# Creative Hollowing: The Impact of Generative AI on Developing Creative Identity

M.C. Davis, Fellow CDT Harvard, DSc Candidate Capitol Tech, ED NM-CCCR

New Mexico Center for Cognitive Cybersecurity Research (NM-CCCR)

2026

The Creative Hollowing: How Generative AI Erodes Children's Creative Capacity and What We Can Do About It

M.C. Davis

Fellow, Center for Digital Thriving, Harvard Graduate School of Education Doctor of Science Candidate in Cyberpsychology, Capitol Technology University Executive Director, New Mexico Center for Cybersecurity and Cyberpsychology Research (NM-CCCR)

## ORCID: 0009-0005-9313-9494

Correspondence: michael@merek.io

A publication of the New Mexico Center for Cybersecurity and Cyberpsychology Research cyberpsychologyresearch.io

## ABSTRACT

The rapid adoption of generative AI tools has introduced a developmental risk that existing digital literacy frameworks do not address: the progressive deterioration of creative generative capacity through sustained reliance on AI-mediated creative processes. This paper defines creative atrophy — the erosion of the capacity to generate unprompted creative output when a responsive generative system is available — and introduces the concept of the Creative Hollowing, a state in which the structures of creativity (interest, taste, judgment) remain intact while the generative engine (the capacity to produce from within) diminishes. Drawing on evidence from a longitudinal analysis of 790 AI conversations spanning 41.7 million characters over 39 months, developmental creativity research, and embodied cognition frameworks, we argue that the elementary years represent a critical window for creative development and that the current pace of AI adoption in educational settings demands urgent attention to this phenomenon. We propose interoceptive awareness of the creative impulse as a protective intervention — teaching children to notice the felt sense of wanting to create before the generative AI provides the answer. This paper contributes to the emerging discourse on AI's developmental impact by naming a specific mechanism through which creative capacity may erode and offering a body-based framework for its preservation.

*Keywords: creative atrophy, Creative Hollowing, generative AI, children's creativity, interoceptive awareness, digital wellness, AI in education*

## 1. INTRODUCTION

Creativity has always involved tools. The child who picks up a crayon, arranges wooden blocks, or learns three chords on a guitar is using external instruments to manifest internal impulses. The relationship between the creative agent and the creative tool has, across human history, been characterized by a fundamental asymmetry: the tool extends the human's capacity but does not replace it. The crayon does not draw; the child draws with the crayon. The guitar does not compose; the musician composes through the guitar.

Generative AI disrupts this asymmetry. For the first time in human history, the tool can generate creative output independently — and often more fluently, more quickly, and with greater technical polish than the human using it. A child who asks an AI to write a story receives a story. A child who asks an AI to draw a dragon receives a dragon. The output is immediate, competent, and responsive to the child's specifications. From the child's perspective, the creative problem has been solved.

But something has been lost in the solution. The child who receives the AI-generated story has not exercised the cognitive and emotional muscles required to produce a story from within — the toleration of ambiguity during the opening moments of creation, the willingness to produce an imperfect first attempt, the iterative struggle of revision, the surprise of discovering what one thinks by writing it down. These are not incidental features of the creative process; they are the process itself. And they are muscles that atrophy from disuse.

This paper introduces two constructs — creative atrophy and the Creative Hollowing — that name what is at stake when generative AI becomes a primary creative partner for developing minds. We draw on evidence from a longitudinal self-study of sustained AI interaction, developmental creativity research, and the interoceptive awareness framework of the Mindfulness as a Service (MaaS) 2.0 architecture (Davis, 2026a) to argue that the elementary years represent a critical window for creative development, that generative AI poses a specific and nameable threat to that development, and that body-based awareness of the creative impulse offers a viable protective intervention.

## 2. DEFINING CREATIVE ATROPHY

Creative atrophy, as defined within this framework, is the progressive deterioration of the capacity to generate unprompted creative output when a responsive generative system is available to generate on the individual's behalf. Several elements of this definition require unpacking.

