What's AI Got to Do with It?: An Analysis of GenAI Competency Frameworks

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This paper explores generative artificial intelligence (GenAI) competency frameworks and the extent to which they do or do not effectively represent what happens in the GenAI-assisted composing process. After a brief introduction to GenAI competencies literature, I critique these frameworks in terms of agency and consider their pedagogical value. Ultimately, I argue that GenAI competency frameworks, as currently defined, do not sufficiently differentiate between using GenAI and other writing technologies.

Proponents of generative artificial intelligence (GenAI) assert that we must teach our students to use GenAI, that our graduates will not get jobs if they do not learn to use it, that it amounts to professional malpractice not to teach it (c.f. Godfrey, 2024; McDaniel Bae, 2025; Schroeder, 2024). An important outgrowth of these arguments is the rush to develop lists of GenAI competencies—what do writers need to know about GenAI to use it effectively? GenAI competencies literature ranges from general considerations (Long & Magerko, 2020; Wang, Rau, & Yuan, 2023) to fuller lists of competencies (c.f. Annapureddy, Fornaroli, & Gatica-Perez, 2025). Still others suggest that these lists of competencies should include a metacognitive dimension to account for the unique cognitive demands of working with GenAI (Tankelvitch et al., 2024). GenAI competencies are deemed essential not merely for employability but also for informed and enhanced user agency: Without such competencies, we are told, we might face a new literacy crisis (Johnson, 2023). Competency lists are generally useful for providing a sense that we understand a complex phenomenon enough to translate it into teachable elements. These lists also suggest that there is indeed something unique about working with GenAI that ought to be defined for these pedagogic purposes. While our current lists of competencies might be used to argue for the exceptionality of and our grasp on GenAI writing, this paper suggests that these competencies, as presently constituted, do not sufficiently recognize what GenAI writers actually do, and, further, that rhetoric and writing studies may already foster many of these competencies without the direct use of GenAI.

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In a spirit of GenAI skepticism if not outright refusal (Sano-Franchini, McIntyre, & Fernandes, 2024), this paper explores competency frameworks and the extent to which they do or do not accurately represent what happens in the GenAI-assisted composing process. I begin by providing a brief introduction to GenAI competencies research as a subset of international and interdisciplinary AI literacy discussions. Following this exposition, I critique these competencies, starting by asking conceptual questions such as: Based on these descriptions, what do these competencies entail? How do these descriptions obscure or reveal what GenAI writers actually do? And, in what ways are these competencies GenAI mode-specific rather than applicable to composing in analog and digital modes generally? After using questions such as these to distill what these competencies tell us about what GenAI writers should be able to do, and considering how these competencies may already be instilled through best practices in writing curricula (Johnson, 2023), I suggest that, as we seek clarity regarding what actual tasks AI writing involves, we will be more successful in cutting through the hype and better understand the ways in which AI writing is and is not unique.

Defining GenAI Competencies

GenAI literacy is often described as an all-encompassing understanding of GenAI and how to use it effectively. As Duri Long and Brian Magerko (2020) define it, GenAI literacy involves "a set of competencies that enables individuals to critically evaluate AI technologies, communicate and collaborate effectively with AI, and use AI as a tool online, at home, and in the workplace" (p. 2). Competencies are an important construct in this definition. A useful definition of competency can be found in Vikram Singh Chouhan and Sandeep Srivastava's (2014) analysis of workplace competency modeling, where they define competency as "the capacity of applying or using knowledge, skills, abilities, behaviors, and personal characteristics to successfully perform critical work tasks, specific functions, or operate in a given role or position." "Competencies," they continue, "are thus underlying characteristics of people that indicate ways of behaving or thinking, which generalizes across a wide range of situations and [endures] for long periods of time" (p. 16). Businesses often work to identify key competencies to guide their hiring and training processes. In terms of GenAI competencies, various stakeholders have sought to define what workers need to know, think, and do about GenAI.

