Process-Based Writing Assessment: A Literature Review

Adrian Granchelli

Curriculum & Instruction, University of Victoria

EDCI 614: Discourses in Educational Studies

Dr. Michael Paskevicius

November 27, 2025

Abstract

Large language models are undermining traditional, product-based methods of assessing students' writing since they can generate text that is indistinguishable to the text of a human. Many scholars recommend process-based methods of assessment to address this problem, yet the specifics of these practices are not fully defined. This literature review aims to explore the breadth of process-based writing assessment and to establish a theoretical foundation for further. A preliminary literature search was conducted with a narrative synthesis and thematic analysis. What emerged are the theoretical underpinning of constructivism and process pedagogy, a rejection of summative assessment, a lack of a needed distinction between formative and process-based assessment, and a variety of practices including staged drafts, learning journals, and keystroke logging. The findings offer practical and pedagogical considerations for educators and researchers to further explore process-based writing assessment. They also highlight its value in mitigating learners' improper use of LLMs, supporting assessment designs that foster both learner agency and academic integrity.

Table of Contents

Process-Based Writing Assessment: A Literature Review

Large language models (LLMs), a form a generative artificial intelligence (GenAI) are capable of generating text that is indistinguishable to the text of a human (Nikolic et al., 2024; Suchman, 2023). This has undermined traditional, product-based methods of assessing students' writing (Khlaif et al., 2025; Nikolic et al., 2024). Process-based methods of assessment are recommended to address this problem, yet the specifics of these practices are not fully defined (Adhikari, 2023; Corbin, Dawson, et al., 2025; Finkel-Gates, 2025; Gagich, 2025). This literature review aims to explore the breadth of process-based writing assessment and to establish a theoretical foundation for further research.

Process-based writing assessment allows for a more granular view of the learning that has occurred. This is a timely and promising departure from traditional methods that assess end products, such as essays, since GenAI can easily generate those products (Adhikari, 2023; Corbin, Dawson, et al., 2025; Finkel-Gates, 2025; Gagich, 2025). Despite its potential, "it is not straightforward to assess a learner's process and provide feedback" (Adhikari, 2023, p. 3) as the process is often invisible and difficult observe (Bowen et al., 2022; Welch, 2024). Methods to track the writing process (e.g., pre-writing tasks, staged drafts, writing journals) can be cognitively demanding (Gagich, 2025; Park, 2003) and overly prescriptive (Adhikari, 2023). Even once the process is visible, the logistical barrier of time needed for effective assessment remains a major challenge (Adhikari, 2023; Barnhisel et al., 2012; Maya & Wolf, 2024; Welch, 2024). From an educational perspective, assessment that integrates with or emphasizes the process rather than the product creates more opportunities for feedback, enables more impactful feedback, and better supports metacognitive development (Adhikari, 2023; Bowen et al., 2022; Welch, 2024).

Breaking it Down: Writing

> "Writing shapes our thinking, regardless of whether we are writing to learn or learning to write" (Adhikari, 2023, p. 1).

Writing is a core element of education. It serves both as a process of meaning-making and as a product through which learners demonstrate that meaning. The learning from writing also extends beyond the content and practice of writing into skills of metacognition and self-directed learning (Adhikari, 2023; Bowen et al., 2022; Corbin, Walton, et al., 2025). Writing can uniquely support 'meditative thinking' - a practice that "remains open to what is not yet known; [that] dwells with questions rather than rushing to answers" (Corbin, Walton, et al., 2025, p. 6) and engaging in writing can help learners develop their own unique voice (Gagich, 2025). Ultimately, when writing is used as an instrument for learning, the ways in which it is applied determine its purposes and benefits.

LLMs are disrupting how and why we write in profound ways with far-reaching implications for education. Eaton (2023) predicts that it will become commonplace to write in a human and LLM partnership. This proposal introduces possibilities that may diminish, enrich, and/or complicate current writing practices, with significant implications for writing assessment.

Breaking it Down: Assessment

Educational assessments are typically categorized based on their purpose and timing, broadly falling into three key domains that address varying pedagogical goals. Efendi & Festiyed (2019) utilize three categories of assessment, yet in practice, assessment addresses multiple, if not all of these goals:

Assessment of learning is a summative approach used to evaluate a learner against learning outcomes or standards after the learning process has occurred (Efendi & Festiyed, 2019). This rarely contributes to learning, with minimal feedback provided beyond a grade (Barnhisel et al., 2012; Khan &

Khan, 2024), and can be demotivating, signaling “the end of learning” (Davis, 2023, p. 1). Assessment of learning often examines a product of learning, such as an essay or exam (Barnhisel et al., 2012; Efendi & Festiyed, 2019), and is significant for accreditation purposes.

Assessment for learning, the purpose of formative assessment, is concerned with evaluation to support further learning (Black & Wiliam, 1998; Efendi & Festiyed, 2019). These assessments occur during learning, allowing learners to apply any feedback they receive (Efendi & Festiyed, 2019; Khan & Khan, 2024; Maya & Wolf, 2024). Assessment for learning is an essential process of regulating learning, whether self-regulated or guided by others (Bowen et al., 2022; Davis, 2023).

Assessment as learning positions the act of assessment itself as the activity that produces learning (Welch, 2024). These practices may involve self- and peer-evaluations and can cultivate empowerment, agency, and self-awareness (Adhikari, 2023; Efendi & Festiyed, 2019; Welch, 2024).