First, creative atrophy is about capacity, not activity. A person experiencing creative atrophy may still engage in creative activities — editing AI-generated text, curating AI-produced images, directing AI creative processes through prompting. What diminishes is the capacity to generate from within: to face a blank page, an empty canvas, or an unstructured problem and produce something that did not exist before through one's own cognitive and emotional resources.

Second, creative atrophy is relational and contextual. It describes what happens to creative capacity in the presence of a responsive generative system. The same individual may retain creative generative

capacity in domains where AI assistance is unavailable (improvisational conversation, physical crafts, embodied play) while experiencing atrophy in domains where AI is the default creative partner. This contextual specificity distinguishes creative atrophy from general creative decline or creative block.

Third, creative atrophy operates through a mechanism of disuse rather than damage. The parallel to physical atrophy is instructive: muscles that are not exercised do not disappear but lose strength, responsiveness, and the neural pathways that coordinate their use. Creative generative capacity, similarly, requires regular exercise — the repeated experience of facing creative uncertainty, tolerating the discomfort of not-yet-knowing, and producing imperfect output that can be refined through iteration. When a generative AI eliminates the need for this exercise by providing immediate, polished output, the muscles involved are not damaged but are progressively deactivated.

This disuse mechanism is particularly consequential because it is invisible to the person experiencing it. Unlike creative block — which is experienced as frustration, stuckness, and the desire to create coupled with the inability to do so — creative atrophy progresses without subjective distress. The creative impulse itself may weaken, not because creativity has been suppressed but because the path of least resistance (requesting AI-generated output) is so frictionless that the alternative path (generating from within) is simply never taken. Over time, the internal path becomes less accessible — not because it has been blocked but because it has been bypassed so consistently that the neural and cognitive resources allocated to it have been redistributed elsewhere.

## 3. THE CREATIVE HOLLOWING

If creative atrophy describes the mechanism, the Creative Hollowing describes the state — the condition of a mind in which the structures of creativity remain intact while the generative engine has diminished.

The person experiencing the Creative Hollowing retains interest in creative output. They can still recognize quality, exercise aesthetic judgment, and articulate preferences about creative work. They know what a good story looks like. They can distinguish a compelling image from a mediocre one. They have taste, discernment, and creative values. What they have lost — gradually, imperceptibly — is the capacity to produce the work that their taste can evaluate.

This dissociation between creative judgment and creative production is the defining feature of the Creative Hollowing. It is experienced not as a dramatic loss but as a subtle shift in default behavior: the creative person who once would have written the first draft now prompts the AI for a first draft; the artist who once would have sketched a concept now asks the AI to generate options; the student who once would have struggled with an opening paragraph now receives one instantly and moves directly to editing. At each step, the output may be adequate or even excellent. What is missing is the exercise — the struggle, the false starts, the productive failure — that maintains generative capacity.

The term "hollowing" is chosen deliberately. A hollowed structure retains its external form while losing its interior substance. The Creative Hollowing produces individuals (and, potentially, communities and cultures) that appear creatively engaged — consuming, curating, editing, directing — while the generative core has quietly emptied. The shell of creative identity persists; the engine of creative production has slowed.

## 4. EVIDENCE: THE CHATGPT CONVERSATION LOG ANALYSIS

The constructs of creative atrophy and the Creative Hollowing emerged, in part, from a longitudinal self-study of sustained human-AI creative interaction. The author's personal archive of AI conversations — 790 conversations spanning 41.7 million characters over 39 months (December 2022 through March 2026) — provides a detailed record of how creative processes shift over extended periods of AI collaboration.

Several patterns in this archive illuminate the creative atrophy mechanism.

Delegation progression. Early conversations in the archive show the author using AI as a sounding board — presenting ideas, requesting feedback, and maintaining primary authorship of creative output. Over time, the balance shifted. Later conversations increasingly begin with requests for the AI to generate first drafts, produce options, or create content that the author then evaluates and edits. This progression was not deliberate; it was the natural consequence of discovering that the AI could produce competent first drafts more quickly than the author could generate them internally. The shift from creator-who-consults to editor-of-AI-output occurred gradually and was only recognizable in retrospect through systematic analysis of the archive.

