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Investigating the impacts of Heavy Reliance on AI on Students' Critical Thinking and Originality: A Qualitative Study of Students' Perceptions

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Abstract

This qualitative study explores students' perceptions of Artificial Intelligence (AI) in the educational process, focusing particularly on its influence on their creativity and originality due to overreliance. As AI technology becomes increasingly integrated into educational landscapes, it is crucial to understand its impacts on students' creative engagement and originality of work for skilled and effective educational practices. The research employed semi-structured interviews, conducted at Government College University (GCUF), with ten undergraduate students who were conveniently selected to be sampled. The data were analyzed by thematic method to meet the research questions. The findings show that while students find AI helpful for managing workload and improving efficiency, they are also concerned that it reduces cognitive effort and hinders creativity. Dependence on AI is driven by academic pressure, deadlines, peer influence, and easy access to quality work. Although most students are aware of the risks, few have clear strategies to preserve originality. The study concludes by recommending the integration of AI literacy programs, the redesign of assessments to encourage critical thinking, and the fostering of academic environments that prioritize creativity and originality. Although the study's generalizability is limited by its small sample size and single-institution scope, it highlights the urgent need to balance technological assistance with students' intellectual and cognitive development.

Keywords: Artificial intelligence (AI), Creativity, Originality, Impacts of AI dependency

Introduction

In recent years, digital singularity has begun, and artificial intelligence has swiftly remodeled and closely influenced every aspect of human life, reshaping the way we work, learn, feel, interact and how we behave. This technological explosion and intelligent augmentation have revolutionized industries and business, medical and healthcare, education, social sciences and humanities, entertainment and media, transportation, and beyond. Among these fields, education has witnessed a significant transformation due to AI, recasting teaching methodologies, learning processes and techniques, and students' engagement (Luckin et al., 2016; Holmes et al., 2021).

AI-based chatbots such as ChatGPT, Deepseek, and Gemini have become widely used in academic contexts. They are effective at generating texts, simplifying complex material, assisting with assignments, and supporting research efforts. These tools offer quick access to vast amounts of

information, enhance understanding through simplified explanations, and encourage idea generation and critical reflection via interactive dialogue. As a result, they have become powerful academic aids. Surveys indicate that around 86% of students globally rely on AI for studying, with approximately 24% using it daily, and 66% regularly using tools like ChatGPT to explore new material (Digital Educational Council, 2024).

While AI tools enhance accessibility, openness, and efficiency in learning, their rapid integration has also raised substantial concerns among educators, researchers, and business leaders. One key issue is that excessive reliance on AI may threaten essential intellectual capacities such as creativity and originality—defined as the ability to come up with new ideas and produce unique, authentic work (Runco & Jaeger, 2012; Kaufman & Sternberg, 2010). These qualities are foundational to deep learning and critical thinking.

Qualitative investigations reveal that many students view AI as the "easy way out," acknowledging that its overuse can dull their creative thinking (Sublime & Renna, 2024). In a mixed-methods study conducted in a college creativity course, students brainstorming with and without ChatGPT-3 reported that while AI tools generated ideas that boosted divergent thinking, they also felt it undermined their creative confidence (Habib et al., 2024). This suggests that AI has the potential to support creativity, but it must be guided carefully to avoid diminishing students' effort and self-belief.

This phenomenon is often linked to "cognitive offloading"—the tendency to let tools perform mental tasks we would otherwise do ourselves (Risko & Gilbert, 2016). While AI can personalize instruction, identify weaknesses, and give real-time feedback (Holmes, Bialik, & Fadel, 2021), over-reliance on it may reduce students' involvement in brainstorming, analysis, and independent thought. Over time, this could diminish originality and depth of thinking, and even lead to learned helplessness—a belief that one cannot succeed without external aid (Seligman, 1975). This loss of self-efficacy can suppress intrinsic motivation and the inner drive for creative engagement (Ryan & Deci, 2000).

Educators are increasingly concerned about academic integrity and the authenticity of student work. Many feel that AI threatens the development of critical and original thinking skills (Kumar & Rose, 2023), and note the rise of ethically ambiguous behavior such as submitting AI-generated content as personal work (Cotton, Cotton, & Shipway, 2023). Furthermore, AI's role in promoting a 'copy-paste culture' risks undermining meaningful learning and intellectual development.