These definitions of GenAI literacy and competencies are notable for what they do and do not say about literacy itself. As we have understood for some time in rhetoric and writing studies, literacy includes but is not limited to the ability to simply do something like read and write. Rather, literacy also

involves processes of socially-situated meaning-making. In other words, literacy does not happen in a vacuum; rather, we must attend to the "specific historical and material contexts" in which it arises (Graff & Duffy, 2023). Discussions of GenAI literacy, however, often focus on use at the expense of context of use. As such, GenAI literacy is often treated as distinct from critical AI literacy. Whereas critical AI literacy emphasizes a conscious critique of GenAI and its relationship to structures of power, GenAI literacy mostly assumes the positive use of GenAI (Bali, 2023; McIntyre, Fernandes, & Sano-Franchini, 2025; Vee, 2025). With this agnostic positioning, GenAI literacy and competencies may, by very definition, undermine efforts to empower writers. How can writers be empowered if they do not recognize the power structures that enable and constrain their communicative agency?

Several GenAI competency frameworks have been generated in the past five years by scholars and policymakers outside of rhetoric and writing studies. Some of these frameworks are generated from systematic literature reviews while others are based on more general theorization. As such, the content of these frameworks is often defined abstractly. Most of these frameworks emphasize how GenAI is currently used rather than consider how it ought to be used. While the exact number of competencies varies, there is some consistency from one list to the next. Bingcheng Wang, Pei-Luen Patrick Rau, and Tianyi Yuan (2022) provide the shortest list, identifying four GenAI constructs: awareness, usage, evaluation, and ethics (p. 3). These constructs are generally representative of the constructs found in the other frameworks surveyed below. Each construct tends to take a noncritical stance to GenAI. Wang, Rau, and Yuan define awareness as "the ability to identify and comprehend AI technology during the use of AI-related applications" (p. 3). Usage is understood as distinct from this general awareness. They define usage as "the ability to apply and exploit AI technology to accomplish tasks proficiently," that is, to use GenAI as opposed to analyzing or how to think about GenAI (p. 4). Evaluation they define as "the ability to analyze, select, and critically evaluate AI applications and their outcomes" (p. 4). And they define ethics as "the ability to be aware of the responsibilities and risks associated with the use of AI technology"—essentially, "to ensure that AI technology is used correctly and appropriately" (p. 4). These constructs—awareness of what GenAI is, how it works, and what it can and can't do; how to actively use GenAI; how to evaluate GenAI outputs; and how to use GenAI for good, not evil—manifest, in one way or another, across frameworks. Using these constructs as loose codes for the other frameworks, we can see how various researchers approximate these four constructs (see Table 7.1). Long and Magerko (2020), for instance, while writing well-before the launch of ChatGPT, already identify similar constructs such as "recognizing AI," "critically interpreting data,"

and "ethics"—though usage receives less attention. In "The Metacognitive Demands and Opportunities of Generative AI," Lev Tankelevitch et al. (2024) take a different tack, focusing less on awareness and ethics and more on how metacognitive competencies might map onto the prompt writing process. The UNESCO (2024) *AI Competency Framework for Students* represents another approach which, hearteningly, emphasizes not just usage but also forefronts ethics (including mention of labor and environmental issues—something the other frameworks ignore). Finally, Ravinithesh Annapureddy, Alessandro Fornaroli, and Daniel Gatica-Perez (2025) synthesize studies of GenAI competencies to arrive at yet another variation on this same theme.