Product-based forms of assessment have triggered an arms-race between LLM generated text and detection in effort of maintaining assessment validity and security. A more sophisticated view shifts the emphasis from LLMs as the source of the problem to revealing deeper flaws in assessment, signaling the need of a fundamental redesign of assessment (Corbin, Dawson, et al., 2025; Fawns & Schuwirth, 2024).

Breaking it Down: Process-Based Learning

Process-based learning is centred on the educational process itself—the journey, not the destination. Unlike product-based approaches, which emphasize the final artifact, a focus on process brings visibility to individual thoughts and decisions, where learning actual occurs (Barnhisel et al., 2012). Process-based approaches are centred around the learner, in line with a constructivist approach where students construct their own meaning rather than focusing on measurable outcomes (Littlewood, 2009; Maya & Wolf, 2024).

Methodology

The purpose of this literature review is to establish a theoretical foundation regarding process-based writing assessment in the age of generative AI. To achieve this, an uncomprehensive search was conducted, employing a narrative synthesis and thematic analysis. This approach aligns with the literature review typology described by Grant and Booth (2009).

Search

I conducted an uncomprehensive search by utilizing the UVic Library Search, a search aggregator of a variety of databases such as the Education Resources Information Center (ERIC) and the Canadian Business & Current Affairs (CBCA). The following search terms were developed with Pia Russell (personal communication, October 20, 2025), a librarian at UVic with a specialty in education, to consider the main considerations of my research area:

("process based" OR "process-based" OR "process oriented")

AND

(writing OR write OR written)

AND

(assess* OR evalut* OR grading OR grade OR performance)

The search results were filtered for 'peer-reviewed' and yielded 191 results.

Appraisal

Of those 191 results, 18 publications were deemed applicable (see *Appendix A: List of Publications Meeting Inclusion Criteria*). Publications did not pass screening for a variety of reasons such as articles exploring process unrelated to writing or that process was not utilized for any form of assessment.

The final count of 18 applicable publications, after starting with 191 results, was unexpectedly low given the integral role process-based practices play most educational settings. This suggests that the specific intersection of 'process-based' terminology and 'assessment' practices may be consistently indexed using standardized keywords. This low volume could be due to factors such as discipline-specific terminology, that process practices are so commonplace they are implied in the study design, leading to the omission of the relevant keywords.

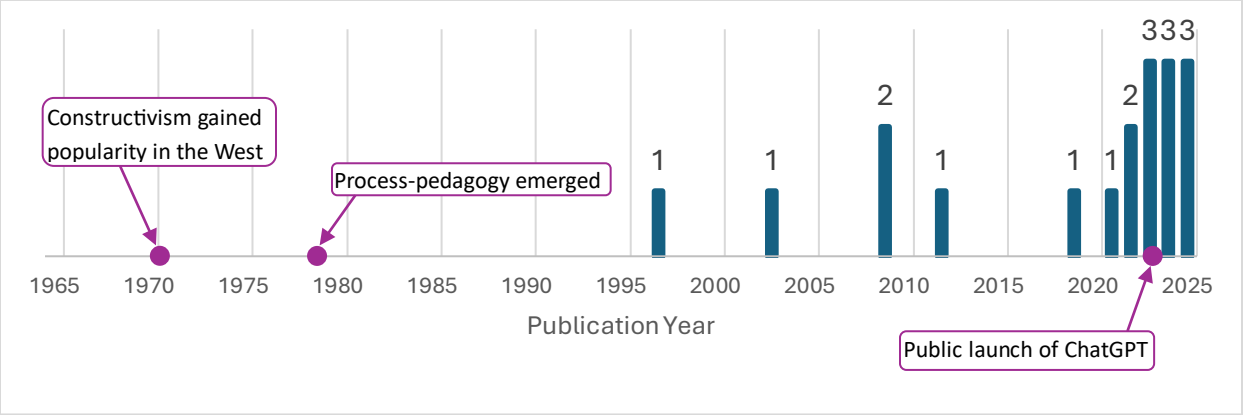
While outside the scope of this review, future research could achieve a more comprehensive result through iterating on the search query and/or citation mining emergent themes.

Characteristics of Included Publications

The timeline of publications outlines a sparse history, only beginning in 1997 then dramatically increasing starting in 2022. The recent interest in process-based techniques may reflect the disruptions caused by GenAI and the need to explore process-based techniques, as they are more difficult for GenAI to replicate (Adhikari, 2023; Corbin, Dawson, et al., 2025; Finkel-Gates, 2025; Gagich, 2025). Few historical sources were identified in this review, despite the process pedagogy gaining popularity in the 1970s. One possible explanation is that historical sources may not have been digitized or made accessible online through the UVic Library.

