

# Prompt Literacy in the Era of Generative Artificial Intelligence: A New Digital Entrepreneurial Competence Framework for Entrepreneurship Education

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**Abstract:** Generative AI is shifting from an information-retrieval tool to a context-aware collaborator, and entrepreneurship education, which depends on opportunity judgment under uncertainty, is directly affected. Being able to operate ChatGPT does not mean using it well, and existing digital entrepreneurial competence frameworks have not addressed this gap. This paper reviews three influential frameworks and prompt-engineering research, and proposes prompt literacy as an independent, teachable, assessable competence. It constructs a five-dimensional SPACE model—semantic precision, pragmatic strategy, system adaptability, critical evaluation, creative integration—explaining why prompt literacy is distinct from general digital-tool proficiency, and proposes seven cultivation pathways with a process-assessment rubric.

**Keywords:** prompt literacy; generative artificial intelligence; digital entrepreneurial competence; entrepreneurship education; SPACE model

## 1. Introduction

Generative AI tools such as ChatGPT no longer just retrieve information; they interpret intent, reason across steps, and sustain dialogue, making knowledge production iterative. Entrepreneurship education is especially exposed, since opportunity recognition and business-model design are open-ended judgment tasks where AI is a capable partner. Yet a student who can open ChatGPT and type a question does not necessarily know how to use AI well—interactions often stay single-shot, without follow-up or verification. Building on three digital entrepreneurial competence frameworks—EntreComp, DigComp, EmDigital—this paper (1) redefines productive AI collaboration as an independent competence, prompt literacy; (2) builds a theoretical model of its structure; and (3) proposes cultivation pathways for practice.

## 2. Literature review

EntreComp (2016) [1] organizes entrepreneurial competence into ideas and opportunities, resources, and action, but predates generative AI and says little about conversing with or evaluating an AI system. DigComp (2022) [2] describes digital competences—information literacy, communication, content creation, safety, problem solving—around a static "using a tool" conception, whereas Korzyński et al. (2023) [3] show prompt engineering already requires continual instruction adjustment and output judgment, a more dynamic competence. EmDigital foregrounds digital tools within venture creation but likewise ignores sustained interaction with generative AI. Together these leave two gaps: limited attention to translating business needs into AI-actionable instructions, and to iterative interaction and the privacy, IP, and accountability questions AI raises. Federiakin et al. (2024) [5] argue prompt engineering involves prompt design, prompt literacy, and critical online reasoning together.

AI-literacy research (Long & Magerko 2020 [6]; Ng et al. 2021 [7]) emphasizes understanding and evaluating AI generally, while prompt-engineering research has grown distinct: Lo's CLEAR framework (concise, logical, explicit, adaptive, reflective, 2023 [8]) offers a checklist for a single prompt, and Federiakin et al. (2024) [5] frame prompting as a composite competence. This literature establishes prompting as an emerging competence but says little about why entrepreneurs specifically need it, how it becomes teachable, or how it serves opportunity identification—the gap this paper addresses.

## 3. The SPACE model

Prompt literacy is theorized as a five-dimensional competence, each dimension answering a distinct question in human-AI collaboration.

Semantic precision: translating a vague business question into a structured instruction with operationalizable variables (target population, dimensions, baseline)—rendering tacit business knowledge explicit rather than asking generically to

"analyze the coffee market."

Pragmatic strategy: using role assignment, task-goal management, and context maintenance across multi-turn dialogue, drawing on Grice's cooperative principle, Austin's and Searle's speech-act theory, turning conversation into genuine brainstorming rather than disconnected queries.

System adaptability: the metacognitive competence of adjusting strategy to different AI systems' capability boundaries—e.g., different models for financial projections versus open-ended copy—rather than over-relying on one tool.

Critical evaluation: independently judging AI output for data reliability, logical soundness, and business feasibility, guarding against fluent-but-invented content and mistaking a plausible AI suggestion for a real market signal.

Creative integration, the value-realization layer: creatively recombining the first four dimensions' output into an original opportunity or business-model proposal. Tang et al. (2026) [15] found business-plan scores rose 22.4% in an AI-enhanced group versus 15.1% in traditional instruction, with digital literacy moderating gains—AI's benefit is conditional on user competence, not automatic.

These dimensions form a cycle, not a checklist: semantic precision and pragmatic strategy govern input, system adaptability regulates strategy throughout, critical evaluation screens output, and creative integration channels everything toward opportunity identification. A judgment that output is unreliable feeds back into re-expression or a strategy switch—a self-correcting loop most prompt-writing research does not model.

## 4. Why prompt literacy is a new competence

Technologically, generative AI has shifted learning's central variable from information access to human-AI collaboration effectiveness, a shift to which entrepreneurship education is especially exposed. Educationally, AI is now embedded in market analysis, user research, and prototyping; it supplies a first draft students must evaluate or revise, shifting the human role from origination to curation, and this benefit scales with learner competence (Tang et al. 2026 [15]). At the competence level, ordinary users interact with AI in a linear, single-shot, passively receptive pattern, while a prompt-literate user cycles through task analysis, prompt design, iterative refinement, critical judgment, and creative integration—mapping onto SPACE. As access becomes universal, "using AI" becomes near-universal, while "possessing prompt literacy" remains a dynamic, differentiating competence—arguably a new digital divide that existing "tool use" language is too coarse to capture.

## 5. Cultivation pathways and educational implications

Seven complementary pathways operationalize the model: (1) embedding prompt practice in authentic curriculum tasks rather than fixed templates, assessing revision reasoning (informed by Lo's CLEAR framework [8]); (2) prompt training in real entrepreneurial projects, recording task framing and team judgment so reasoning survives turnover; (3) iterative prompt portfolios preserving a project's analytical history; (4) peer-review workshops comparing teams' different prompting approaches to the same problem; (5) critical-evaluation exercises using AI-generated cases with planted errors for diagnosis; (6) AI ethics education on privacy, authorship, transparency, and accountability, extending DigComp's safety dimension [2]; and (7) process-oriented assessment covering comprehension, prompt design, decomposition, refinement, verification, judgment, and ethical reflection—since a polished plan alone cannot distinguish deep engagement from an unexamined single AI output.

**Table 1. Process-assessment weights for prompt literacy.**

| Assessment dimension     | Suggested weight |
|--------------------------|------------------|
| Task comprehension       | 15%              |
| Prompt design            | 20%              |
| Task decomposition       | 15%              |
| Iterative refinement     | 15%              |
| Information verification | 15%              |
| Entrepreneurial judgment | 10%              |
| Ethics and reflection    | 10%              |

## 6. Conclusion and prospects

Prompt engineering is not merely an operational technique but, in entrepreneurship education, an independent, teachable, assessable competence—prompt literacy—modeled as a five-dimensional, self-correcting SPACE cycle. The paper clarifies

the gap between "using AI" and "possessing prompt literacy" and proposes seven cultivation pathways with a process-assessment rubric that layer onto existing curricula.

Theoretically, this extends EntreComp, DigComp, and EmDigital into a domain they did not anticipate—sustained dialogue with generative AI—situating prompt literacy within the entrepreneurial decision chain rather than as a domain-neutral skill. Practically, the pathways and rubric are designed to be actionable within existing courses.

Limitations: the SPACE model is a theoretical derivation, not yet empirically tested, and its pathways and rubric are untested in actual classrooms; the discussion draws primarily on Chinese higher education, so cross-system generalizability is unknown. Future work should develop a validated measurement scale, compare samples across countries, and track cohorts longitudinally to test whether prompt literacy predicts entrepreneurial performance.

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