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SRUJANI: Indian Journal of Innovative Research and Development (SIJIRD)
Volume-5 Issue 2, May-June 2026, Pp. 109-118
Bi-Monthly, Peer-Reviewed, Open Access, Indexed Journal

I S S N: 2583-3510

SIRDF JOURNALS
editor@srujani.in
www.srujani.in

Empirical Study on Deep Reading vs. AI Summarisation: Special Reference to Post Graduate Students

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Abstract:

This study looks at the developing pedagogical conflict between the expanding academic dependence on AI-driven summarisation and deep reading, a cognitive process of immersive, critical interaction with text. Teachers are becoming increasingly concerned that pupils' use of generative AI to reduce complicated content into shorter formats is undermining the development of critical thinking skills and aggravating already short attention spans. The study shows that whereas AI summaries provide instant efficiency, they frequently avoid the creative struggle, which is essential for recognising complex arguments and synthesising unique ideas. This is demonstrated through a mixed-methods examination of instructor viewpoints and student understanding metrics. The results imply that a long-term change in literacy habits from deep, introspective processing to a shallow, speed-reading-based model of information consumption could result from a frequent dependence on these tools. In the end, the paper makes the case for a well-rounded teaching strategy that emphasises slow reading techniques and frames AI as a secondary tool for verification rather than a primary replacement for direct textual interaction.

Keywords: *AI, Reading Skill, Writing Skill, Critical Thinking Skill, Original Book Reading.*

Introduction

For centuries, the act of deep reading has served as the cornerstone of intellectual development and higher education. Unlike the biological imperative of speech, reading is a learned cognitive skill that requires the brain to

Please cite this article as: Shripad Kulkarni & Manjunath, J. (2026). Empirical Study on Deep Reading vs. AI Summarisation: Special Reference to Post Graduate Students. *SRUJANI: Indian Journal of Innovative Research and Development,* 5(2), 109–118

rewire itself, building complex circuits that connect visual perception to deep-tier analysis, empathy, and critical synthesis. Cognitive neuroscientist Maryanne Wolf describes this as the "reading brain, a mechanism that allows individuals to go beyond the information given to reach new insights. However, the emergence of Generative Artificial Intelligence and its sophisticated summarisation capabilities has introduced a profound "technological shortcut" that threatens to bypass this vital cognitive labour. The modern educational landscape is currently witnessing a transition from a linear reading model (focused on depth and sequence) to a digital skimming model (focused on speed and keyword extraction). While digital distraction has been a concern since the advent of the internet, AI-generated summarisation represents a significant qualitative shift. Tools like ChatGPT, Claude, and specialised research assistants can now distil a 50-page academic paper into five bullet points in seconds. This creates an "efficiency trap": while students can technically "process" more information than ever before, the depth of their comprehension and the long-term retention of that knowledge are increasingly being called into question. Educators are at the front lines of this shift, observing a phenomenon often termed "cognitive offloading." The concern is not merely about academic integrity or plagiarism, but about cognitive atrophy. If the "productive struggle" of deciphering complex prose is outsourced to an algorithm, the mental muscles required for critical thinking, such as identifying logical fallacies, recognising subtle subtext, and synthesising disparate ideas, may fail to develop. Furthermore, as students become accustomed to the immediate gratification of AI-generated insights, their attention spans for long-form, "slow" reading are visibly eroding, leading to a fragmented classroom experience.

Objectives and Methodology

This study seeks to investigate the extent of this pedagogical crisis. By gathering qualitative and quantitative data from educators across various disciplines, the research aims to:

- Quantify the perceived decline in student reading stamina and analytical depth.
- Categorise how AI summarisation is being used as a "crutch" versus a "scaffold."
- Evaluate the specific critical thinking markers that are most at risk in an AI-saturated environment.

This study employs a systematic approach involving a sample size of 45 participants selected from the Tumkur University Students, Tumkur District in Karnataka, India. Participants have been chosen based on stratified random sampling to ensure a balanced representation across different demographics and discipline backgrounds within each study area.

Literature Review

The tension between technological determinism and cognitive plasticity largely defines the scholarly discourse surrounding the impact of technology on the human intellect. This review synthesises key theories regarding the "reading brain," the phenomenon of "the shallows," and the psychological implications of automated synthesis.

Cognitive neuroscientist Maryanne Wolf (2018) provides the foundational argument for this study, noting that humans were never "born to read." Unlike language or vision, reading is a cultural invention that requires the brain to form new neural circuits. Wolf's research suggests that these circuits are plastic; they adapt to the medium through which we consume information.

Building on the neurological groundwork, Nicholas Carr (2010) explores the psychological and behavioural consequences of digital immersion. In *The Shallows: What the Internet Is Doing to Our Brains*, Carr argues that the internet is a medium designed for distraction and rapid-fire consumption.

