresh ideas; rather, it operates by applying and mixing what it has already learnt.

While artificial intelligence content makes life easier for students, its excessive use is not good for their health. AI content addiction among students is a growing concern with far-reaching effects on mental health (anxiety, depression, brain rot, attention Span etc.), cognitive ability, and academic performance. Students are using AI in academics to complete assignments, sometimes resorting to cheating. This overreliance on AI can negatively affect students' mental health and cognitive abilities. The findings reveal that a notable number of students increasingly rely on artificial intelligence to complete their assignments, which raises concerns about academic dishonesty. The results show that growing dependence on AI-generated content among students.

Furthermore, the study concludes that exclusive reliance on artificial intelligence content contributes to students' laziness, fostering an over-dependence on AI-generated material and failure to think independently, As the saying goes, "The Internet makes your brain lazy" (Messier (2024). the addiction to AI technology and social media leads to a lack of focus on studies. Students are easily distracted by AI, which contributes to a decrease in their attention span. The growth of internet usage has led students to shift away from traditional methods, such as using books, lectures, etc towards relying more on AI technology. This shift has raised concerns, with some arguing that AI technology is contributing to "brain rot" by diminishing critical thinking and cognitive abilities. Using AI-generated content leads to a decline in students' problem-solving skills. This over-reliance on AI can stymie the development of crucial cognitive talents, making it more difficult to solve problems without external help.

## 7.0 Limitation

The survey was conducted with only 100 students. A greater sample size could produce more complete findings.

The researcher focuses exclusively on the negative effects of AI-generated content, leaving out any positive elements or a more balanced assessment of AI's role in academic and mental health.

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