

Prompt Communication Competency as a Foundational Graduate Attribute: A Conceptual Framework for Integrating AI Communication Skills Across Science, Commerce, and Arts Education in India

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Abstract

The rapid adoption of generative Artificial Intelligence (AI) has transformed the way students learn, communicate, and solve problems. Unlike conventional digital tools, AI systems such as ChatGPT, Gemini, Claude, and Microsoft Copilot rely on natural-language interaction, making the quality of user prompts a decisive factor in the usefulness of AI-generated responses. Despite this shift, higher education continues to emphasise traditional communication skills while paying limited attention to communication with AI systems. This paper introduces Prompt Communication Competency (PCC) as a foundational graduate attribute that integrates communication skills, AI literacy, critical thinking, ethical reasoning, and reflective learning. Rather than viewing prompting as a technical exercise, the paper conceptualises it as a communication process that enables meaningful collaboration between humans and AI. A six-dimensional conceptual framework comprising linguistic clarity, cognitive structuring, critical evaluation, ethical responsibility, disciplinary adaptability, and reflective refinement is proposed to guide curriculum development across Science, Commerce, and Arts education. The framework is discussed in the context of India's National Education Policy (NEP) 2020, which advocates multidisciplinary learning, digital competence, and lifelong learning. The paper argues that embedding Prompt Communication Competency within existing communication, research, and discipline-specific courses can better prepare graduates for AI-enabled workplaces while preserving academic integrity and human judgement. By positioning PCC as an extension of communication competence, this study contributes to the emerging discourse on AI literacy and proposes a new perspective on graduate attributes for higher education in the age of Artificial Intelligence.

Keywords: *Prompt Communication Competency, Generative Artificial Intelligence, AI Literacy, Graduate Attributes, Communication Skills, Higher Education, NEP 2020*

1. Introduction

Communication has always been recognised as one of the most important graduate attributes in higher education. Universities across the world invest significant effort in helping students develop the ability to speak effectively, write clearly, listen actively, and collaborate with others. These competencies remain essential for academic success, professional growth, and responsible citizenship. However, the emergence of generative Artificial Intelligence (AI) has fundamentally expanded the meaning of communication. Increasingly, graduates are expected not only to communicate with people but also to interact effectively with intelligent systems.

The widespread availability of AI-powered applications such as ChatGPT, Gemini, Claude, and Microsoft Copilot has introduced a new mode of interaction based on natural language. Students now use AI to explain complex concepts, summarise research literature, generate reports, analyse data, develop business strategies, write computer code, and produce creative content. Unlike traditional search engines

that retrieve information through keywords, generative AI systems respond to detailed instructions expressed in conversational language. Consequently, the effectiveness of AI-assisted learning depends largely on how clearly and purposefully users communicate their intentions.

This development has important implications for higher education. While universities continue to emphasise conventional communication skills, few curricula explicitly teach students how to communicate effectively with AI systems. Many learners possess access to sophisticated AI tools but fail to obtain meaningful results because they struggle to formulate precise prompts, provide adequate context, or critically evaluate AI-generated responses. Conversely, students with stronger communication abilities often use AI more productively because they organise their thoughts systematically, ask purposeful questions, and refine their interactions through iterative dialogue.

The growing importance of prompt design has given rise to the concept of *prompt engineering*, primarily within computer science and AI research. Although prompt engineering focuses on optimising AI outputs through technical strategies, its underlying principles are equally relevant to communication studies. Effective prompting requires clarity of language, logical organisation, contextual awareness, analytical reasoning, and ethical judgement—all of which have traditionally been recognised as components of communication competence. This suggests that communicating with AI should not be viewed merely as a technical skill but as an extension of human communication.

The National Education Policy (NEP) 2020 provides an appropriate context for this discussion. The policy advocates multidisciplinary education, critical thinking, digital literacy, creativity, problem-solving, and lifelong learning. However, it predates the rapid proliferation of generative AI and therefore does not explicitly address the communication competencies required for effective human–AI collaboration. As AI becomes an integral part of education and professional practice, graduates need skills that go beyond digital literacy to include the ability to communicate with intelligent technologies responsibly and effectively.