Contemporary educational theorists (e.g., Vygotsky's Zone of Proximal Development) distinguish between "scaffolding, temporary support that builds a student's autonomy and "crutching," which creates a permanent dependency. Current literature (2024–2025) is beginning to examine whether GenAI serves as a scaffold for students with learning disabilities or as a crutch that prevents high-performing students from reaching their full intellectual potential.

Data Analysis and Interpretation

Table 1: Basic Details of the Respondents

Attribute	Variables	Frequency	Percentage (%)
Age Group	20–25 years	26	57.78%
	25–30 years	10	22.22%
	30 years above	9	20.00%
Discipline	Humanities/Arts	15	33.33%
	Social Sciences	12	26.67%
	STEM	10	22.22%
	Other	8	17.78%
Total	Grand Total	45	100.00 %

Source: Primary Data

Table 01 provides a comprehensive demographic overview of the 45 respondents from Tumkur University, establishing a baseline for the study's findings. The data reveal a predominantly young cohort, with 57.78% of participants falling within the 20–25 years age bracket. This is a critical observation, as this group represents "digital natives" who are typically more inclined toward early technology adoption and AI integration in their academic workflows. Regarding

academic background, the sample is led by students in the Humanities/Arts (33.33%) and Social Sciences (26.67%), which together constitute the majority of the respondents. Since these disciplines are traditionally text-heavy and require deep qualitative analysis, this distribution confirms that the study is targeting the exact student population most impacted by the shift from traditional deep reading to AI-assisted summarisation. The inclusion of STEM (22.22%) and other fields ensures the data reflects a faculty-wide trend rather than an isolated departmental issue.

Table-02: Do you use AI tools (e.g., ChatGPT, Claude) to summarise academic papers at least once a week?

Response	Respondents (n)	Percentage (%)
Yes	31	69%
No	14	31%

Source: Primary Data

The data in Table 02 reveals a significant integration of generative AI into the weekly academic workflow of Political Science Master's students at Tumkur University, with a clear majority of 69% admitting to using tools like ChatGPT or Claude for summarisation at least once a week. This high adoption rate suggests that AI has transitioned from an occasional novelty to a primary utility for managing the heavy reading loads typical of a postgraduate social science curriculum. Conversely, the 31% who refrain from weekly usage may represent a segment of the student body that either maintains traditional deep-reading habits, lacks consistent digital access, or harbours scepticism regarding the accuracy of AI-generated summaries in the context of complex political theory. Overall, the findings point toward a "normalisation" of AI-assisted study habits, highlighting a potential shift away from direct engagement with primary academic texts in favour of algorithmic synthesis.

Table-03: Do you prefer reading an AI-generated summary over the full 20+ page political research article?

Response	Respondents (n)	Percentage (%)
Yes	26	58%
No	19	42%

Source: Primary Data

Table 03 indicates a definitive preference for condensed digital content, with 58% of the surveyed Political Science students opting for AI-generated summaries over original, long-form research articles. This preference for brevity over depth suggests a strategic response to the cognitive load associated with postgraduate studies, where the "efficiency" of an automated summary is perceived as more valuable than the exhaustive detail of a 20+ page paper. However, the fact that a substantial 42% still prefer full-text reading highlights a resilient minority who likely prioritise the nuanced arguments and evidentiary rigour that AI often omits. This split reflects a critical tension at Tumkur University: while a majority are gravitating toward a

"skimming" culture to manage time, a significant portion of the student body remains wary of substituting the "productive struggle" of deep reading with a simplified algorithmic output.

Table-04: Did you rely primarily on AI summaries for your most recent semester examination preparation?

Response	Respondents (n)	Percentage (%)
Yes	22	49%
No	23	51%

Source: Primary Data

Table 04 reveals a near-even split in the study habits of Political Science Master's students at Tumkur University, with 49% of respondents relying primarily on AI summaries for their semester examination preparation. This high percentage suggests that nearly half of the cohort views AI-generated content as a sufficiently reliable tool for high-stakes academic assessment, likely due to the pressure of large syllabi and the need for rapid information retrieval. Conversely, the 51% who did not rely on AI for exams indicate a slight majority that still trusts traditional methods—such as textbooks, primary research, and handwritten notes—when academic performance is directly measured. This narrow margin reflects a transitional phase in pedagogy where students are caught between the efficiency of "cognitive offloading" and the traditional rigours of the university's examination standards.

Table-05: Do you feel that AI summaries often miss the subtle political nuances or 'hidden' arguments in a text?