Figure 1

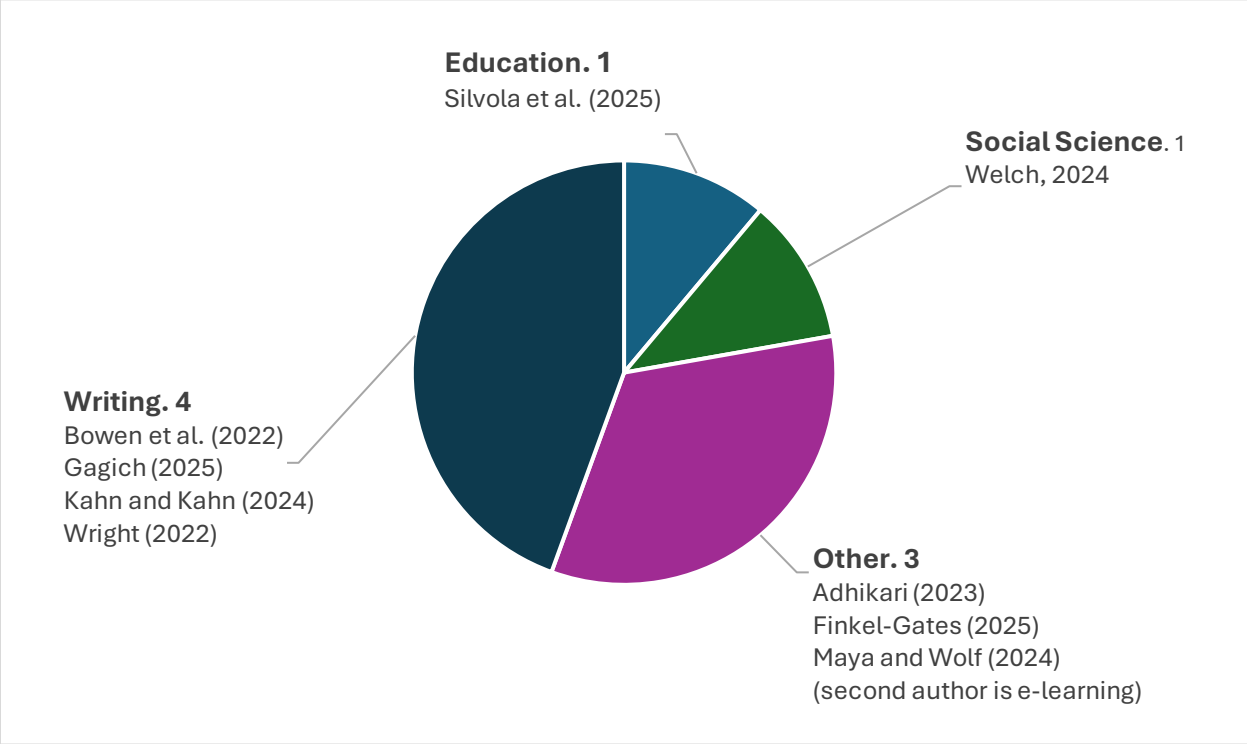
Publication Timeline of Applicable Publications with Contextual Milestones



GenAI has attracted immense transdisciplinary interest, reflected in the included publication. Some of which are by scholars outside the field of education (and in this context, outside the disciplines of English or writing studies), publishing about the educational application of GenAI and GenAI tools. The involvement of diverse perspectives necessitates scrutinizing and contextualizing findings with robust educational theory.

Figure 2

First Author's Discipline of Applicable Publications where Technology is a Focus



Emergent Themes

Process Pedagogy

Process pedagogy (or process-oriented pedagogy), emerging in the late 1970s, marks a paradigm shift in teaching writing (Hairston, 1982). As its name suggests, process pedagogy is the focus on the process of learning instead of the outcome of it. This practice developed in response to the broad standardization, testing, and categorization in education and instead views learners as unique individuals (Law & Murphy, 1997; Littlewood, 2009). Much of the underlying philosophy is rooted in constructivism, where learners actively construct their own meaning and formative assessment is an essential process that supports this (Law & Murphy, 1997; Powell & Kalina, 2009). This granular focus on individual

learners and their processes, can be at odds with institutional priorities such as accountability and standardized assessment (Littlewood, 2009).

Littlewood (2009) offers an (oversimplified) analytical framework that outlines four interconnected levels as a lens to a learner's process: facilitative, inhibitive, pedagogic, and process-as-outcome (see Table 1 for examples of these distinctions). Facilitative, inhibitive, and pedagogic modes are referred to as processes-in-progress, an emphasis on supporting the process in itself, while process-as-outcome is concerned with making the process of learning a visible outcome (Littlewood, 2009). Process-as-outcome is not only susceptible to the same standardization and examination as traditional content-based outcomes but may also become an additional means of control by regulating not only *what* students learn but also *how* they learn (Littlewood, 2009).

Table 1

Main types of process in the foreign language classroom

	Facilitative processes	*Inhibitive processes*	*Pedagogic processes*	*Processes-as-outcomes*
Affective processes	e.g. self-confidence	e.g. excessive anxiety	e.g. creating a relaxed environment	positive attitudes, etc.
Cognitive processes	e.g. making inferences	e.g. premature closure	e.g. challenging ideas	critical thinking, etc.
Cognitive processes	e.g. group cohesion	e.g. social loafing	e.g. effective grouping techniques	cooperation skills, etc.
Communication processes	e.g. comprehension	e.g. dominance in turn-taking	e.g. creating space to communicate	the 'four skills', etc.

Note. From "Process-oriented pedagogy: Facilitation, empowerment, or control?," by W. Littlewood, 2009, ELT Journal, 63(3), p. 250 (https://doi.org/10.1093/elt/ccn054). Copyright 2008 by Oxford University Press.

