Generative Artificial Intelligence and the Formation of Future Communication Professionals- Student Perceptions, Semiotic Mediation and Educational Challenges

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***Abstract* — The growing presence of generative artificial intelligence (GenAI) in universities is transforming how academic knowledge is accessed, interpreted, and processed by students. Students increasingly rely on AI-based systems to retrieve information, summarize large volumes of content, clarify complex concepts and support academic writing. While these tools can improve speed, accessibility and day-to-day study support, they also raise difficult questions about intellectual autonomy, authorship, evaluation and the cultivation of critical reasoning. This paper explores the educational and professional implications of GenAI for future communication specialists. The study combines a qualitative exploratory investigation of student perceptions with a narrative literature review of recent academic work on AI in higher education. The empirical component was conducted with 20 undergraduate students enrolled in communication-related and engineering programs at the University of Medicine, Pharmacy, Sciences and Technology "George Emil Palade" in Târgu Mureș. Data were collected through semi-structured questions and analyzed through an inductive thematic coding procedure. The findings indicate that students perceive GenAI primarily as a practical learning assistant capable of translating dense academic content into more accessible explanations. At the same time, they express concerns regarding dependency, superficial learning, weakened independent effort and the authenticity of assessment. The paper argues that GenAI should not be treated as a substitute for human cognition, but as a mediated and reflexive instrument that can support intellectual formation when used transparently, critically and ethically. For communication education, this means preparing students not only to operate AI tools effectively, but also to question their outputs, interpret their symbolic effects and integrate them responsibly within professional communication practice.**

***Keywords* — generative artificial intelligence, communication education, higher education, digital literacy, AI ethics, media studies, semiotic mediation.**

I. INTRODUCTION

Artificial intelligence has moved from a distant technological concept to an everyday component of contemporary academic and professional life. In universities, students increasingly use AI-based systems not only to find information, but also to organize it, interpret it and convert it into forms that are easier to study and reuse.

This shift is more than a matter of convenience. It changes the way academic knowledge is approached, processed and sometimes internalized. Research on artificial intelligence in higher education shows that AI can support adaptive learning, personalize academic support and improve access to resources [1], [2]. At the same time, studies on large language models show that conversational AI can assist students through explanation, summarization and scaffolding, while also generating risks related to misinformation, overreliance and academic integrity [3], [4].

Yet this efficiency comes with a cost that higher education can no longer ignore. As Willingham argues, learning depends on sustained mental effort rather than on the mere availability of information [5]. If AI increasingly performs the demanding part of learning - condensing, clarifying, structuring or suggesting - students may begin to confuse assisted access to knowledge with actual understanding. The question is therefore not only whether AI is useful, but what kind of learners, writers and future professionals are being shaped through its continuous use.

In communication and media studies, this problem becomes especially visible. Future communication professionals are trained not only to process information, but to interpret it, frame it, critique it and transform it into meaningful discourse for public audiences. Their work depends on judgment, nuance, symbolic awareness and rhetorical responsibility. In such a field, the integration of AI cannot be treated as a purely instrumental matter.

A particularly relevant perspective is proposed by Sigmirean, who conceptualizes artificial intelligence as a *semiotic and cognitive mediator* of learning. In his Sozopol conference presentation, AI is described as a form of educational translation that reconfigures the relationship between student, teacher and knowledge [6]. This idea is valuable for communication studies because it shifts the discussion from technological efficiency to symbolic mediation. AI does not only accelerate access to information; it transforms the interpretive route through which knowledge becomes meaningful.

Recent interdisciplinary reflections on educational innovation also stress that universities must preserve critical thinking, intellectual responsibility and academic autonomy while integrating AI into teaching and learning [7]. Starting from this context, the study asks four research questions: Q1. How do students in communication-related and technical programs perceive generative AI? Q2. What educational functions do they assign to it? Q3. To what extent do they see it as support, shortcut or threat? Q4. How do these perceptions resonate with current research on AI in higher education?

The paper therefore combines a qualitative study of student perceptions with a narrative literature review. Its central argument is that generative AI must be understood not only

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as a tool of productivity, but as a new layer of mediation in the educational process - one that both opens and complicates the path toward intellectual formation.