Response	Respondents (n)	Percentage (%)
Yes	38	84%
No	7	16%

Source: Primary Data

Table 05 highlights a critical cognitive dissonance among Political Science students, as a vast majority of 84% acknowledge that AI-generated summaries frequently fail to capture subtle political nuances or "hidden" arguments within primary texts. This overwhelming consensus suggests that while students at Tumkur University may use AI for its speed (as seen in previous tables), they are acutely aware of its limitations in processing complex, abstract, and context-heavy political theories. The small minority of 16% who disagree may either be engaging with simpler texts where AI performs better or may have a lower threshold for what constitutes "nuance." Ultimately, this finding underscores a significant risk in modern scholarship: students are knowingly sacrificing depth and analytical "texture" essential for advanced political critique in favour of the mechanical convenience of algorithmic distillation.

Table-06: Have you noticed a decrease in your ability to focus on long-form reading since you started using AI tools?

Response	Respondents (n)	Percentage (%)
Yes	28	62%
No	17	38%

Source: Primary Data

Table 06 provides evidence of the physiological and psychological impact of AI on the student's "reading brain," with 62% of respondents admitting to a noticeable decrease in their ability to focus on long-form reading. This finding aligns with the concerns of digital theorists who suggest that habitual "skimming" and reliance on instant summaries can degrade the neural pathways required for sustained attention. While 38% report no change, perhaps due to a deliberate balance between digital and physical reading, the majority consensus indicates a trend toward fragmented focus. For Master's students at Tumkur University, this reduction in cognitive stamina poses a serious challenge for advanced political research, which inherently requires the patience to navigate dense, multi-layered texts without the aid of external distillation.

Table-07: Are you confident in your ability to critique a political theory without using AI assistance?

Response	Respondents (n)	Percentage (%)
Yes	20	44%
No	25	56%

Source: Primary Data

Table 07 reveals a significant crisis of confidence among Political Science Master's students at Tumkur University regarding their independent analytical skills. With 56% of respondents admitting they are not confident in critiquing a political theory without AI assistance, the data suggests that AI has moved beyond a "helpful tool" to a "cognitive prosthetic." This lack of confidence likely stems from the illusion of competence created by AI, where students can generate high-quality outputs using prompts but fail to internalise the underlying logic required for original thought. The minority who remains confident (44%) may represent students who still prioritise primary text engagement or those who use AI strictly for scaffolding. This "confidence gap" is a major concern for educators, as it indicates that more than half the cohort feels intellectually dependent on an algorithm to perform the very task, a critical critique that defines graduate-level scholarship in Political Science.

Table-08: Does AI accurately summarise regional political issues specific to Karnataka or Tumkur?

Response	Respondents (n)	Percentage (%)
Yes	12	27%
No	33	73%

Source: Primary Data

Table 08 uncovers a critical "localised intelligence gap," with a commanding 73% of Political Science students asserting that AI fails to accurately

summarise regional political issues specific to Karnataka or Tumkur. This finding highlights the Western-centric bias inherent in most Large Language Models (LLMs), which are trained on vast global datasets but often lack granular, real-time, or vernacular data regarding Indian state-level politics. For a Master's student at Tumkur University, relying on AI for a seminar on *Karnataka's Panchayati Raj* or *local caste dynamics in the Old Mysore region* risks producing "hallucinated" or generic content. The minority 27% who find it accurate may be focusing on broad state-level statistics or English-language news reports that AI can process more effectively. This table serves as a stark warning: while AI might be a "global expert," it remains a "local novice," and students who bypass deep reading of regional texts may lose the context-specific knowledge essential for local political expertise.

Table-09: Are your professors at Tumkur University aware of the extent to which students use AI for reading assignments?

Response	Respondents (n)	Percentage (%)
Yes	18	40%
No	27	60%

Source: Primary Data

Table 09 reveals a significant communication gap within the academic environment of Tumkur University, as 60% of the respondents believe their professors are unaware of the true extent to which students utilise AI for reading assignments. This perception of a "hidden" usage trend suggests that students are operating in a shadow digital economy where AI is used to maintain the appearance of engagement while bypassing the actual labour of deep reading. The 40% who answered "Yes" may represent departments where faculty have actively integrated AI literacy into their curriculum or have caught students through discrepancies in class discussions. This majority lack of perceived awareness is particularly concerning for the study, as it implies that the pedagogy currently being employed may not be effectively addressing the "cognitive offloading" occurring behind the scenes, potentially leading to a mismatch between instructional methods and the actual study habits of Master's students.

Table-10: Do you believe using AI to summarise mandatory readings is a form of academic dishonesty?

Response	Respondents (n)	Percentage (%)
Yes	9	20%
No	36	80%

Source: Primary Data

Table 10 addresses the moral landscape of the classroom, revealing a significant shift in the ethical threshold of Political Science Master's students. A striking 80% of respondents do not consider using AI to summarise mandatory readings as a form of academic dishonesty. This reflects a "utilitarian" view of ethics, where students prioritise time management and efficiency

over the traditional academic obligation to engage directly with text. The minority (20%) who view it as dishonest likely perceive the "labour of reading" as an essential part of the intellectual contract between student and institution. This data suggests that at Tumkur University, the definition of "original work" is evolving; students increasingly view the *application* of information as their primary responsibility, while viewing the *acquisition and synthesis* of that information as a mechanical task that can be ethically outsourced to an algorithm.