Process pedagogy has a newfound relevance in our current age of GenAI, stemming from its conception of challenging educational standardization. As LLM use expands, so does their influence of

homogenizing written language since they generate and support the production of text that conforms to Standard American English and normative discourses (Gagich, 2025). This makes the learner-centered, individualized focus of process pedagogy a promising countermeasure.

Distinctions in Process-based and Formative Assessment

Process-based assessment and formative assessment are distinctly different, yet this was not explicit in the literature. Where the confusion may arise, is that they are intricately linked as "process-oriented assessment is conceived out of tenets of formative assessment" (Khan and Khan, 2024, p. 181). Process pedagogy, emerging as a response to product-based assessment advanced practices of formative and process-based assessment (Law & Murphy, 1997). Formative assessment is inherently concerned with the learning process as whole, that assessment occurs during learning (Efendi & Festiyed, 2019). Formative assessment is aligned with process-based assessment when it occurs during learning (e.g., staged drafts), but it can also occur independently when formative assessment is based upon a series of disjointed products contributing to a larger learning outcome (e.g., a variety of assignments over a semester). Conversely, process-based assessment can also occur after the learning process, in a summative form, where the learner's process itself becomes the focus of assessment (e.g., learning journals (Park, 2003)).

For example, instructors may scaffold the writing process through staged drafts and peer review, but these may function as checkpoints for formative feedback and/or with the grade exclusively on the final product (Barnhisel et al., 2012). The actual writing process, what has changed from draft to draft, may not be examined because it is too complex and time consuming. In this situation, while process steps are emphasized, the learning process itself is minimally analyzed.

This nuanced distinction between process-based and formative assessment may come down to the primary goal: formative assessment aims to assist learning during the learning process, assessment

for learning (Black & Wiliam, 1998; Glasswell & Parr, 2009; Maya & Wolf, 2024), while process-based assessment aims to understand and assess the learning journey itself (Adhikari, 2023; Gagich, 2025).

Benefits of Process-Based Assessment

By focusing attention to the learning process and making that process visible, process-based assessment can enhance writing performance, foster self-regulated learning, and support academic integrity.

Enhance Writing Performance

Process-based writing assessment has several strengths in enhancing writing performance. The fundamental component is that it builds on process pedagogy which emphasizes the recursive process of writing (Gagich, 2025; Wingate & Harper, 2021). Adding an assessment component further brings value to it and demands an investment of time and energy (Park, 2003). In making the writing process visible, it becomes possible to (self-)assess specific actions for improvement (Welch, 2024; Wingate & Harper, 2021). In action, Bowen et al. (2022) found that learners in a guided writing process increased writing performance and speed. When feedback targets the writing process, instead of the product, it is more effective, as it more clearly addresses *why* or *how* something should improve rather than *what* needs changing (Adhikari, 2023; Khan & Khan, 2024). It is worth noting that process-based feedback is demanding. Understanding a learner's process is time-consuming, assuming it is visible, and "providing constructive feedback on a learner's formative process is challenging" (Adhikari, 2023) (see *Challenges of Process-Based Assessment: Time to Assess* below).

Self-Regulated Learning

Process-based methods are a means to foster independence through scaffolding process-based approaches and building metacognitive and self-regulating skills (Bowen et al., 2022; Glasswell & Parr, 2009). Making learning visible externalizes the underlying thinking, which can foster reflection and

critical thinking. In particular, self-assessment, a process-based method, directly engages in this metacognitive process (Bowen et al., 2022; Welch, 2024). In fact, self-regulation could be viewed as a constant form of self-assessment.

Emphasizing the personal learning journey is a source for empowerment and self-confidence. For example, process-based approaches make it possible to cultivate and support a unique writer's voice (Gagich, 2025; Park, 2003). "Demystifying how [learners] get from nothing to a full essay can go a long way toward building their confidence in their own likelihood of success" (Welch, 2024, p. 134).

Academic Integrity

An emphasis on process can foster academic integrity by cultivating authentic engagement with learning (Gagich, 2025; Park, 2003).

> Process-based assessments help students recognize that meaningful learning occurs through exploration, experimentation, and reflection, rather than simply aiming for a polished final product. In this way, process-oriented approaches not only foster linguistic diversity and inclusivity but also serve as a powerful tool to resist AI in academic writing (Gagich, 2025, p. 3)

Furthermore, process-based assessment can minimize opportunities for academic misconduct by enhancing assessment security. A learning process is difficult to fake and could be analyzed on a granular level (Adhikari, 2023; Bowen et al., 2022) (see Challenges of Process-Based Assessment: Surveillance below). Care must be taken, however, to ensure that the emphasis on assessment security does not compromise the learning experience itself.

Challenges of Process-Based Assessment

Process-based assessment presents several challenges, including the effort of tracking the process, how a prescribed approach can limit learning and agency, insufficient educator training, potential misuse (e.g., surveillance), and the significant increase in time required for assessment.

