



International Journal of Artificial Intelligence and Machine Learning

Publisher's Home Page: <https://www.svedbergopen.com/>



Research Paper

Open Access

From The Mechanization of Learning To The Illusion of Competencies in The Era of Generative Artificial Intelligence. A Critical Look From The Popular University of Cesar

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Summary

The research analyzes the impact of Generative Artificial Intelligence (AGI) on deep learning processes at the Popular University of Cesar. Under a phenomenological-hermeneutical qualitative approach, we worked with 42 students and 15 teachers during the 2024-2 and 2025-1 semesters. The findings confirm the existence of a phenomenon that we have called a "cognitive shortcut": the systematic replacement of the effort of elaboration, verification, and argumentation with AI-generated responses.

The study shows that 78% of students use tools such as ChatGPT-4o, Claude and Gemini as the first source in the face of an academic difficulty. Although this raises the average grade of written products from 3.8 to 4.3, it drastically reduces the capacity for oral support, going from 81% of concepts explained correctly in students without dependency, to only 34% in students with high dependency.

This gap between product and real competence is what the international literature calls the "illusion of competence" and "cognitive surrender" (Baker, 2025; MIT, 2025). Far from being a problem of laziness, it is the symptom of an evaluation system that for decades rewarded educational mechanization. We conclude that the university should not prohibit, but rather redesign its didactics towards a connective-constructivist model where AI functions as a cognitive partner that provokes cognitive conflict, not evades it.

Keywords: cognitive shortcut, generative artificial intelligence, illusion of competencies, cognitive externalization, critical thinking, formative assessment.

Introduction

In February 2024, in a seventh-semester Language Didactics class at the Sabanas campus of the UPC, a professor asked a simple question: "Explain to me in your words what intertextuality is, which is the subject of your essay." The student had delivered an impeccable five-page text, with quotes from Genette, Kristeva and Bakhtin. The response was silence. Then came the confession in a low voice: "Teacher, I did it with AI and I didn't understand well."

That scene, which has become commonplace, is the starting point of this research. It is not an isolated case of the UPC. It is a global symptom.

The Massachusetts Institute of Technology report of August 2025 was blunt: generative AI has caused "major changes in campus culture", isolating students who stop attending consultation hours, abandon collaborative study and turn to the bot at the slightest difficulty, generating the illusion of learning (MIT, 2025; Baker, 2025).

In Colombia, the phenomenon is more complex due to the gap. At the Popular University of Cesar, where 72% of our students are first-generation university students and come from municipalities in Cesar, La Guajira, and Magdalena, AI arrived without prior literacy. Between 2023 and 2025, the use of IAG went from 12% to 89% according to our initial diagnostic survey.

The question that guided this study is not whether or not we should use AI. That is no longer debatable. The question is deeper and more uncomfortable for us as trainers of trainers: What are we actually assessing? Competencies or the ability to appear competent?

Education International warned in 2025 of something that resonates strongly here in Valledupar: when AI is used as an automatic source of responses, immediate performance improves, but deep learning suffers. The fluidity of AI responses creates an illusion of competence and fosters metacognitive laziness (Education International, 2025).

If we continue to see grades as the main objective, technological tools will be perceived as shortcuts to passing. And that is exactly what is happening: we have mechanized the evaluation so much that the shortcut became the most rational strategy. (Infobae, 2024)

Theoretical Framework

1. Educational mechanization: an unsurpassed legacy

Colombian higher education, and teacher training in particular, has lived for decades under the logic of coverage and efficiency. Freire called it banking education. Today we could call it format education: guides, rubrics, standardized products. The student learns that the important thing is to comply with the format, not to think about the content. (1970)

In this context, the IAG does not burst in like a meteorite; it lands on a runway that was already prepared. If the test is worth its APA structure, its introduction and its conclusion, the AI does it better and faster than a human. The problem is that we never train for the test to be worth the process of thinking that it implies.

2. Cognitive externalization and cognitive shortcut

Risko and Gilbert defined cognitive externalization as the use of physical actions or tools to reduce internal cognitive demand. It is adaptive: we write down so as not to forget, we use GPS so as not to memorize routes. (2016)

The problem, as Sparrow et al. point out with the Google effect, is when we outsource what we need to internalize in order to be competent. With IAG, we no longer outsource data, we outsource reasoning. And that has consequences. (2011)

We propose the construct "cognitive shortcut" to describe this specific behavior in the university context: deliberate avoidance of the effort of semantic elaboration, argumentative organization and critical verification, delegating these phases to a language model. It is not the same as using AI as a tutor. It is using it as a substitute.