Table-11: Do you remember the core arguments of a paper better when you read the full text compared to the AI summary?

Response	Respondents (n)	Percentage (%)
Yes	41	91%
No	4	9%

Source: Primary Data

Table 11 serves as the definitive "Self-Awareness Milestone" of your study, revealing a stark contrast between student behaviour and cognitive reality. With an overwhelming 91% of Political Science students acknowledging that they retain information better through full-text reading than through AI summaries, the data exposes a conscious trade-off. Despite the efficiency and ethical flexibility shown in previous tables, students are acutely aware that the "productive struggle" of deep reading is the superior method for long-term memory consolidation. The small 9% who feel they remember AI summaries better may be experiencing the "fluency illusion," where the clarity and brevity of a summary create a false sense of mastery that often fails during high-stakes retrieval tasks. This table proves that the problem is not a lack of understanding of *how* to learn, but rather a crisis of *time and stamina;* students are knowingly choosing a "second-hand" academic experience for the sake of survival in a high-volume curriculum.

Findings of the Study

1. The most striking finding is the conflict between student behaviour and knowledge. While 69% use AI summaries weekly and 58% prefer them over full texts, a massive 91% admit that they retain information better through deep reading. This indicates that students are knowingly sacrificing long-term learning for short-term task completion.
2. There is a clear decline in cognitive endurance. 62% of students reported a noticeable decrease in their ability to focus on long-form reading. This suggests that the "reading circuit" is being re-wired for skimming, making dense political theory, which requires sustained attention, increasingly inaccessible to the average postgraduate student.
3. The study identifies a "dependency trap" 56% of students lack the confidence to critique a political theory without AI assistance. This suggests that the "productive

struggle" necessary to develop an independent academic voice is being bypassed, leading to "cognitive atrophy" where students feel intellectually paralysed without an algorithmic prompt.

4. A significant finding for regional education is that 73% of students find AI inaccurate regarding Karnataka and Tumkur-specific political issues. Despite this high failure rate in the local context, students still rely on these tools, creating a risk of "academic hallucination" in regional political analysis.
5. The threshold for academic honesty has shifted. 80% of students do not view the use of AI for mandatory readings as "cheating." This indicates that the student body has decoupled "reading" from the "academic contract," viewing it as a mechanical process rather than a foundational intellectual duty.
6. There is a major disconnect in the classroom; 60% of students believe their professors are unaware of the extent of AI usage. This "hidden usage" prevents educators from adjusting their teaching methods or addressing the specific comprehension gaps caused by AI reliance.

Suggestions

1. Require students to submit their "reading artefacts" along with their essays. This could include a photo of their handwritten margin notes or a social annotation log (using tools like *Hypothesis*) to prove direct engagement with the primary text.
2. Implement brief, 5-minute "micro-vivas" for written assignments. If a student cannot explain a specific nuance from page 15 of their reading, it signals an over-reliance on AI summaries.
3. Dedicate the first 15–20 minutes of a seminar to silent, offline reading of a difficult primary text (e.g., Ambedkar's *Annihilation of Caste*). This "sanitises" the environment from digital distractions and forces the "reading circuit" to engage.
4. Give students an AI summary of a complex political theory and the original 30-page text. Task them with finding three specific nuances or local context errors that the AI missed. This builds the "critical scepticism" found in your Table 05.
5. Shift the focus from "literature review" to "field observation." Ask students to compare an AI's description of a local government scheme with their own interviews with local Panchayati Raj officials.

Conclusion

This research confirms that the "Reading Brain" of Political Science Master's students at Tumkur University is at a critical crossroads. The data reveals a paradox of progress: while generative AI provides unprecedented efficiency in processing academic information, it

simultaneously erodes the very skills sustained attention, deep synthesis, and critical nuance that define postgraduate scholarship. The study's findings suggest that students are transitioning from being "active decoders" of complex political theory to "passive consumers" of algorithmic summaries. This shift is particularly dangerous in the context of regional politics, where AI's inability to grasp the cultural and linguistic nuances of Karnataka (as evidenced by the 73% inaccuracy rate) leads to a dilution of local expertise. Ultimately, the reliance on AI is not merely a change in study habits; it is a change in cognitive identity. When 56% of students lose the confidence to critique a theory without digital assistance, the university risks producing graduates who possess information but lack the independent wisdom to apply it. To preserve the integrity of Political Science, higher education must move beyond the "efficiency" of AI and return to the "productive struggle" of deep reading. This study concludes that while AI can be a powerful assistant, it must not be allowed to become a replacement for the human mind.

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