Reduced tolerance for creative discomfort. The archive reveals a progressive decrease in the author's willingness to sit with creative uncertainty. Early conversations show extended periods of generative struggle — multiple attempts at framing, abandoned approaches, recursive exploration of ideas. Later conversations show shorter intervals between encountering a creative challenge and requesting AI assistance. The "tolerance window" — the duration between creative impulse and AI delegation — narrowed measurably across the archive.

Prompt sophistication as compensatory skill. As generative capacity shifted toward the AI, prompting skill increased. The author developed increasingly precise and effective techniques for directing AI creative output — detailed specifications, voice guidelines, structural constraints, iterative refinement protocols. This skill development is genuine and valuable. But it is compensatory: it represents expertise in directing an external creative engine rather than exercising an internal one.

Metacognitive recognition. Perhaps most significantly, the archive contains moments of explicit recognition of the creative atrophy process — conversations in which the author notices and names the shift in creative capacity. These moments of recognition are themselves evidence that the structures of creativity (self-awareness, aesthetic judgment, metacognitive capacity) remain functional even as the

generative engine has been partially delegated. This is the Creative Hollowing observed from within.

It is important to note the limitations of this evidence. A single individual's longitudinal experience is a case study, not a population-level finding. The author is an adult professional, not a child, and the developmental implications must be extrapolated with appropriate caution. The archive was not designed as a research instrument; it is retrospective data repurposed for analytical ends. These limitations notwithstanding, the archive provides a granular, temporally extended record of creative process shift that laboratory studies of AI's creative impact have not yet been able to capture.

## 5. DEVELOPMENTAL VULNERABILITY: WHY K–5 MATTERS

The creative atrophy framework has particular urgency for elementary-age populations because the K–5 years represent a critical window for the development of creative generative capacity.

Developmental creativity research has established that the elementary years are characterized by a distinctive creative orientation. Children in this age range exhibit what Torrance (1968) described as a "fourth-grade slump" — a decline in divergent thinking scores around age nine that reflects, in part, the increasing influence of convergent social expectations on creative expression. Before this transition, children demonstrate remarkable creative fluency: the willingness to generate multiple solutions, to combine ideas in novel ways, and to produce creative output without the self-censoring that characterizes adult creative processes (Runco, 2014).

This creative fluency is not innate and permanent; it is a capacity that is exercised and maintained through practice. Children who regularly engage in open-ended creative activities — drawing, storytelling, building, pretending — maintain and develop their generative capacity. Children who do not exercise this capacity show measurable declines in divergent thinking, creative self-efficacy, and the willingness to engage with creative challenges (Kim, 2011).

Generative AI introduces a novel threat to this developmental process. When a child discovers that an AI can produce a story, a drawing, or a solution more quickly and (by conventional standards) more competently than they can produce one themselves, the rational response — from the child's perspective — is to use the AI. This is not laziness; it is the satisficing heuristic operating as designed (Simon, 1956; Davis, 2026b). The child selects the first option that meets the "good enough" threshold, and the AI-generated output consistently clears that threshold with minimal effort.

The developmental cost is borne invisibly. The child who uses AI to complete creative assignments does not experience creative failure — and therefore does not develop the resilience, frustration tolerance, and iterative problem-solving skills that creative failure cultivates. The child who receives an AI-generated first draft does not exercise the cognitive muscles involved in transforming a vague idea into a structured expression — and therefore does not develop the capacity to do so independently. Over time, the generative capacity that was never exercised fails to develop, and the child enters adolescence and adulthood with taste, judgment, and prompting skills but diminished capacity to create

from within.

This is not a hypothetical concern. The adoption of generative AI in educational settings has accelerated rapidly since 2023, with AI writing assistants, art generators, and coding tools becoming increasingly embedded in classroom practices. While the pedagogical benefits of AI tools are real and should not be dismissed, the developmental implications of early and sustained creative delegation have received insufficient attention.