Table 7.1. Coded Comparison of Selected GenAI Competency Lists

Wang, Rau, and Yuan (2022)	Awareness (A) Usage (U) Evaluation (Ev) Ethics (Et)
Long and Magerko (2020)	1. Recognizing AI (A) 2. Understanding intelligence (A) 3. Interdisciplinarity (A) 4. General vs. Narrow (A) 5. AI Strengths and Weaknesses (A) 6. Imagine Future AI (A) 7. Representations (A) 8. Decision-Making (A) 9. Explainability (A) 10. Human Role in AI (A) 11. Data Literacy (Ev) 12. Learning from Data (Ev) 13. Critically Interpreting Data (Ev) 14. Action and Reaction (U) 15. Sensors (U) 16. Ethics (Et) 17. Programmability (Et)
UNESCO (2024)	1. Human-centered mindset (human agency, human accountability, citizenship in the era of AI) (Et) 2. Ethics of AI (embodied ethics, safe and responsible use, ethics by design) (Et) 3. AI techniques and applications (AI foundations, application skills, creating AI tools) (U) 4. AI system design (problem scoping, architecture design, iteration and feedback loops) (U)

Tankelevitch et al. (2024)	Prompt Formation: 1. Self-awareness of task goals (U) 2. Task decomposition for prompting (U) Prompt Iteration 3. Well-adjusted confidence in prompting ability (U) 4. Metacognitive flexibility to adapt prompting strategy (U) Evaluation 5. Well-adjusted confidence in evaluation ability (Ev) 6. Self-awareness of applicability and impact of GenAI on workflows (Ev) Understanding and Adapting Workflows 7. Well-adjusted confidence in complete task yourself vs. with GenAI (U) 8. Metacognitive flexibility to adapt to GenAI (U)
Annapureddy, Fornaroli, and Gatica-Perez (2025)	1. Basic AI literacy (A) 2. Knowledge of generative AI models (A) 3. Knowledge of the capacity and limitations of generative AI tools (A) 4. Skills to use generative AI tools (U) 5. Ability to detect AI-generated content (Ev) 6. Ability to assess the output of generative AI tools (Ev) 7. Skill in prompting generative AI tools (prompt engineering) (U) 8. Ability to program and fine-tune generative models (U) 9. Knowledge of the contexts where generative AI is used (Et) 10. Knowledge of the ethical implications (Et) 11. Knowledge of the legal aspects (Et) 12. Ability to continuously learn (U)

Agency and Pedagogy

Each of these frameworks takes matters of awareness, usage, evaluation, and ethics in several directions. For the purposes of this paper, however, I am especially interested in how these competency frameworks define usage and evaluation. I am interested in how usage and evaluation are described because of what they mean for agency—not only what we can know, but what we can do. Together, usage and evaluation represent a compressed description of the composing process of integrated writing and reading. While competencies are often deliberately written for wide application across disciplines and fields, and these lists are often derived from systematic literature reviews, the way they conceptualize usage and evaluation especially matters because it reveals how scholars are (or are not) thinking about practical matters. Often, current competency frameworks obscure what we actually do when we use and evaluate GenAI,

which has implications for agency and pedagogy. To put it briefly, it is difficult to be a conscious, agentive user if we blackbox usage and evaluation. Inasmuch as literacy includes both reading and writing, analysis and synthesis, the most functional competency frameworks ought to attend to usage and evaluation and, furthermore, define these competencies in ways that are actually proper to GenAI writers and not just to writing in general. If these competencies are simply applicable to writing in general, then ostensibly we can learn them through any writing technology, not just GenAI. In what follows, I will analyze these frameworks from least to most focus on usage and evaluation.

In some of these frameworks, there is little attention to defining usage and evaluation in concrete terms and, as such, limited clarity when it comes to what specific skills would be taught. Long and Magerko (2020), for instance, find little research on use, despite the fact that many AI agents (including, to a lesser extent, GPTs) were already in use when they published in 2020 (for a brief list of AI agents, see McKee & Porter, 2020). They also mostly pass over evaluation as a distinct competency. Wang, Rau, and Yuan, (2022) find a little more attention to GenAI use and evaluation, but not much. In their review of the literature on AI competencies, Wang, Rau, and Yuan identify skills such as "word processing, spreadsheets, and presentation" as well as "management and information integration" as kinds of usage scholars have considered (p. 4). And again, they define evaluation broadly as an ability to assess outputs (p. 4). For the most part, though, Wang, Rau, and Yuan focus on usage and evaluation in general terms. Such general terms are insufficient to differentiate GenAI literacy from any other kind of literacy. For example, if GenAI competencies are considered merely "word processing" and content management, well, we teach those already just fine with a computer and a knowledge base.