This paper proposes Prompt Communication Competency (PCC) as a new foundational graduate attribute. Rather than treating prompting as a specialised technical activity, PCC is conceptualised as the ability to communicate effectively with AI systems by designing purposeful prompts, interpreting AI-generated responses critically, and refining interactions to achieve meaningful learning outcomes. The proposed framework integrates communication competence, AI literacy, critical thinking, ethical reasoning, and disciplinary knowledge into a unified model that is applicable across Science, Commerce, and Arts education.

The paper aims to make three contributions. First, it broadens the traditional understanding of communication by recognising human–AI interaction as an emerging form of communication. Second, it introduces a conceptual framework that explains the core dimensions of Prompt Communication Competency. Finally, it discusses how PCC can be integrated into undergraduate curricula in alignment with the objectives of NEP 2020, thereby preparing graduates for technology-rich workplaces without compromising human creativity, judgement, or ethical responsibility.

2. Literature Review

The integration of Artificial Intelligence into higher education has generated significant scholarly interest over the past few years. Recent studies suggest that generative AI is transforming learning by supporting personalised instruction, accelerating information retrieval, enhancing creativity, and improving academic productivity. Rather than functioning solely as information repositories, AI systems increasingly act as collaborative learning partners capable of engaging in dialogue, generating original content, and assisting students in complex cognitive tasks.

At the same time, researchers caution that the educational value of AI depends largely on the quality of human interaction with these systems. UNESCO (2023) emphasises that AI should complement rather than replace human intelligence, highlighting the importance of critical thinking, ethical awareness, and responsible use. Similarly, the OECD (2024) argues that future graduates require competencies that enable them to collaborate effectively with AI while maintaining independent judgement and intellectual

autonomy. These perspectives indicate that successful AI adoption is fundamentally a communication challenge as much as a technological one.

Communication scholars have long maintained that effective communication extends beyond linguistic accuracy to include purpose, audience awareness, context, feedback, and interpretation. Classical theories of communication competence emphasise clarity, appropriateness, adaptability, and reflective thinking. Although these theories were originally developed to explain interpersonal communication, many of their principles remain highly relevant when interacting with generative AI. Users must express objectives clearly, provide contextual information, interpret responses critically, and revise their prompts iteratively to achieve desired outcomes.

Recent research on AI literacy further supports this perspective. AI literacy has been described as the ability to understand AI systems, evaluate their outputs critically, recognise their limitations, and use them responsibly. However, much of the existing literature focuses on technological understanding rather than the communication processes through which users engage with AI. Consequently, an important conceptual gap remains between communication competence and AI literacy.

This paper addresses that gap by proposing Prompt Communication Competency as an integrative construct that combines the strengths of both fields. Instead of treating prompt writing as a purely technical procedure, PCC positions it as an advanced communication competency that enables meaningful collaboration between humans and intelligent systems. Such a perspective aligns with the evolving expectations of employers, educators, and policymakers who increasingly view AI not as a substitute for human capability but as a tool whose effectiveness depends on the quality of human communication.

3. Prompt Communication Competency: A Conceptual Framework

The growing dependence on generative Artificial Intelligence in education raises a fundamental question: *What distinguishes students who use AI as a genuine learning partner from those who merely use it as a shortcut?* While access to AI tools is becoming increasingly universal, the quality of learning outcomes continues to vary significantly among learners. This difference is not determined by the sophistication of the AI platform alone; rather, it depends largely on the learner's ability to communicate with AI in a purposeful, structured, and reflective manner.

This paper introduces Prompt Communication Competency (PCC) as a new graduate attribute that extends the traditional concept of communication competence into the era of Artificial Intelligence. Unlike the widely used term *prompt engineering*, which primarily refers to techniques for improving AI performance, PCC is learner-centred and educational in nature. It focuses on developing graduates who can think critically, communicate clearly, evaluate AI-generated information responsibly, and use AI ethically to support learning and professional decision-making.

Accordingly, Prompt Communication Competency may be defined as the ability to communicate effectively with Artificial Intelligence systems by designing clear, context-sensitive, purposeful, and ethically responsible prompts while critically evaluating and refining AI-generated responses to achieve meaningful academic or professional outcomes.

This definition highlights an important distinction. Prompting is not simply asking better questions; it is a deliberate communication process that requires clarity of thought, contextual understanding, analytical reasoning, and continuous reflection. In this sense, PCC is not a replacement for conventional communication skills but their natural evolution in an AI-enabled world.