However, AI and creativity aren't always in opposition to one another. Some scholars argue that, when used actively and thoughtfully, AI can enhance creativity by suggesting new ideas, helping to refine content, and offering alternative perspectives (Lee et al., 2022). The key distinction lies in how students use the tool—whether as a collaborator in creative thinking or a substitute for it (Davis, 2024). Students who engage with AI as a partner in the creative process can find it helpful rather than detrimental.

This study seeks to fill the knowledge gap by examining how AI influences students' creativity and originality and exploring how students view their use of AI-powered chatbots. The research objectives also cover the factors that contribute to students' heavy dependence on AI tools and the strategies that students employ to conserve their creativity and originality in academic work. To achieve these aims, the research utilizes a qualitative approach, using face-to-face interviews with students across different academic fields to obtain in-depth information, which is a widely accepted method for exploring lived experiences (Creswell & Poth, 2018). The limitations could be subjective biasedness and interpretations and social desirability in responses from participants, which are common concerns in self-report and interview-based studies (Grimm, 2010).

Research Objectives

- To explore the students' perception of AI's role in shaping their critical thinking and originality.
- To identify the factors that contribute to students' over-reliance on AI tools for academic tasks.
- To analyze how students differentiate between AI-generated content and their own original work.

- To investigate the strategies students, use to maintain their independence and critical thinking in academic work.
- To propose recommendations for balancing the use of AI tools with the preservation of students' cognitive skills.

Research Questions

1. How do students perceive the influence of AI tools on their creativity and originality in academic work?
2. What factors contribute to students' dependence on AI tools for completing academic tasks?
3. How do students differentiate between using Ai chatbots as learning tools and over relying on it?
4. Are students aware of the potential risks associated with heavy reliance on AI in academic settings?
5. What strategies do students employ to maintain their critical thinking and originality while using AI tools?

Methodology

Research Design

We employed a qualitative research method to answer the research questions. This approach involved conducting face-to-face interviews with participants. Through this method, we gained comprehensive insights into students' perceptions of dependence on AI and their attitudes toward the potential risks it poses to their creativity and originality in academia. The model also allowed us to ascertain the factors contributing to students' overdependence on AI tools in academic settings.

Research Participants

This research paper aims to gather information from students who have a high extent of AI usage in academia and are enrolled in different disciplines at Government Collage University in Pakistan. The participants were selected strategically, taking into account their direct experience with AI tools, accessibility, and their consent to participate in the study voluntarily. A total of ten students were selected through a convivence sampling technique to conduct interviews with them. The initials P1 to P10 were assigned to each participant's interview in order to maintain their credibility and anonymity. To ensure the ethical implications of the research were met, all participants were provided with basic instructions regarding the research purpose, and consent forms were signed before participation. Ethical approval for conducting this study was also obtained from the relevant academic authority.

Inclusion/Exclusion Criteria

Students from any academic discipline who reported a high level of AI usage in their academic activities were included in the study, while those who did not use AI were excluded.

Instrument

The semi-structured interviews were conducted as a tool to collect data and insights, including open-ended questions designed according to the research objectives and themes. The semi-structured format allowed flexible responses and deeper perspectives on the topic. This format was a good fit for the qualitative research method, as it helped explore students' perspectives and their attitudes toward heavy reliance on AI tools in academic settings.

Data Collection Procedure

After thoughtfully crafting the interview protocol, this study concentrated on primary areas: impacts of AI tools on students' critical thinking and originality, their perceptions and attitude toward AI tools and the factors which make students more dependent on them. During the interviews, the researcher managed the entire process by coordinating each participant's involvement. The interview was set during the academic hours of the day that would conveniently work for all the participants involved.

Before the interviews, participants were briefed comprehensively about the purposes of the study, the conduct of the interview, and measures put in place to make data confidential and their personal information secure. Through our clear communication of this information, we maintained informed consent as well as the ethical rights of the participants such as the right to withdraw from the study at any time at no cost.