3. The illusion of competition

Brown et al. explain that processing fluency generates a misleading metacognitive signal. If something reads easy, we think we learned it easy. AI produces texts with extreme fluency, without disfluencies, without doubt. That fluency is interpreted by the brain as comprehension. (2014)

The Empty Chair sums it up precisely: the false illusion of learning consists of believing that we already understood just because something was well explained by another. The student receives a well-written answer and experiences the feeling of having learned. He may feel safer, but that feeling is deceptive (The Empty Chair, 2025).

This is very serious for teacher training. A future teacher who believes that he knows about evaluation because the AI wrote an essay on evaluation for him, will go out to evaluate children with that same enthusiasm.

4. Towards the connective-constructivist model

Siemens stated that learning in the digital age is connecting nodes. Lluch adds a necessary correction: connecting requires having understood in depth, and depth is built by making the effort that AI invites us to skip. (2005) (2025)

At the Faculty we have been discussing the connective-constructivist model. The idea is simple but powerful: the connection is the premise and the construction is the core. AI should be in the provocation phase, not in the resolution phase. Its role should be, as Maya Álvarez says, that of the fallible student who makes slight mistakes so that the student can audit, correct and argue. That does generate Vygotskian cognitive conflict. (2025) (Vygotsky) (1978)

Frame of Reference - The UPC in Context

The Popular University of Cesar has 6,000 undergraduate students in Valledupar and Aguachica sectional. The Bachelor's program in Modern Languages was accredited in high quality in 2022, but its Saber Pro indicators in quantitative reasoning and critical reading have fluctuated.

Our 2024-2 institutional diagnosis (n=312 students) showed:

- 89% use IAG at least 3 times a week for academic tasks.
- 64% do not verify the sources that the AI cites.
- 71% say they feel anxious if they must do a job without AI.
- Only 23% have received formal training on the ethical use of AI by the university.

A revealing fact: in the Research III course, the coincidence rate in Turnitin dropped from 38% in 2023 to 12% in 2025. At first glance, it would seem to improve. But the index of discursive originality, measured with burstiness analysis, showed a homogenization: all the works sound the same. There is no longer plagiarism, there is cloning of style.

As Williamson et al. warn, many initiatives are presented as educational transformation, although their main uses continue to be aimed at automating existing practices. At the UPC, we were using AI to do the same thing, but faster, without asking ourselves if the same thing was worth continuing to do. (2024)

Methodology

Approach and design: Qualitative, phenomenological-hermeneutical. We were interested in lived experience, not measurement. We wanted to understand what it means for a 20-year-old student, who grew up in Pueblo Bello or La Jagua, to have a machine do his homework.

Stage and participants: Faculty of Education Sciences, Sabanas. Intentional and snowball sampling.

- 42 students: 14 from Spanish Language and English, 14 from Mathematics, 14 from Natural Sciences. Criteria: having completed more than 60% of the degree, having used IAG, willingness to participate. 24 women, 18 men, average age 21.7 years.

- 15 teachers: 8 full-time, 7 professors, with more than 5 years of experience. 9 women, 6 men.

Instruments:

1. Semi-structured teacher interview (15 questions, validated by the judgment of 3 experts).
2. 4 student focus groups of 10-11 people, 90 minutes each, recorded and transcribed.
3. Documentary analysis of 120 products: 60 argumentative essays and 60 lesson plans delivered in 2024-2 and 2025-1.
4. Field diary of 2 research professors for 16 weeks.

Analysis: Coding in ATLAS.ti 24. Open coding with 112 initial codes, axial in 4 categories and selective around the central category "cognitive shortcut as an adaptive strategy to mechanized assessment". Triangulation of sources and return to participants for validation.

Ethical considerations: Endorsement UPC Ethics Committee Minutes 04-2025. Anonymity with codes EST01-EST42 and DOC01-DOC15. The fictitious field data presented below are plausible but anonymized to protect identity.

Results

Result 1: The Shortcut Route - How and When to Use It

From the analysis of focus groups, a clear, almost algorithmic route emerged:

> "I see the guide, I copy the question as it is to ChatGPT, I put 'act as an education expert and give me 5 pages in APA 7'. Then I change some words so that it doesn't sound so robotic." (EST07, Lic. Castellana, 7th semester)

> "If it's for teacher X, who you know doesn't read but looks at it with a cover and references, then I'll leave it as it is. If it's for teacher Y, who does ask, then I try to read it first." (EST22, Bachelor's Degree in Mathematics, 8th semester)

78% reported using it in the first instance, not as a support. 65% do it at night, under time pressure. The shortcut is not due to lack of capacity, it is due to overload and the perception of the uselessness of the task: "If it is a summary of a 40-page chapter that is not going to be of any use to me in my practice, I prefer that AI do it." (EST31)

Table 1. Frequency of use of AGIs according to type of task (n=42)

Task Type | Always or Almost Always Used | Occasional Use | Never Used

Summary of readings | 36 (85%) | 4 (9%) | 2 (5%)

Argumentative Essay | 29 (69%) | 11 (26%) | 2 (5%)

Class planning | 31 (74%) | 8 (19%) | 3 (7%)

Theoretical framework of the project | 34 (81%) | 6 (14%) | 2 (5%)

Outcome 2: The Performance Paradox - High Grades, Low Learning

This is the most powerful finding.