II. LITERATURE REVIEW

Recent research indicates that artificial intelligence can support adaptive learning, facilitate knowledge retrieval and expand students' access to academic resources. However, the same literature also shows that AI-mediated learning requires explicit pedagogical, ethical and methodological framing.

A. Artificial Intelligence in Higher Education

Over the last decade, research on artificial intelligence in higher education has expanded from a niche topic into a major field of inquiry. One of the foundational syntheses in the field, conducted by Zawacki-Richter et al., showed that early applications of AI in higher education were concentrated around profiling, prediction, intelligent tutoring systems and assessment support [1]. These systems were primarily intended to personalize learning and optimize instructional design.

As AI technologies evolved, the discussion expanded from technical affordances to broader pedagogical implications. Luckin et al. argued that AI could support teaching and learning, but only if implemented in ways that strengthen rather than weaken human educational agency [2]. This early caution remains relevant in the context of generative AI.

The emergence of large language models changed the scale of the discussion. Kasneci et al. note that tools such as ChatGPT create opportunities for personalized feedback and conceptual clarification, but also raise challenges related to misinformation, overreliance and plagiarism [3]. Tlili et al. similarly show that ChatGPT compels educators to rethink learning, assessment and the role of technological mediation in education [4]. Crompton and Burke further demonstrate that AI in higher education is moving from isolated experimentation toward broader institutional concern [8].

B. Cognitive Effort, Learning Depth and AI Assistance

A central debate concerns the relationship between technological assistance and cognitive effort. Willingham's work remains relevant because it foregrounds a simple but powerful insight: learning requires mental effort, and intellectual growth cannot be outsourced without consequence [5].

This concern becomes more pressing in the age of generative AI. Farrokhnia et al., in a SWOT analysis of ChatGPT, identify both strengths and risks, pointing out that convenience can encourage uncritical use and undermine independent thought [9]. Dwivedi et al. likewise emphasize that generative conversational AI is disruptive because it blurs the line between assistance and substitution [10].

In communication education, this tension is particularly visible. Writing is not only a way of presenting ideas; it is often the process through which ideas are formed. When AI systems take over pre-structuring, summarizing or stylistic smoothing, the cognitive work of formulation can become thinner. Communication professionals increasingly operate in complex digital environments where media production, platform logic and algorithmic infrastructures intersect, making critical and adaptive judgment essential [11].

C. AI as Semiotic Mediation

A productive direction in recent scholarship is the interpretation of AI as a mediator rather than a neutral instrument. Sigmirean's Sozopol presentation develops this argument explicitly, showing that students may perceive AI not only as a tool, but as a "hermeneutic partner" capable of translating dense course content into intelligible materials adapted to their level of understanding [6]. This idea resonates strongly with communication theory because it frames AI as part of the symbolic chain through which meaning is negotiated.

This perspective also aligns with broader critical reflections on digital culture. Williamson and Eynon argue that AI in education must be understood within historical, institutional and ideological contexts, not only through its immediate functionality [12]. Selwyn makes a similar point by insisting that educational technologies are never neutral; they carry assumptions about knowledge, authority and desirable forms of learning [13].

D. Ethics, Digital Responsibility and Communication Education

The recent conference volume coordinated by Sorina-Mihaela Bălan and Doina David situates AI at the intersection of educational innovation and institutional responsibility [7]. Within the same volume, the article by S.-M. Bălan, C. Stanciu, T. Stanciu and L. Bălan on digital offences and emerging online aggressions highlights an additional dimension relevant for communication education: digital literacy cannot be reduced to technical competence; it must also include ethical discernment, critical awareness and the ability to recognize emerging forms of mediated harm [14].

This is essential for students in communication and media programs. They do not merely consume information ecosystems; they are trained to operate within them professionally. Their formation must therefore include technical fluency, semiotic interpretation, ethical responsibility and the ability to explain AI-mediated content to public audiences.