The interview process started with a series of open-ended questions to obtain the students' opinion on the AI tools and their perception of the potential issues of AI in the academia. This approach allowed us to have a deeper sense of their perceptions of the perceived impacts of AI usage in educational settings. All interviews were audio recorded on phone with consent of the participants and notes were taken to record key information. We then transcribed each interview carefully after conducting the interviews to ensure that we captured everything and the information will be reliable for our subsequent analysis. All interview materials were securely stored to protect the confidentiality of the information and to ensure effective management for the subsequent analysis and reporting phases.

Data Analysis

We analyzed the qualitative data by applying the thematic method. This method involves five systematic stages to evaluate the themes and patterns in the data. In the first step, the data was read and re-read to get broad and high-level views of the data. In the second step, the codes were initialed by highlighting and labelling the notable and key parts of the data. In the third and fourth steps, the codes were organized into broader themes and reviewed, respectively. In the last step, the themes were clearly defined and given names. This approach helped organize our analysis clearly, making it much easier to answer our research questions.

Findings

Students' Perception of AI Influence on Creativity and Originality (RQ:1)

Following the research finding, the Participants agreed that AI is now important in academia, especially due to growing age of artificial intelligence (AI). At the same time, they expressed concerns that overreliance on AI could harm their creativity and originality. P3, P6, and P7, for example, clearly highlighted the threats that AI poses to creativity and originality in academic settings. P3 explained the negative impact of over-relying on AI by contrasting her current dependence on AI tools with how she used to work independently before their use. Similarly, P6 shared that AI tools have hindered her thinking process and her ability to generate original ideas. P7 also critically pointed out that excessive use of AI can lead to mental dependency and a noticeable decline in creativity. The following are excerpts from the responses of interviewees with the initials P3, P6 and P7;

P3: "Yes, AI is negatively impacting creativity because instead of working on our own, we just pass commands to the AI, and it provides data to us. This is actually a side effect. Before AI, I used to write assignments and reports independently, but now I seek help from AI dependently…."

P6: "When it comes to the negative effects of AI, then obviously, it is lowering creativity and originality. Let's suppose there is a mathematical question — I used to practice it myself, and if I didn't know the solution, I would search in the books. But now, AI tools provide direct, concise answers, leaving no space for practice…."

P7: "Using AI chatbots has increased my vocabulary and grammar to some extent, but has also made my mind indigent, vanishing creativity…"

Two participants (P5), however, expressed that AI actually increases creativity.

P5: "I don't think using AI fades away our creativity. It rather enhances creativity by adhering us to the modern pursuit of knowledge…"

P1: "I think AI is helpful in increasing creativity…."

Factors contributing to students' dependence on AI tools (RQ:2)

The study identified several key factors contributing to students' increasing reliance on AI tools in

academic settings**.** The fact that academic workload includes many assignments, tests, and projects makes many students rely on AI to manage their time and reduce cognitive effort. Meeting strict deadlines usually means that students choose to focus on doing tasks efficiently instead of analyzing them independently. Social influence also emerged as a significant contributor, as began using AI after seeing their peers have positive outcomes with it. Additionally, many students also use AI because they believe it saves time and requires less effort, which makes it easier than other approaches. Following are some excerpts from the interviewers' responses;

P2: "When I see my classmates using AI to get new ideas, I feel motivated to use it too."

P4: "When we get deadlines from the teacher, we don't focus on understanding the logic, we just want to get the work done as quickly as possible."

P8: "I think deadlines, unfamiliar topics, and heavy workload make us overly reliant on AI."

AI as a Learning Tool and Over Reliance on It (RQ:3)

The study helps us understand how students differentiate between use of AI for learning and overreliance on it. It shows that some students use it in a healthy and controlled way, following certain rules like teacher instructions and ethical considerations. But others use AI in an unhealthy way and don't have their own guidelines or limits. Such students also don't recognize their own overreliance on AI technology which can be alarming. Below are selected excerpts from the interviewers' responses;

P4: "Due to AI, I never really get chance to work on my own. I have no such rules or personal guidelines about when to use AI and when to not."

P6: "I have not yet thought of such rules or a framework…."

P10: "Use of AI is not prohibited, but one must care about the ethical concerns it involves, and one must have rules to follow."