Extraneous Demands

Tracking the learning process often takes considerable time and effort, which can divert cognitive resources and/or reduce motivation. These demands can hinder learning for a variety of reasons:

1. If tracking the process does not contribute to learning it provides extraneous cognitive load, distracting cognitive resources from learning (Sweller et al., 1998). This can be an active process where a learner is engaged in an extraneous activity (e.g., think aloud protocols) (Wingate & Harper, 2021) or a passive process where the tracking method causes distraction (e.g., keystroke logging may create stress from the feeling of being monitored) (Adhikari, 2023; Bowen et al., 2022).
2. If learners view the tracking process as unnatural or as 'busywork' (e.g., learning journals, extended resources), they may not honestly engage with or apply themselves to the activity (Gagich, 2025; Park, 2003).

Prescribed Process

Consensus does not exist for a process of writing as it is non-linear in nature, yet process-based assessment approaches may require conforming to a specific process which may stifle creativity and individual exploration (Adhikari, 2023; Barnhisel et al., 2012; Gagich, 2025). If used improperly, a prescribed and explicit process can leave learners without the cognitive tools to move beyond it, fostering a 'learned dependence'. (Adhikari, 2023).

Taken to the extreme, if the prescribed process is the outcome of learning, it can be used to exert power by forcing conformity and compliance in learners' actions and thinking (Littlewood, 2009).

Lack of Training

Despite being developed over fifty years ago, process-based writing approaches have seen limited uptake outside of writing classes and writing centres (Barnhisel et al., 2012). Barnhisel et al. (2012) attribute this to instructors' limited understanding of process-based methods and a lack of appreciation for the practice of writing. "Ironically, [these instructors] likely use process-based writing in their own scholarship—they draft and redraft their work, they seek feedback from multiple audiences, they brainstorm and invent and return to their drafts" (Barnhisel et al., 2012, p. 477).

Some process-based approaches (e.g., keystroke logging) require a specialized skill to understand and without it, is ineffective and may provoke resistance (Adhikari, 2023; Bowen et al., 2022).

Surveillance

Tracking learners' process poses a troubling risk of surveillance yet was hardly mentioned in this literature review. The larger concerns are from the most granular tracking methods such as keystroke logging. Of the two publications that examined keystroke logging as an educational tool, Bowen et al. (2022) briefly noted that students felt nervous about being monitored, and Adhikari (2023) cautioned that using keystroke logging for assessment could make learners feel "vulnerable, monitored, and even controlled" (p. 13). This possibility mirrors Littlewood's (2009) process-as-outcome concerns. Therefore, while keystroke logging may be an effective tool *for* learning, assessing the data as an outcome *of* learning poses a risk of surveillance (Adhikari, 2023; Bowen et al., 2022).

Time to Assess

The large amount of time it takes to conduct process-based assessment is identified throughout the literature and is identified as the limiting factor of implementing process-based approaches

(Adhikari, 2023; Barnhisel et al., 2012; Bowen et al., 2022; Maya & Wolf, 2024; Park, 2003; Welch, 2024). Specifically, Park (2002) estimated that assessing semester long learning journals takes four to five times longer than an equivalent exam. The breadth of this issue was identified in nearly each phase of supporting education, from the time needed to plan, mark, understand, and organize learners and their processes.

Assessment for learning, or formative assessment, is inherently unique to each learner (Law & Murphy, 1997; Maya & Wolf, 2024). To fulfill its goal of supporting further learning, "teachers need to know where their students are in their learning [and] where each student needs to go to become more skilled" (Glasswell and Parr, 2009, p. 360). One-to-one formative assessment is viewed as the most holistic form of assessment appreciating individual context and allowing for learner interactivity (Law & Murphy, 1997). Adhikari (2023) summarizes this key tension concerning time, process, and formative assessment:

> Teachers … only have so many hours … [they] cannot possibly know all the individual problems that students have had in their learning process. At times, not even the student knows the problems that are causing barriers to their learning. How, then, will educators be able to evaluate the process of learning and provide feedback on the process (p. 13)

The limited time educators have is likely not unique to process-based assessment, but a systemic issue that hinders instructor-learner relationships and the quality of learning experiences.

Strategies to Make the Writing Process Visible

The first hurdle of process-based writing assessment lies in making the learning process visible. The literature reviewed numerous methods including pre-writing and staged drafts (Barnhisel et al., 2012), learning journals (Park, 2003), self-assessment/self-reflection (Efendi & Festiyed, 2019; Welch,

2024), keystroke logging (Adhikari, 2023; Bowen et al., 2022), and multimedia portfolios (Maya & Wolf, 2024).

Elaborating on each method for making the process of writing visible is outside the scope of this literature review, though such detail would deepen understanding. To support a working understanding, I developed a comparative analysis of process-based tracking methods, informed by the literature and supported by input from ChatGPT 5.1 (OpenAI, 2025) and Gemini (Flash 2.5) (Google, 2025) (see Table 2). The resulting list of methods and analytical framework are not comprehensive nor completely grounded in theory and therefore demand further research.

A key insight is that the objective is not inherent to the tracking method; each method can be used for formative, summative, and metacognitive purposes.