III. MATERIALS AND METHODS

A. Research Design

The empirical component of this study employs a qualitative exploratory design aimed at examining how students understand and integrate generative artificial intelligence into their academic learning practices. The qualitative approach was selected because the study focuses on meanings, perceptions, interpretive language and subjective evaluations rather than on statistical measurement.

The empirical analysis is complemented by a narrative literature review. In response to the reviewers' observation, the paper no longer uses the term "narrative meta-analysis." The review is interpretive rather than statistical and does not claim to calculate effect sizes or synthesize quantitative outcomes. Its role is to position the student perceptions within current debates on AI in higher education, communication education, semiotic mediation and digital ethics.

B. Participants and Sampling

The study was conducted at the University of Medicine, Pharmacy, Sciences and Technology "George Emil Palade" in Târgu Mureș. The sample included 20 undergraduate students drawn from two educational contexts: communication-related programs, including Communication

and Emerging Media / Communication and Public Relations, and programs within the Faculty of Engineering.

Participants were selected through purposive convenience sampling. The inclusion criteria were: enrollment in one of the relevant undergraduate programs, previous exposure to or use of generative AI tools in academic tasks, willingness to participate and completion of the semi-structured response form. Responses that contained identifying personal information or were incomplete were excluded from interpretive coding.

C. Data Collection

Data collection relied on semi-structured questions designed to elicit students' perceptions of AI-assisted learning. The questions were organized around four guiding themes:

1) learning practices and the role of AI in academic work;
2) perceptions of AI as a tool of translation, simplification and synthesis;
3) the impact of AI on the student-teacher relationship, assessment and authenticity;
4) perceived risks, ethical concerns and future expectations concerning AI-assisted education.

The semi-structured format allowed students to provide concise but open responses, enabling the researchers to identify both expected and emergent patterns in the data.

D. Ethical Approval and Informed Consent

The authors declare that the study was conducted in accordance with institutional ethical standards for low-risk educational research. Participation was voluntary, the purpose of the study was explained to participants, and informed consent was obtained. No personally identifiable data are reported in the manuscript. Student excerpts must be anonymized before final publication, using labels such as "Student 3, Communication" or "Student 11, Engineering."

E. Thematic Coding and Analysis

Responses were analyzed thematically, following the logic of qualitative thematic analysis described by Braun and Clarke [15].

The analytical process was transparent and iterative:

1) familiarization with the student responses through repeated reading;
2) initial coding of meaning units referring to uses, benefits, risks and professional implications of GenAI;
3) clustering of codes into preliminary themes, such as "AI as translator," "efficiency and synthesis," "dependency," "assessment authenticity" and "professional responsibility";
4) review and refinement of themes in relation to the research questions;
5) selection of anonymized student quotations to illustrate each theme;
6) interpretation of themes in dialogue with the narrative literature review.

The analysis focused not only on what students said about AI, but also on the vocabulary through which they framed AI as helper, shortcut, tutor, translator, competitor or threat. Particular attention was paid to expressions of dependency, authenticity, learning depth and future professional identity.

F. Narrative Literature Review Procedure

The narrative literature review was based on recent academic work and institutional documents relevant to generative AI in higher education, AI-assisted learning, digital literacy, semiotic mediation and ethical governance. Sources were selected according to relevance for the research questions, conceptual contribution to the field and connection with communication-professional training. The review was organized thematically rather than statistically and was used to contextualize, compare and interpret the empirical findings.

IV. RESULTS AND DISCUSSION

The responses collected from students largely confirm the tendencies identified in the literature regarding the opportunities and challenges associated with generative artificial intelligence. The analysis produced five major themes, presented below.

A. AI as a Learning Assistant

Students frequently described GenAI as a practical learning assistant. For many of them, the main value of AI lies in its ability to simplify complexity. Difficult theoretical fragments become easier to approach when rephrased by AI into clearer and more accessible language. In this sense, students do not simply use AI to "get answers"; they use it to reduce interpretive friction.