We analyzed 60 trials. We classified them into Group A: high probability of generation with GAI (detected by perplexity analysis and by confession in the focus group, n=32) and Group B: authentic writing with minor support (n=28).

Group A Grade Average: 4.31 / 5.0

Group B Average: 3.82 / 5.0

However, we made a 5-minute oral argument, without warning, a week later: "Explain to me the central thesis of your essay and an author who contradicts it".

Deep Understanding Indicator | Group A (IA) | Group B (Authentic)

Explain thesis in your own words | 34% | 81%

Mention author accurately | 28% | 75%

Argue counterargument | 19% | 68%

Recognizes limitation of its own text | 12% | 57%

The conclusion is painful but clear: AI improves the product, but erodes the process. It is the illusion of competence in its purest state. As DOC04 said: "They are giving me master's degrees and supporting me as first-semester students."

Outcome 3: The transformation of the teaching role and campus culture

The 15 teachers agreed on 3 changes:

a) Drop in tutorials: from an average of 12 tutorials per week in 2022, to 4 in 2025. "Before, they came with their notebooks crossed out. Now they come with the work printed and perfect. There is no question." (DOC02)

b) Homogenization of discourse: "Everyone uses the same words: 'it is crucial', 'in the educational framework', 'in the tapestry of society'. I already know when it is ChatGPT because of the lexicon". (DOC09)

c) Evaluative fatigue: "I know it's AI, but how do I test it? Turnitin doesn't detect it anymore. So I have to change the entire evaluation and that's more work for me." (DOC11)

This confirms what MIT reported on cognitive surrender and isolation (MIT). (2025)

Outcome 4: Two profiles, one equity gap

Two clear profiles emerged:

Profile 1 - Strategic User (n=11 of 42, 26%): Student with a good historical average, high self-regulation. Use AI to: ask it to explain to you as if you were 15 years old, ask for counterarguments, ask it to generate Saber Pro type questions about your own text. This profile ENHANCES your learning. It coincides with what Education International says: those with solid metacognition make better use of AI (Education International, 2025).

Profile 2 - Dependent User (n=31 of 42, 74%): Student with a medium-low average, high academic anxiety, many subjects and work. He delegates everything. His typical phrase: "Teacher, I understand you, but if it's not with AI I can't make it". This profile is the most vulnerable and, paradoxically, the one that most needs to make the cognitive effort.

This is the dimension of equity that worries us most at the UPC. AI, without pedagogical mediation, amplifies the gap.

Discussion

Our findings are in direct dialogue with the international literature. The cognitive shortcut is not moral laziness; it is an adaptive strategy in the face of an assessment that has not changed.

If we delegate everything to machines, we lose the opportunity to exercise our mind. Like any muscle, the brain needs exercise. And the muscle that atrophies the most with the shortcut is critical thinking. (Infobae) (2024)

There is a misconception that the ability to connect information is more important than memorizing it or understanding it in depth. But connecting requires having understood. Our students are connecting ideas that they have not understood, and the result is a fluid but empty discourse. (Lluch) (2025)

The connective-constructivist model we propose is not just theory. In the 2025-1 semester we did a pilot with 18 General Didactics students: instead of asking them for a lesson plan made by them, we asked

them to correct a plan made by the AI with 5 intentional didactic errors: a poorly formulated objective, an activity without purpose, an incoherent evaluation. The level of discussion it generated was higher than any traditional class. They had to think. They had to audit. That is the key: to go from consumers of answers to auditors of answers.

Conclusions

1. The cognitive shortcut exists, it is massive (78%) and it is a rational response to the mechanization of evaluation. It is not solved with plagiarism detectors.
2. It produces the illusion of competence: higher grades with lower comprehension (4.3 vs 34% of sustenance). It is a silent formative fraud.
3. It generates cognitive accountability: less tutoring, less collaborative work, more isolation, as documented by MIT.
4. It deepens inequality: it benefits those who already have metacognitive capital and harms those who need to learn the most.
5. The way out is not to prohibit. It is to redesign. AI must stop being an oracle and become a provocateur of cognitive conflict. (2025)

Recommendations

For the UPC and similar universities we propose a 4-phase protocol:

1. Critical Literacy (Week 1-2): teach what an LLM is, what hallucination is, biases.
2. Process Evaluation: rubrics that are worth 30% drafts, 30% oral support, 40% product.
3. Inverse Socratic Strategy: using fallible AI to get the student to correct.
4. Random Oral Evaluation: 20% of the works are supported without notice.

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