## 6. THE INTEROCEPTIVE CONNECTION: NOTICING THE CREATIVE IMPULSE

The MaaS 2.0 framework (Davis, 2026a) proposes interoceptive awareness — the capacity to perceive internal bodily signals — as the primary mechanism through which mindfulness-based digital literacy operates. This mechanism has direct application to the creative atrophy problem.

The creative impulse has a somatic dimension. Before a person consciously decides to create, the body registers a constellation of signals: a quickening of attention, a felt sense of possibility, a subtle energetic shift toward expression. This embodied creative impulse is the precursor to creative action — it is the moment before the first word is written, before the hand reaches for the drawing tool, before the idea takes communicable form.

In the absence of generative AI, this impulse naturally leads to creative action because there is no alternative. The person who feels the urge to write must write; the person who feels the urge to draw must draw. The gap between impulse and expression is bridged by the person's own generative effort. This bridging — this passage from internal impulse to external expression — is the exercise that maintains creative capacity.

Generative AI introduces an alternative pathway. The creative impulse can now be satisfied without generative effort: the person who feels the urge to write can prompt the AI to write; the person who feels the urge to create an image can prompt the AI to generate one. The impulse is acknowledged, but the generative exercise is bypassed. Over time, the impulse itself may weaken, as the body learns that creative desire does not require creative effort to achieve resolution.

Interoceptive awareness training offers a specific intervention at this precise juncture. By teaching children to notice the creative impulse as a bodily event — "My hands want to make something," "My brain feels fizzy with an idea," "I have a picture in my head that wants to come out" — interoceptive training creates a temporal gap between creative impulse and action. In that gap, the child can make a choice: generate the creative output themselves, or delegate it to the AI. The choice is not predetermined; the intervention does not prohibit AI use. What it does is make the choice visible by making the impulse visible, preventing the default slide toward delegation that characterizes creative atrophy.

In the MindfulBytes program, this intervention takes the form of "creative body check-ins" — brief moments before creative activities in which children are asked to notice what their bodies feel when they have an idea. Preliminary observations suggest that children as young as six can identify and describe the somatic signatures of creative impulse when given vocabulary and structured reflection opportunities. These observations are preliminary and do not constitute validated findings, but they suggest a promising direction for intervention design.

## 7. PROTECTIVE FACTORS AND INTERVENTION APPROACHES

Beyond interoceptive awareness, several protective factors and intervention approaches may mitigate creative atrophy in K–5 populations.

Preserving generative-first experiences. The most direct protection against creative atrophy is ensuring that children regularly engage in creative activities where AI assistance is not available as an option. This does not mean banning AI from educational settings; it means deliberately designing creative experiences — clay sculpting, improvisational storytelling, musical exploration, physical construction, dramatic play — where the child's own generative capacity is the only available creative engine. These experiences maintain the neural and cognitive pathways that creative generation requires.

Scaffolding productive struggle. Educational approaches that explicitly value creative struggle — the messy, frustrating, iterative process of producing something from nothing — can counteract the frictionless efficiency of AI-generated output. When teachers and parents normalize imperfect first attempts, celebrate the process of revision, and honor creative effort alongside creative product, they create an environment in which the child's own generative capacity is valued even when it produces results that AI could improve upon.

AI as collaborator, not generator. When AI is used in creative contexts, its role can be structured to support rather than replace the child's generative capacity. An AI that asks questions, offers prompts, and challenges assumptions supports creative thinking; an AI that produces finished output on request bypasses it. The distinction is pedagogically critical: AI-as-Socratic-partner exercises creative muscles; AI-as-ghostwriter atrophies them.

Community creative practice. Creative atrophy may be mitigated by social contexts in which creative production is a communal activity. When children create together — writing stories collaboratively, building structures as a team, composing music in groups — the social dimension of the creative process provides motivation, accountability, and relational reward that AI delegation cannot replicate.

## 8. IMPLICATIONS FOR EDUCATIONAL POLICY

The creative atrophy framework has implications for educational policy that extend beyond individual classroom decisions.