Table 2

Comparative Analysis of Process-Based Tracking Methods

Method	*About*	*Process stage when is the process tracked?*	*Locus of Visibility what is the source?*	*Granularity what is the level of detail?*	*Authenticity how authentic to the task is the tracking method?*	*Structure how is the tracking method structured?*	*Effort what is the required effort?*
Think-Aloud Protocols	Verbalized thinking process during the task	During the task	Internal cognition	Micro	Low	Emergent – Semi-structured	High
Pre-writing Activities	Research, brainstorming, or outlining that reveal planning and early ideas	Before the task	External trace	Macro	High	Emergent – Semi-structured	Low-Medium
Learning Journals	Collection of thoughts and reflections over time	All stages	Internal cognition expressed as external text	Micro	Low-Medium	Emergent	Medium-High
Process Logs / Portfolios	Collections of research, drafts, artifacts, and decision points over time	All stages	External trace	Varies	Medium	Emergent	Medium-High
Reflection Activities	Post-task analyses that reveal learning insights	After the task	Internal cognition	Macro	Low-Medium	Emergent - Prescriptive	Medium
Self- / Other-Assessment	Evaluations of work-in-progress showing judgment and monitoring	After the task	Internal cognition	Macro	Low-Medium	Emergent - Prescriptive	Low-Medium
Goal Setting & Goal-Tracking Artifacts	Documents tracking objectives and progress, showing strategic planning	Before and during the task	Internal cognition externalized	Macro	High	Semi-structured - Structured	Low-Medium
Staged Drafts	Sequential drafts showing development and	During the task	External trace	Macro	High	Structured	Medium

Method	*About*	*Process stage when is the process tracked?*	*Locus of Visibility what is the source?*	*Granularity what is the level of detail?*	*Authenticity how authentic to the task is the tracking method?*	*Structure how is the tracking method structured?*	*Effort what is the required effort?*
	revision decisions over time						
Extended Resources	An outline of all the resources used, including texts, people, and GenAI	After the task	External trace	Macro	Low	Semi-structured	Medium
Activity History (forum, AI prompt log, etc.)	Automated logs of engagement, edits, and process patterns	During the task	External behavioral trace	Micro-Medium	Integrated (automatic)	Emergent (automatic)	Low (automatic)
Keystroke Logging / Screen Recording	Automated digital capture of actions	During the task	External behavioral trace	Micro	Integrated (automatic)	Emergent (automatic)	Low (automatic)

Note. This table was developed informed by the literature and with input and assistance from ChatGPT 5.1 (OpenAI, 2025) and Gemini (2.5 Flash) (Google, 2025) and therefore demand further research.

Assessing the Writing Process Once It Is Visible

Once the learner's process is made visible, the challenge shifts to determining what and how to assess. Assessment is highly contextual, requiring educators to balance practical and pedagogical considerations. As informed by earlier sections (e.g., *Benefits of Process-Based Assessment),* there are pedagogical benefits to placing the process itself as the focus and involving the learners in the assessment process, can encourage agency and provide scaffolding for self-regulating learning.

Transformation of Knowledge

When evaluating the writing process on a granular level, signs of *transformation of knowledge* can be a useful metric, and was used by Siddiqui et al. (2025), in their keystroke logging experiment. The *transformation of knowledge* model, proposed by Scardamalia & Bereiter (1987), explains the iterative process writers undergo "between the content (i.e., what to say) and rhetoric (how to say it)" (Siddiqui et al., 2025, p. 1). When learners translate understanding into writing, some nuance is lost, forcing a critically re-evaluation and thus a mental reorganization of the subject matter which generates new connections and examples (Scardamalia & Bereiter, 1987). This iterative process does not just result in a polished text, it actively transforms and deepens understanding (Scardamalia & Bereiter, 1987). By granularly evaluating how a text was shaped and formed, Siddiqui et al. (2025) identified markers of *transformation of knowledge*.

Further research is recommended to ensure that *transformation of knowledge* is adequate to measure learning and is correlated with learning objectives. Siddiqui et al. (2025) found a "weak correlation at best" (p. 11) between markers of *knowledge transformation* and essay scores, though this is not surprising, as it compares an individual's learning process with their product.

Conclusion

Assessing the Process of writing rather than the product has been recognized as the theoretical better method to improve the educational process from writing and self-regulation skills to academic integrity yet uptake remains low (Barnhisel et al., 2012; Law & Murphy, 1997). They do, however, come with significant challenges, including the difficulty of making the writing process visible and the increased time required for assessment (Bowen et al., 2022; Park, 2003; Welch, 2024). This literature review met the intended goal of exploring the breadth of process-based assessment, though it has not reached saturation and highlights several areas for further research. With response to GenAI, process-based assessment methods prove promising by inspiring academic integrity through learner agency in learning in addition to assessment security (Gagich, 2025). When learners can meaningfully showcase their process, it opens a window into their thinking, revealing the beauty and complexity of learning and offering benefits that become increasingly vital in an age of GenAI.

References

Adhikari, B. (2023). Thinking beyond Chatbots' Threat to Education: Visualizations to Elucidate the Writing or Coding Process. *Education Sciences*, *13*(9), 922. https://doi.org/10.3390/educsci13090922

Barnhisel, G., Stoddard, E., & Gorman, J. (2012). Incorporating Process-Based Writing Pedagogy into First-Year Learning Communities: Strategies and Outcomes. *The Journal of General Education*, *61*(4), 461–487. https://doi.org/10.1353/jge.2012.0041

Black, P., & Wiliam, D. (1998). Inside the Black Box: Raising Standards through Classroom Assessment. *The Phi Delta Kappan*, *80*(2), 139–148.