The Six Dimensions of Prompt Communication Competency

1. Linguistic Clarity

Every interaction with AI begins with language. AI systems interpret meaning from the words, context, and structure provided by the user. Consequently, effective prompting requires learners to communicate their objectives with precision and coherence.

Students should be able to define the purpose of a task, specify the expected output, identify relevant constraints, and provide sufficient contextual information. Ambiguous or incomplete prompts often produce equally vague responses, whereas well-structured prompts generate outputs that are more accurate, relevant, and useful.

From an educational perspective, linguistic clarity reinforces long-established communication competencies such as academic writing, professional correspondence, report writing, and presentation skills. Rather than introducing an entirely new ability, AI interaction strengthens students' existing communication practices.

2. Cognitive Structuring

Before learners communicate effectively with AI, they must first organise their own thinking. Prompt construction is essentially an exercise in structured reasoning.

Students need to analyse problems, identify essential information, break complex tasks into manageable components, establish logical sequences, and communicate these systematically to AI systems. Consequently, prompting becomes a cognitive planning activity rather than a spontaneous question-and-answer exercise.

This dimension aligns closely with higher-order thinking skills promoted by Bloom's Revised Taxonomy, particularly analysing, evaluating, and creating. It also supports problem-solving and computational thinking without requiring learners to possess advanced programming knowledge.

3. Critical Evaluation

One of the greatest educational risks associated with generative AI is the tendency to accept fluent responses as accurate. AI-generated content may contain factual inaccuracies, fabricated references, outdated information, hidden biases, or oversimplified explanations.

Therefore, students must develop the habit of questioning AI outputs rather than accepting them uncritically. Prompt Communication Competency requires learners to compare AI-generated responses with peer-reviewed literature, authoritative textbooks, official reports, and empirical evidence before incorporating them into academic work.

Critical evaluation transforms AI from an answer-generating tool into a catalyst for deeper inquiry. Instead of replacing human judgement, AI becomes a starting point for reflection, verification, and knowledge construction.

4. Ethical Responsibility

Ethical communication has always been central to higher education, and this principle becomes even more significant in AI-supported learning.

Students should understand issues relating to academic integrity, plagiarism, copyright, intellectual property, algorithmic bias, misinformation, data privacy, and transparency in AI-assisted work. Ethical prompting involves using AI to enhance understanding rather than to replace independent thinking or produce dishonest academic submissions.

Universities therefore have a responsibility to establish clear institutional guidelines that encourage responsible AI use while preserving originality, accountability, and scholarly integrity.

5. Disciplinary Adaptability

Although the principles of effective prompting remain broadly similar across disciplines, their practical application differs considerably.

Science students may use AI to explain scientific theories, interpret laboratory observations, design experiments, or analyse research findings.

Commerce and Management students may employ AI for business case analysis, financial forecasting, strategic planning, marketing communication, entrepreneurship, and organisational problem-solving.

Students in Arts and Humanities may utilise AI for literary criticism, language learning, translation, historical interpretation, media analysis, creative writing, and cultural studies.

These examples demonstrate that Prompt Communication Competency is not a specialised technical skill restricted to engineering or computer science. Instead, it functions as a universal graduate capability applicable across diverse academic disciplines.

6. Reflective Refinement

Perhaps the most distinctive characteristic of AI communication is its iterative nature.

Effective prompting rarely ends after a single interaction. Learners continually revise prompts, modify instructions, clarify expectations, provide additional context, and experiment with alternative approaches until satisfactory outcomes are achieved.

This continuous refinement encourages reflective learning. Students become increasingly aware of how language influences AI responses and how improvements in communication lead to improved outcomes. Over time, learners develop metacognitive awareness regarding both their thinking processes and their communication strategies.

Reflection therefore becomes an integral component of Prompt Communication Competency rather than merely a post-learning activity.

A Conceptual Model of Prompt Communication Competency

The six dimensions collectively form a comprehensive framework that connects traditional communication skills with AI literacy.

Traditional Communication Competencies

(Reading • Writing • Speaking • Listening)



Prompt Communication Competency

- Linguistic Clarity
- Cognitive Structuring
- Critical Evaluation
- Ethical Responsibility
- Disciplinary Adaptability
- Reflective Refinement



Effective Human–AI Collaboration



Graduate Outcomes

- Better Learning
- Creativity
- Problem-solving
- Research Competence
- Employability
- Lifelong Learning

This framework illustrates an important shift in educational philosophy. Communication can no longer be viewed solely as interaction between human beings. In contemporary educational and professional environments, graduates increasingly communicate with intelligent systems that assist in learning, decision-making, research, and innovation.