AI Risk Awareness Among Students (RQ:4)

The findings show the significant level of awareness among the students about dangers and negative consequences associated with excessive reliance on AI for academic tasks. A prominent theme that popped up was the decline in self-thinking, creativity, and independence. Students participating in the study said they felt that depending so much on AI is making it harder for them to generate original ideas.

Another key concern was the decrease in meaningful learning and academic effort. Participants observed that the use of AI reduces the need to engage deeply with challenging concepts, which in turn promotes dependency and diminishes cognitive growth. Students mentioned that this trend encourages laziness, tiredness and less desire to make efforts, as the need to actively participate in academic tasks is weakened.

AI use was further linked to a decline in writing skills. With AI generating text quickly and efficiently, students reported feeling less motivated to write independently, resulting in reduced practice and weaker written expression. This trend was accompanied by a broader concern about becoming mentally dependent, to the point of struggling to function academically without AI assistance. Below are selected excerpts from the interviewers' responses;

P1: "We can lose our independence and our ability to think by using AI. Our own skills may also diminish, which is harmful to us"

P4: "AI is making us mentally lazy and unfocused. It can also harm our practical skills in the future."

P6: "These tools reduce our creativity, lessen our effort to search on our own, and also affect our writing skills. It can be said that they are making our minds passive."

P8: "AI affects our mental functioning and creativity, and it can make us addicted."

Strategies for Maintaining Critical Thinking and Originality (RQ:5)

Participants showed mixed approaches to maintaining critical thinking while using AI tools. A few, like P1 and P5, reported trying to work independently first before turning to AI, aiming to preserve

originality. P7 mentioned using AI only for ideas and then developing content independently, while P8 said their reliance on AI depended on workload. In contrast, P2, P3, and P4 admitted to having no specific strategies or habits to maintain critical thinking, indicating a more passive use of AI. When asked about fact-checking, only three participants mentioned verifying AI-generated content using Google, YouTube, or books. Most did not re-check or refine AI outputs, suggesting limited engagement in critical evaluation.

These findings reveal that while some students consciously try to balance AI use with independent thinking, many rely heavily on AI without clear strategies, especially under academic pressure. Following are some selected extracts from the responses of participants:

P1: "First, I study the respective topic by myself and then get help from AI. I also relate the generated content to books or recheck it on Google."

P5: "I first try to solve the task assigned by the teacher independently. If it's hard to solve, then I get help from AI. Once the task is completed, I check it using various sources because I believe AI is not 100 percent accurate."

P8: "Yes, if the teacher says not to use AI, then I don't. Also, if the workload is manageable, I complete it on my own. I confirm the content by asking for reference or source."

P3: "There is nothing like that. I have no strategies or habits for maintaining creativity."

Discussion

Research results found that students are aware of AI's increasing role in education and support the main trends outlined by Luckin et al. (2016) and Holmes et al. (2021). Even with this recognition, a number of participants highlighted that too much use of AI could hinder their originality and imagination. The lack of creative and critical thinking seen in this study is noted by Sublime and Renna (2024) and Kumar and Rose (2023). Several participants described how their daily use of AI has led to cognitive offloading, a phenomenon discussed by Risko and Gilbert (2016), where mental tasks are devolved to technology, potentially limiting the ability to engage in profound cognitive processing and innovative idea generation (Runco & Jaeger, 2012). However, a minority view, consistent with Lee et al. (2022) and Davis (2024), suggested that AI, when used thoughtfully, can support creativity by providing new perspectives and ideas, illustrating that the impact of AI depends significantly on how students interact with these tools.

The data pointed out several factors why students depend on AI, revealed by the data, including heavy academic workloads, rigorous deadlines, less efforts in finding relevant information, producing quality of work in less time and peer pressure. These results align with research by Cotton, Cotton, and Shipway (2023), which emphasizes that time pressure often leads students to seek shortcuts through AI rather than engaging deeply with content. The influence of peers adopting AI tools also points to the social dimensions of technology adoption noted by the Digital Educational Council (2024). This trend toward dependency threatens academic integrity, students' capability of generating novel ideas and independent thinking, as Holmes, Bialik, and Fadel (2021) have cautioned.