Bowen, N. E. J. A., Thomas, N., & Vandermeulen, N. (2022). Exploring feedback and regulation in online writing classes with keystroke logging. *Computers and Composition*, *63*, 102692. https://doi.org/10.1016/j.compcom.2022.102692

Corbin, T., Dawson, P., & Liu, D. (2025). Talk is cheap: Why structural assessment changes are needed for a time of GenAI. *Assessment & Evaluation in Higher Education*, *0*(0), 1–11. https://doi.org/10.1080/02602938.2025.2503964

Corbin, T., Walton, J., Banister, P., & Deranty, J.-P. (2025). On the essay in a time of GenAI. *Educational Philosophy and Theory*, *0*(0), 1–13. https://doi.org/10.1080/00131857.2025.2572802

Davis, H. T. (2023). *Ungrading: Self-Assessment, Effort, and Motivation*.

Eaton, S. E. (2023). Postplagiarism: Transdisciplinary ethics and integrity in the age of artificial intelligence and neurotechnology. *International Journal for Educational Integrity*, *19*(1), 23, s40979-023-00144–1. https://doi.org/10.1007/s40979-023-00144-1

Efendi, E. & Festiyed. (2019). Preliminary study of authentic assessment that focus on self assessment and portfolio assessment using problem based models in senior high school. *Journal of Physics: Conference Series*, *1317*(1), 012177. https://doi.org/10.1088/1742-6596/1317/1/012177

Fawns, T., & Schuwirth, L. (2024). Rethinking the value proposition of assessment at a time of rapid development in generative artificial intelligence. *Medical Education*, *58*(1), 14–16. https://doi.org/10.1111/medu.15259

Finkel-Gates, A. (2025). ChatGPT in academic assessments: Upholding integrity. *Journal of Learning Development in Higher Education*, *36*. https://doi.org/10.47408/jldhe.vi36.1491

Gagich, M. (2025). Using Process-Based Pedagogical Assessment Practices to Challenge Generative AI in the Writing Classroom: In P. W. Wachira, X. Liu, & S. Koc (Eds.), *Advances in Educational Marketing, Administration, and Leadership* (pp. 1–32). IGI Global. https://doi.org/10.4018/979-8-3693-6351-5.ch001

Glasswell, K., & Parr, J. M. (2009). Teachable Moments: Linking Assessment and Teaching in Talk around Writings. *Language Arts*, *86*(5), 352–361.

Google. (2025). *Gemini (Flash 2.5) [Large language model]*. https://gemini.google.com/

Grant, M. J., & Booth, A. (2009). A typology of reviews: An analysis of 14 review types and associated methodologies. *Health Information & Libraries Journal*, *26*(2), 91–108. https://doi.org/10.1111/j.1471-1842.2009.00848.x

Hairston, M. (1982). The Winds of Change: Thomas Kuhn and the Revolution in the Teaching of Writing. *College Composition and Communication*, *33*(1), 76–88. https://doi.org/10.2307/357846

Khan, A. S., & Khan, A. (2024). *Investigating the Role of Process-Oriented Assessment in Enhancing Writing Development in EAP Learners*. 181–199. https://doi.org/10.63278/jicrcr.vi.1087

Khlaif, Z. N., Alkouk, W. A., Salama, N., & Abu Eideh, B. (2025). Redesigning Assessments for AI-Enhanced Learning: A Framework for Educators in the Generative AI Era. *Education Sciences*, *15*(2), 174. https://doi.org/10.3390/educsci15020174

Law, J., & Murphy, C. (1997). Formative Assessment and the Paradigms of Writing Center Practice. *The Clearing House: A Journal of Educational Strategies, Issues and Ideas*, *71*(2), 106–108. https://doi.org/10.1080/00098659709599336

Littlewood, W. (2009). Process-oriented pedagogy: Facilitation, empowerment, or control? *ELT Journal*, *63*(3), 246–254. https://doi.org/10.1093/elt/ccn054

Maya, F., & Wolf, K. D. (2024). An Architecture for Formative Assessment Analytics of Multimodal Artefacts in ePortfolios Supported by Artificial Intelligence. In M. Sahin & D. Ifenthaler (Eds.), *Assessment Analytics in Education* (pp. 293–312). Springer International Publishing. https://doi.org/10.1007/978-3-031-56365-2_15

Nikolic, S., Sandison, C., Haque, R., Daniel, S., Grundy, S., Belkina, M., Lyden, S., Hassan, G. M., & Neal, P. (2024). ChatGPT, Copilot, Gemini, SciSpace and Wolfram versus higher education assessments: An updated multi-institutional study of the academic integrity impacts of Generative Artificial Intelligence (GenAI) on assessment, teaching and learning in engineering. *Australasian Journal of Engineering Education*, *29*(2), 126–153. https://doi.org/10.1080/22054952.2024.2372154

OpenAI. (2025). *ChatGPT 5.1 [Large language model]*. https://chat.openai.com/

Park, C. (2003). Engaging Students in the Learning Process: The learning journal. *Journal of Geography in Higher Education*, *27*(2), 183–199. https://doi.org/10.1080/03098260305675

Powell, K. C., & Kalina, C. J. (2009). Cognitive and Social Constructivism: Developing Tools for an Effective Classroom. *Education*, *130*(2), 241–250.

Scardamalia, M., & Bereiter, C. (1987). Knowledge telling and knowledge transforming in written composition. In S. Rosenberg (Ed.), *Advances in applied psycholinguistics, Vol. 2. Reading, writing, and language learning* (pp. 142–175). Cambridge University Press.