The UNESCO *AI Competency Framework for Students* (2024) gives slightly more attention to usage, or what they call "AI techniques and applications" and "AI system design" (p. 18). However, they do not give much attention to evaluation. They present AI techniques as "an integrated view of the intrinsically linked conceptual knowledge on AI and associated operational skills, using selected AI tools and authentic tasks" and AI systems design as more advanced "comprehensive engineering skills that determine the problem solving, architecture building, training, testing, and optimization of AI systems" (p. 18). UNESCO also conceptualizes AI techniques as moving from foundational skills to application of those skills and eventually the development of AI tools such as bots. While promising, UNESCO's focus is primarily on the AI programming side of things: "Students," they write, "will synchronically acquire skills in AI programming and reinforce the transferability of their knowledge and skills by applying them to the crafting of AI tools" (p. 25). Approaching GenAI literacy from a programmer perspective is valuable; however, the focus on users is also

necessary, especially as our own students will not necessarily be going into AI development fields but may be expected to use AI for other applications. Applications such as "facial recognition, social media recommendations, pattern analyses underlying scientific data, medical diagnoses, self-driving cars and predicting the risk of loan defaults" (p. 32) suggest the range of applications, but they do not include writing. For GenAI competencies that define what users do, not just what programmers do, we must look elsewhere. And, pedagogically, we've been talking about social media algorithms for a while and have conducted pattern analysis for even longer. Do we really need GenAI to teach these?

Annapureddy, Fornaroli, and Gatica-Perez (2025) introduce a framework that shows a little more potential for demystifying what actually happens when someone is working with AI—but just a little. Annapureddy, Fornaroli, and Gatica-Perez consider usage broadly as "Skills to use generative AI tools," "Skill in…prompt engineering," "Ability to program and fine-tune generative models," and "Ability to continuously learn." Likewise, they consider evaluation as the "Ability to detect AI-generated content" and the "Ability to assess the output of generative AI tools" (p. 7). For sake of time, allow me to just focus on a handful of these. In their telling, "Skills to use generative AI tools" include knowing "which tool to use for a specific application, and how to use it to generate new content" (p. 11). This description is a little more than just saying a user should have techniques, but the phrase "how to generate new content" is left woefully unpacked. Annapureddy, Fornaroli, and Gatica-Perez go a little further when it comes to prompt writing—I mean, engineering. Of prompt engineering, they write "While it is beyond the scope of this work to delve into the details of prompt engineering, given the abundance of academic writings and systematic reviews of the topic, being aware of different techniques to optimally prompt AI systems can allow users to be more efficient in their use of generative AI" (p. 13). Attention to prompting may be more proper to GenAI competencies because prompting focuses on precisely what usage is about—enabling users to make deliberate choices about how they use GenAI. However, as Annapureddy, Fornaroli, and Gatica-Perez do not expand on this point, we cannot be sure that they value such agentive insights. The research they cite does not identify sub-competencies for prompting, but they do share some brief research to describe the "Ability to Assess the Output of Generative AI Tools" competency (p. 13). Considering these competencies broadly, Annapureddy, Fornaroli, and Gatica-Perez call for developing frameworks that include "domain-specific competencies" for various industries and applications (p. 15). Annapureddy, Fornaroli, and Gatica-Perez recognize that their framework only gives a bird's eye view of the matter and recognize the need for further articulation of GenAI competencies. This framework suggests competencies that may be more proper to GenAI usage and evaluation,

that begin to define what GenAI users do in practice. However, because this framework often operates at a high level of generality, these competencies lack sufficient definition. While prompting and evaluating outputs seem to better describe GenAI outputs, this lack of attention means prompting and output evaluation could be confounded with writing assignment prompts and teaching editing—again, practices that are not specific to GenAI usage.