Furthermore, participants signify remarkable awareness of the risks associated with excessive AI use, reporting declines in independent thinking, creativity, and writing skills. These concerns cast back theoretical perspectives on learned helplessness (Seligman, 1975) and reduced intrinsic motivation for creative engagement (Ryan & Deci, 2000). The curtailed practice of writing and critical analysis skills corroborate Kumar and Rose's (2023) warnings about the potential deterioration of essential academic capabilities, underscoring the urgency of addressing these challenges within educational settings.

The study also found that students use various strategies to maintain their creativity and originality when working with AI. Some participants said they deliberately limited their dependance on AI by first attempting to complete tasks on their own or using AI just for extracting ideas before doing deeper in details. This shows a level of self-awareness similar to the metacognitive practices described by Creswell and Poth (2018). On the other hand, some students acknowledged passive use of AI, without re-checking its generated content or thinking critically about it, which points to gaps in digital literacy and self-control. Those who use AI as a helping partner rather than a substitute for their own

thinking—were better at preserving originality. This supports the idea put forward by Davis (2024) and Lee et al. (2022) that the impact of AI in education depends greatly on how thoughtfully and actively it's used.

Overall, these findings highlight a complex and nuanced relationship between AI use and students' creative and cognitive processes, demonstrating both the potential benefits and risks inherent in integrating AI into academic work.

Recommendations

To ensure balanced use of AI tools in academic setting, the following recommendations are proposed based on the study's findings;

- Institutions should reduce academic workload and enact extended deadlines for work to allow students the time and space needed for deep thinking and independent work.
- Arrange workshops and seminars on responsible use of AI in academia and students' awareness about associated threats.
- Introduce AI literacy programs in academic institutions to teach students how to critically evaluate and verify AI-generated content.
- Encouraging students to think independently before consulting AI tools can help preserve originality and reduce mental dependency.
- Foster a culture in academic environment which welcomes originality and creativity over speed and perfection.
- Discuss psychological effects like learned helplessness and loss of intrinsic motivation that may result from continuous cognitive offloading to AI tools.
- Assessments and assignments should be designed to evaluate analytical thinking, problem-solving, and creativity — areas where overreliance on AI becomes more apparent. Tasks that require personal reflection, critical analysis, or hands-on application reduce the likelihood of students using AI passively.
- Teachers should also provide guidelines to students regarding the use of AI as a helpful learning tool and warn them about the dangers of overdependence on it.
- Address peer pressure by promoting individual progress, effort, and growth rather than competition or comparison.

Implementing these recommendations will help ensure that AI remains a supportive academic resource without compromising students' creativity, independence, or intellectual development.

Limitations

Results from this study can only be applied to small groups, since they are based on data from just ten participants, which limits the generalizability across extensive student populations. Furthermore, convenience sampling technique was employed to select the participants. Hence, bias may have resulted, as people were selected on the basis of easy accessibility rather than because they were part of the population. The qualitative nature of the study relies on subjective-reported data, which may be influenced by participants' mood, emotions, perceptions, memory, or willingness to unveil honestly. The study cannot be applied broadly, as it looks only at students at Government College University in Pakistan. Lastly, the lack of triangulation with other data sources may have influenced the interpretation of findings.

Conclusion

Artificial intelligence is swiftly transforming the educational domain like all other domains; understanding its influence on students' creativity and independent thinking is both felicitous and essential. This study focused on students' thoughts and perceptions about how AI impacts their creativity and originality in academia, along with the main factors that motivate students to over dependent on various AI tools. The findings exhibit that while students recognize the benefits of AI in managing academic tasks and meeting deadlines, many expressed concerns about its negative impact

on their independent thinking and creative abilities. Several participants reported feeling mentally dependent on AI, which limits their creative engagement and effort in academic work. However, a few students also viewed AI as a helpful tool when used thoughtfully and in a balanced manner. Even though the research brought valuable results, its impact is limited due to the small number of participants, the convenience sampling, and the fact that data came from just the students of one institution. Conceding these limitations, the study emphasizes the need to encourage students to adopt responsible and balanced integration of AI in academic work. Promoting self-regulated learning, offering AI literacy programs, and designing assessments that focus on creativity and critical thinking can help students benefit from AI without losing their originality and independence.

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