> Student 4, at Communication Studies say: *"I use AI as a learning assistant because is a good way in which I can gain knowledge in a subject of my liking. Not having a physical human in front of me makes the process a lot more easier because I can understand the information better and I can filter it. Also, some people often have anxiety answering or speaking in front of the class, learning with AI beeing the best solution in this context."*

This observation supports Sigmirean's argument that AI functions as a semiotic translator of knowledge [6]. Students perceive it less as a repository of facts and more as an adaptive mediator between dense academic content and immediate comprehension.

B. Efficiency, Speed and the Attraction of Synthesis

A second strong theme concerns efficiency. Students use AI to summarize long texts, extract key points, generate structures for essays and clarify course concepts quickly. This orientation toward synthesis reflects the broader digital environment in which informational speed and reward cycles shape attention patterns.

> Student 9, Engineering field declare: *"In my academic projects and coursework, I use artificial intelligence primarily as a summary and synthesis tool, rather than as a substitute for learning. AI helps me organize large amounts of information from books, scientific articles, and other reliable sources into a clear and easy-to-understand format. Instead of spending a significant amount of time identifying the main ideas in lengthy texts, I can quickly obtain a concise summary that highlights the key concepts, making it easier to understand the topic. The efficiency of this tool lies in its ability to process large volumes of information quickly and present it in a logical and structured way. This reduces the time required for research and allows me to focus more on critical analysis, interpreting information, and developing my own ideas. In addition, AI can rephrase complex information into*

simpler and more accessible language, which is especially helpful when studying difficult concepts or comparing different perspectives on the same topic. Another important advantage is its ability to organize information effectively. AI can group ideas into categories, identify similarities and differences between concepts, and create summaries tailored to my learning needs. As a result, reviewing course material becomes more efficient, and the information is easier to understand and remember. However, I use artificial intelligence as a complementary tool, always verifying the information and comparing it with the original sources. I believe that the role of AI is to support the learning process by saving time and improving comprehension, while never replacing critical thinking, personal analysis, or my own contribution to academic work."

Yet exactly here the educational tension becomes visible. If knowledge is constantly encountered in compressed form, what happens to depth? Several responses suggested that AI makes study easier, but not necessarily deeper. The finding resonates with concerns that selective accumulation filtered by AI may be accompanied by a weakening of deep knowledge construction [5], [9].

C. Dependency, Confidence and the Risk of Cognitive Delegation

Another recurring theme was dependency. Students were aware that AI can save time, but also recognized that reliance can become habitual. Once immediate answers become normalized, patience for slower forms of reading, interpretation and independent reasoning may diminish.

Student 12, Communication answer that:: *"Dependency is one of the most important challenges associated with the growing use of AI in education. While I recognize that AI is an extremely valuable tool for saving time and organizing information, I believe it should support learning rather than replace the thinking process. It is easy to become accustomed to receiving instant answers, and this convenience may reduce the motivation to analyze information independently or engage with more demanding learning tasks. I use AI, however, I make a conscious effort not to rely on it for the entire learning process. I believe that reading original sources, interpreting ideas independently, and developing personal arguments remain essential for acquiring knowledge and strengthening critical thinking skills. I see AI as most beneficial when it acts as a help to human reasoning rather than a substitute for it. Students should be encouraged to use AI responsibly by verifying the information it provides, reflecting on its suggestions, and combining its assistance with their own analysis. In this way, AI can enhance learning without creating long-term dependency or reducing the development of independent reasoning skills."*

This echoes Willingham's warning about the effortful nature of learning [5] and confirms the more critical side of recent AI-in-education literature [9], [13]. The risk is not necessarily that students stop thinking altogether, but that they increasingly delegate the early and formative stages of thought: first interpretation, first structure and first hypothesis.

D. Assessment and Authenticity

Students also raised concerns about evaluation. Several responses suggested that traditional product-based assessment is no longer sufficient. What matters is not only the final assignment, but the process through which it was developed: what the student selected, rejected, revised and justified.