Of the frameworks surveyed, Tankelevitch et al. (2024)'s framework seems the most specific and practical. Noting that "there is not yet a coherent understanding of the usability challenges of GenAI, much less one grounded in a theory of human cognition" (p. 1), they emphasize how metacognitive processes map onto the prompting process; in other words, usage and evaluation, that is, a reduction of the composing process, is their primary focus. Because these processes are central to this framework, I will briefly describe them here. Tankelevitch et al. divide the prompting process into four stages: prompt formulation, prompt iteration, evaluation, and understanding and adapting workflows. Tankelevitch et al. then map the following cognitive tasks onto this process (p. 7). For each of these tasks, note that the active engagement of the user is central. Prior to prompt formulation, a user should have self-awareness of their task goals and determine what they will put into the prompt. Then, in prompt iteration, the user will rely on their prompting ability as well as employ metacognitive flexibility to adapt their prompting strategy. In the prompt evaluation stage, the user will then shift from their prompting confidence to their evaluating competence. Finally, in understanding and adapting their workflows, the user will need to be aware of whether GenAI fits their current workflow, remain confident in their ability to complete the task on their own, and adjust their workflow to include GenAI. Because this model centers on usage and evaluation and correlates these processes with human metacognitive processes, this model has more to offer us as we seek to understand and define GenAI competencies. To say that a GenAI user doesn't merely create prompts but specifically formulates, iterates, and adapts prompts and workflows—with a note on self-efficacy, no less—gives a more complete snapshot not just of the process of using GenAI mindfully but also suggests how this framework might be teachable. While this framework echoes the design process more generally (ideation, prototyping, reflecting, etc.), it does suggest ways we might focus on the role of digital tools in that metacognitive process.

Conclusion

In reviewing this handful of GenAI competency frameworks, I hope it has become apparent that much work is left to be done in defining these

competencies as an outgrowth of the GenAI literacy question. Many emergent frameworks consider usage and evaluation but define these processes cursorily as categories of interest but not of central focus. In highlighting frameworks such as Tankelevitch et al., I suggest that frameworks of usage and evaluation that hew closely to human cognitive processing rather than just GenAI processing might more comprehensively tease out what GenAI writers actually do, even on a cognitive level. More studies of these cognitive and behavioral processes would enable us to define more actionable competencies and would ensure that those competencies are actually teachable and specific to the use of GenAI. It is one thing for future graduates to say "I have GenAI skills," and another to say something like "I embrace rather than avoid multishot prompting" or "I regularly synthesize multi-authored and GenAI-authored content."

To isolate mode-dependent GenAI competencies, it will also be crucial to hold our hypotheses up against competencies in other modalities. Tankelevitch et al.'s emphasis on metacognitive competencies over more abstract competencies, for example, has much in common with S. Scott Graham's (2023) looped AI writing process model (p. 167). If the prompting process is just another composing process, what it does may not be a difference in kind but rather of degree—the degree to what we already do in analog and digital writing. This is not to say that GenAI-specific competencies do not exist. Just as we've learned over the years that digital and multimodal reading and composition require their own unique sets of skills (Downs, 2021), GenAI surely has its own mode-dependent tasks and processes that go beyond how we typically think about concepts such as revision, editing, teamwork, and content management. In the meantime, however, GenAI competencies that are abstract and disconnected from what GenAI writers actually do are insufficient for arguing that we have to teach with GenAI. Inasmuch as these competencies are the same across modalities, we likely already teach our students GenAI writer competencies without and before they ever prompt GenAI.

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