Suchman, L. (2023). The uncontroversial 'thingness' of AI. *Big Data & Society*, *10*(2), 20539517231206794. https://doi.org/10.1177/20539517231206794

Sweller, J., van Merrienboer, J. J. G., & Paas, F. G. W. C. (1998). Cognitive Architecture and Instructional Design. *Educational Psychology Review*, *10*(3), 251–296.

Welch, B. (2024). Demystifying Writing: Collaborative Rubrics and Process-Based Feedback. *American Association of Philosophy Teachers Studies in Pedagogy*, *9*, 128–148. https://doi.org/10.5840/aaptstudies202472288

Wingate, U., & Harper, R. (2021). Completing the first assignment: A case study of the writing processes of a successful and an unsuccessful student. *Journal of English for Academic Purposes*, *49*, 100948. https://doi.org/10.1016/j.jeap.2020.100948

Appendix A: List of Publications Meeting Inclusion Criteria

Adhikari, B. (2023). Thinking beyond Chatbots' Threat to Education: Visualizations to Elucidate the Writing or Coding Process. Education Sciences, 13(9), 922. https://doi.org/10.3390/educsci13090922

Barnhisel, G., Stoddard, E., & Gorman, J. (2012). Incorporating Process-Based Writing Pedagogy into First-Year Learning Communities: Strategies and Outcomes. The Journal of General Education, 61(4), 461–487. https://doi.org/10.1353/jge.2012.0041

Bowen, N. E. J. A., Thomas, N., & Vandermeulen, N. (2022). Exploring feedback and regulation in online writing classes with keystroke logging. Computers and Composition, 63, 102692. https://doi.org/10.1016/j.compcom.2022.102692

Davis, H. T. (2023). Ungrading: Self-Assessment, Effort, and Motivation.

Efendi, E. & Festiyed. (2019). Preliminary study of authentic assessment that focus on self assessment and portfolio assessment using problem based models in senior high school. Journal of Physics: Conference Series, 1317(1), 012177. https://doi.org/10.1088/1742-6596/1317/1/012177

Finkel-Gates, A. (2025). ChatGPT in academic assessments: Upholding integrity. Journal of Learning Development in Higher Education, 36. https://doi.org/10.47408/jldhe.vi36.1491

Gagich, M. (2025). Using Process-Based Pedagogical Assessment Practices to Challenge Generative AI in the Writing Classroom: In P. W. Wachira, X. Liu, & S. Koc (Eds.), Advances in Educational Marketing, Administration, and Leadership (pp. 1–32). IGI Global. https://doi.org/10.4018/979-8-3693-6351-5.ch001

Glasswell, K., & Parr, J. M. (2009). Teachable Moments: Linking Assessment and Teaching in Talk around Writings. Language Arts, 86(5), 352–361.

Khan, A. S., & Khan, A. (2024). Investigating the Role of Process-Oriented Assessment in Enhancing Writing Development in EAP Learners. 181–199. https://doi.org/10.63278/jicrcr.vi.1087

Law, J., & Murphy, C. (1997). Formative Assessment and the Paradigms of Writing Center Practice. The Clearing House: A Journal of Educational Strategies, Issues and Ideas, 71(2), 106–108. https://doi.org/10.1080/00098659709599336

Littlewood, W. (2009). Process-oriented pedagogy: Facilitation, empowerment, or control? ELT Journal, 63(3), 246–254. https://doi.org/10.1093/elt/ccn054

Maya, F., & Wolf, K. D. (2024). An Architecture for Formative Assessment Analytics of Multimodal Artefacts in ePortfolios Supported by Artificial Intelligence. In M. Sahin & D. Ifenthaler (Eds.), Assessment Analytics in Education (pp. 293–312). Springer International Publishing. https://doi.org/10.1007/978-3-031-56365-2_15

Park, C. (2003). Engaging Students in the Learning Process: The learning journal. Journal of Geography in Higher Education, 27(2), 183–199. https://doi.org/10.1080/03098260305675

Silvola, A., Kajamaa, A., Merikko, J., & Muukkonen, H. (2025). AI-mediated sensemaking in higher education students' learning processes: Tensions, sensemaking practices, and AI-assigned purposes. British Journal of Educational Technology, 56(5), 2001–2018. https://doi.org/10.1111/bjet.13606

Wall, S., Evans, L. M., & Swentzell, P. (2023). Indigenous Assessment. In J. M. Souza & T. A. Rose, Exemplars of Assessment in Higher Education (1st ed., pp. 51–69). Routledge. https://doi.org/10.4324/9781003444701-6

Welch, B. (2024). Demystifying Writing: Collaborative Rubrics and Process-Based Feedback. American Association of Philosophy Teachers Studies in Pedagogy, 9, 128–148. https://doi.org/10.5840/aaptstudies202472288

Wingate, U., & Harper, R. (2021). Completing the first assignment: A case study of the writing processes of a successful and an unsuccessful student. Journal of English for Academic Purposes, 49, 100948. https://doi.org/10.1016/j.jeap.2020.100948

Wright, K. (2022). The road retaken: Remix for (re)vision in creative writing. New Writing, 19(3), 324–337. https://doi.org/10.1080/14790726.2021.1979590