Accordingly, communication competence should be expanded to include meaningful collaboration with Artificial Intelligence.

4. Implications for Indian Higher Education

The proposed framework has important implications for curriculum design, pedagogy, assessment, and graduate employability in India.

Rather than introducing Prompt Communication Competency as a separate subject, universities can embed it within existing courses such as Communication Skills, Business Communication, Research Methodology, Academic Writing, Digital Literacy, Employability Skills, and discipline-specific project work. Such an integrated approach allows institutions to prepare students for AI-enabled workplaces without increasing curriculum overload.

For example, Communication Skills courses may include prompt design exercises that teach students how to frame precise questions, provide contextual information, and evaluate AI-generated responses critically. Research Methodology courses can encourage students to use AI for literature exploration while simultaneously verifying evidence using peer-reviewed databases. Similarly, project-based learning can require students to document how prompts evolved throughout the learning process, thereby rewarding reflective thinking instead of merely evaluating final outputs.

Assessment practices should also evolve. Traditional examinations primarily measure factual knowledge, whereas Prompt Communication Competency evaluates how students think, communicate, justify decisions, and refine their reasoning. Portfolios, reflective journals, AI-assisted case analyses, project reports, and oral presentations therefore offer more authentic evidence of competency development than conventional written examinations alone.

Faculty development represents another critical requirement. Many educators are themselves learning to integrate AI into teaching. Universities should therefore invest in structured professional development programmes that familiarise faculty members with AI literacy, prompt design, ethical AI practices, and innovative assessment methods. Without confident and informed educators, meaningful implementation of Prompt Communication Competency will remain difficult.

5. Alignment with the National Education Policy (NEP) 2020

The National Education Policy (2020) seeks to develop graduates who are creative, multidisciplinary, digitally competent, ethically responsible, and capable of lifelong learning. Although the policy predates the rapid rise of generative AI, its vision aligns remarkably well with the concept of Prompt Communication Competency.

PCC directly supports several objectives of NEP 2020 by encouraging critical thinking, effective communication, problem-solving, digital competence, creativity, and responsible technology use. It also complements Outcome-Based Education (OBE) by integrating communication, analytical reasoning, ethical judgement, and application of knowledge into a single competency framework.

Perhaps most importantly, PCC reinforces the learner-centred philosophy advocated by NEP 2020. Instead of positioning students as passive consumers of AI-generated information, it empowers them to become reflective learners who actively question, evaluate, and improve AI-assisted knowledge construction. Such an approach ensures that technology enhances, rather than diminishes, human creativity and intellectual independence.

6. Conclusion

Generative Artificial Intelligence is redefining communication in higher education. As students increasingly engage with AI-powered systems for learning, research, problem-solving, and professional preparation, the ability to communicate effectively with intelligent technologies has become a critical graduate capability.

This paper argues that **Prompt Communication Competency** represents an important evolution of traditional communication competence. By integrating linguistic clarity, cognitive structuring, critical evaluation, ethical responsibility, disciplinary adaptability, and reflective refinement, PCC offers a comprehensive framework for meaningful human–AI collaboration. Unlike technical approaches to prompt engineering, the proposed framework positions prompting as an educational and communicative process that strengthens higher-order thinking rather than replacing it.

The originality of this paper lies in conceptualising **Prompt Communication Competency as a foundational graduate attribute** applicable across Science, Commerce, and Arts education. The framework contributes to the growing scholarship on AI literacy by bridging communication studies, educational technology, and graduate attribute research. It also complements the vision of NEP 2020 by advocating an integrated, learner-centred approach to AI-enabled education.

As Artificial Intelligence becomes deeply embedded in academic and professional life, universities must rethink what it means to be an effective communicator. Tomorrow's graduates will not be distinguished merely by their ability to use AI tools, but by their capacity to communicate with them thoughtfully, critically, ethically, and creatively. Recognising Prompt Communication Competency as a core graduate attribute is therefore not simply a curricular innovation—it is an educational necessity for preparing responsible professionals in the age of Artificial Intelligence.

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