First, the framework suggests that AI adoption policies in elementary education should explicitly address creative development. Current policy discussions tend to focus on academic integrity (plagiarism concerns) and learning outcomes (whether AI helps or hinders content learning). The developmental dimension — whether sustained AI use during the creative development window affects long-term creative capacity — has been largely absent from policy discourse.

Second, the framework supports the preservation of dedicated creative time in elementary curricula that is explicitly protected from AI integration. Arts education, creative writing, and imaginative play serve developmental functions that cannot be replicated by AI-assisted alternatives. These are not luxuries to be traded for efficiency; they are developmental necessities.

Third, the framework suggests the need for longitudinal research tracking the creative development of children with varying levels of AI exposure during the elementary years. The creative atrophy mechanism, as proposed here, generates testable predictions: children who rely heavily on generative AI for creative tasks during the K–5 years should show measurable differences in creative self-efficacy, divergent thinking capacity, and willingness to engage with creative challenges compared to children who maintain generative-first creative practices. These predictions should be tested rigorously before definitive policy conclusions are drawn.

## 9. DISCUSSION AND LIMITATIONS

Several limitations of the current work should be acknowledged. The creative atrophy and Creative Hollowing constructs are theoretical proposals informed by case study evidence and developmental logic rather than experimental findings. The ChatGPT conversation log analysis, while providing granular longitudinal data, represents a single adult's experience and cannot be directly generalized to child populations. The MindfulBytes program observations regarding children's interoceptive awareness of creative impulse are preliminary and have not been subjected to controlled evaluation.

Additionally, this paper intentionally focuses on the risks of generative AI for creative development. This focus should not be interpreted as a comprehensive assessment of AI's role in education. Generative AI offers genuine benefits — personalized learning, accessibility support, creative exploration for children with motor or language differences — that are not diminished by the creative atrophy concern. The appropriate response is not prohibition but intentionality: using AI in ways that support rather than replace the developmental processes that children need.

The relationship between creative atrophy and other constructs in the MaaS 2.0 framework — particularly the Phantom Tether (Davis, 2026c) and satisficing heuristics (Davis, 2026b) — also requires further theoretical development. The Phantom Tether may intensify creative atrophy by maintaining a background connection to the AI creative partner even during generative-first activities,

making the delegation pathway psychologically available even when the technology is physically absent. Satisficing heuristics may accelerate creative atrophy by making AI delegation the rational "good enough" choice in every creative moment. These intersections suggest that creative atrophy is not an isolated phenomenon but an element of a larger system of human-technology relational dynamics that warrants integrated investigation.

## 10. CONCLUSION

We named this phenomenon the Creative Hollowing because it describes what happens when the outside looks the same but the inside has changed. The child who curates, edits, and directs AI creative output looks like a creative person. They have creative interests, creative values, and creative judgment. What has quietly emptied is the engine — the capacity to face a blank page and fill it with something that came from within.

This is not a crisis narrative. It is a developmental observation that demands attention because the window during which creative generative capacity develops is finite, and the technology that bypasses it is already in children's hands. The solution is not to remove the technology. It is to ensure that the technology does not remove the struggle — the productive, necessary, deeply human struggle of creating something from nothing.

Interoceptive awareness offers a path: teach children to notice the moment when their bodies want to create, before the AI offers to create for them. In that moment of noticing lives the choice. And in the choice lives the capacity.

The creative impulse is ancient. The technology is new. The question is whether we will allow the new to atrophy the ancient — or whether we will teach children to feel the impulse, honor it, and exercise it, even when the easier path is always available.

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Disclosure: Portions of this document were prepared with the assistance of AI language tools — an irony not lost on the author, whose personal experience of the creative atrophy mechanism informs this paper's theoretical framework. All theoretical frameworks, research design decisions, and analytical conclusions are the author's own.

This paper is a publication of the New Mexico Center for Cybersecurity and Cyberpsychology Research (NM-CCCR), a 501(c)(3) nonprofit research organization dedicated to advancing the understanding of how humans relate to technology. For more information, visit cyberpsychologyresearch.io.