Student 15, from Engineering consider that *"Assessment methods need to evolve alongside the increasing use of AI in education. Focusing only on the final product no longer provides a complete picture of my knowledge, skills, or level of engagement as a student. Since AI can assist me with drafting, structuring, and/or refining content, it becomes more important to understand the decisions students make throughout the learning process rather than evaluating only the finished outcome. I believe that we students should be encouraged to explain how we used AI, what suggestions we accepted or rejected, and how we adapted the generated content to reflect our own understanding. This promotes greater responsibility and demonstrates whether we have actively engaged with the material instead of simply relying on automated outputs. Rather than viewing AI as something that must be completely avoided, I think it should be treated as a learning aid whose use is transparent and purposeful. The emphasis should remain on critical thinking, informed decision-making, and the ability to integrate AI-generated support into original work. In this way, assessment can better capture authentic learning while acknowledging the reality that AI has become part of the modern educational environment."*

This perspective is close to the logic of AI-assisted assessment models in which transparency, reasoning and autonomous performance are integrated into evaluation [6]. It also aligns with Mollick's co-intelligence model, in which AI use is not denied, but made visible and critically accountable [16]. For communication education, authenticity can no longer be reduced to the formula "no AI used." A more realistic and pedagogically meaningful approach is to evaluate how AI was used, whether its output was critically handled and whether the student's own voice remains visible.

E. Implications for Future Communication-Professional Training

For students preparing for careers in communication, these findings have direct professional implications. AI is already present in copywriting, audience analysis, content ideation, platform management and editorial workflows. Avoiding it entirely is unrealistic. Using it without reflexivity is equally problematic.

Communication education should therefore cultivate not technological compliance, but interpretive maturity. Students need to understand how AI shapes discourse, how it frames problems, how it normalizes certain patterns of language and how it may conceal bias behind fluency. Training should include prompt design, source verification, authorship disclosure, ethical use of generated content, bias recognition, audience responsibility and the preservation of personal voice in AI-supported writing.

This is why research on emerging digital offences and online aggressions is relevant for communication-professional formation [14]. Digital environments are never neutral spaces. Communication professionals must be trained

to recognize not only productive uses of technology, but also distortions, vulnerabilities and new forms of mediated harm.

International frameworks also support this direction. UNESCO emphasizes that AI should respect human rights, dignity, fairness, transparency and human oversight [17]. The European Commission's White Paper frames trustworthy AI around excellence and trust [18], while the Council of Europe's Framework Convention links AI governance to human rights, democracy and the rule of law [19]. These frameworks reinforce the need to prepare communication students as ethically aware interpreters and responsible mediators of AI-generated discourse.

V. CONCLUSION

Generative artificial intelligence is reshaping both higher education and the professional environments in which future communication specialists will operate. It is altering the conditions under which students read, write, interpret and produce academic discourse. In higher education, and especially in communication studies, this shift demands more than enthusiastic adoption or defensive rejection.

The findings of this study suggest that students see AI as useful, accessible and often genuinely helpful. They appreciate its capacity to clarify, condense and accelerate. At the same time, they remain sensitive to its risks: dependency, weakened critical effort and uncertainty about authenticity.

The narrative literature review confirms that both perspectives are justified. AI can support learning, but only under pedagogical conditions that preserve cognitive effort, interpretive responsibility and ethical awareness. For future communication professionals, the educational challenge is double: they must learn how to use AI competently, but also how to resist its tendency to flatten thought into convenience.

This study has limitations. The sample was small and exploratory, and the findings cannot be generalized statistically. However, the qualitative design offers insight into how students articulate the educational meanings of AI and how these perceptions connect with broader debates in communication education. Future research should include larger samples, comparative disciplinary analysis and longitudinal studies on how AI use affects writing, critical thinking and professional identity formation.

Artificial intelligence should function not as a substitute for human cognition, but as a collaborative instrument that supports reflective, responsible and intellectually grounded knowledge production. In communication education, the essential task is not merely to teach students how to use AI, but to teach them how to remain human, critical and ethically accountable while using it.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

AUTHOR CONTRIBUTIONS

L.B. conceptualized the communication-education framework, developed the theoretical argument and drafted the manuscript. C.C.S. designed and conducted the empirical research, collected and analyzed the data and presented the research results at the EFSS Conference in Sozopol, Bulgaria. L.B. and C.C.S. interpreted the findings, revised the manuscript and approved the final version for publication.

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