

Research Evidence Base



HMH research mission

HMH® is committed to developing evidence-based educational solutions, assessments, and professional services. To support this goal, the Efficacy Research Team collaborates with school districts and third-party research organizations to evaluate the impact of our programs and services on student outcomes, teacher practice, and school leadership.

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Introduction

The Research on Practice, Feedback, and Revision

Becoming a successful writer is crucial to a student's overall trajectory in school, work, and citizenship. Learned across a lifetime, the act of writing offers us opportunities to express and to argue, to entertain and to inform. Even before the adoption of the Common Core State Standards, our students' writing had been a matter of national attention; writing proficiency remains an elusive goal for most students, with only 27% of students scoring Proficient and just over 50% writing at a Basic level (National Center for Education Statistics, 2012).

Because writing enables success in all academic areas and prepares students for college, career, and life, it remains one of the most important elements of K–12 education (National Writing Project & Nagin, 2006). A 2004 survey of 120 American corporations described writing as a “threshold skill,” with half of them using writing performance as a consideration in hiring and

promotion. In the years since that report, even more businesses have placed an increased value on the quality of their employees' writing (Council of Writing Program Administrators et al., 2011).

We know that students must practice writing with adequate support and mentorship. We also know that targeted feedback leads students to revise with intention, a key component of achieving growth and proficiency. Thus, we have designed *Writable*®—a web-based program—to be mindful of the needs of students as they learn to write as well as to support the teachers who guide them.

With an instructional design derived from numerous research reports, academic articles, and professional books—as well as the empirical evidence based on pilot studies conducted over the 2016–2017 school year—*Writable* is built on three interwoven principles:



With *Writable*, teachers can enact a student-centered, growth-oriented approach to writing instruction. Let's explore what we know about how to drive growth in students' writing using evidence-based best practices and how *Writable* helps teachers and students achieve these goals.

Scaffolded practice connects instruction to feedback

During the writing process, students must engage in a multi-step process requiring them to use many skills simultaneously throughout goal-setting, planning, drafting, evaluating, revising, and editing. Dr. Gary Troia of Michigan State University recommends that writing should be taught in all subject areas and, on the whole, for at least one hour per day. “The belief is that writing affords students extended opportunities to think about, manipulate, and transform ideas and reflect on their existing knowledge, beliefs, and confusions,” states Troia. Youth who cannot effectively convey thoughts and ideas through writing are more likely to receive lower grades (Troia, 2014).

When learning how to write, students must study mentor texts to understand the specific craft moves that highly skilled authors make in their work. Additionally, students must have ample opportunities to practice writing themselves. As Troia notes, this includes both writing activities that tie strongly to ELA instruction and practice, such as literary analysis and writing in response to reading, as well as writing that supports content knowledge. Additionally, students need to summarize and synthesize ideas from various sources, building their capacity to write for different audiences and purposes.

In their meta-analysis of successful writing instructional practices, Dr. Steve Graham and Dr. Dolores Perin demonstrated that explicit instruction in “writing strategies,

which involves teaching students strategies for planning, revising, and editing their compositions” (2007, p. 77) had the most significant effect on students’ performance as writers. The strategies can be highly specific, such as teaching students effective ways to organize and write an essay. Or, the strategies can be more transferable, such as guiding them with a mnemonic device for planning their work. Providing students with a variety of opportunities for scaffolded practice—at all stages of the writing process—is essential as they develop robust skills that can transfer across a variety of writing contexts.

As demonstrated by the experiences of athletes, artists, actors, and other performers, practice is essential in the development of expertise (Lemov et al., 2012). The same goes for the skill of writing, in which sustained, ongoing practice requires careful attention to instruction in the classroom as well as the feedback that we provide to our writers. Put another way, Greenwald et al. (1999) found that students in Grades 8 and 12 “who were always asked to write more than one draft of a paper had higher average scale scores than did their peers who were sometimes or never asked to do so.” To become better writers, quite simply, students need to write, and they need to be supported throughout the process of writing.

“Writing affords students extended opportunities to think about, manipulate, and transform ideas and reflect on their existing knowledge, beliefs, and confusions.”

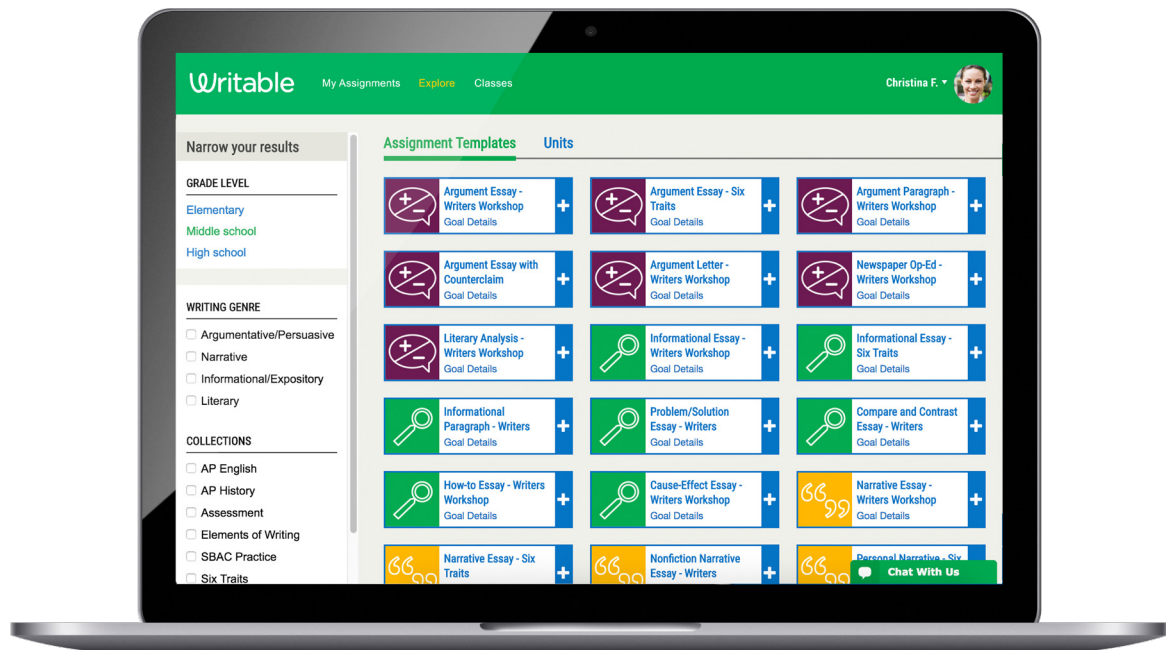
Dr. Gary Troia, Michigan State University

Writable on Scaffolded Practice

Beginning with the foundational work of Lev Vygotsky (1978), who described the “zone of proximal development” as the space where learners are able to accomplish more with the support of knowledgeable peers, educators have relied on instructional scaffolding. Guided practice is a powerful form of learning, and writing proficiency, with support, grows over time. *Writable* provides the structures that students need to become successful writers. Acknowledging that writing proficiency enables academic and personal success across many contexts, *Writable* creates opportunities for teachers in language arts or any content area to choose and implement instructional routines for writing and provides the structures that students need to become successful writers.

Writable allows teachers to scaffold writing practice by:

- **Choosing from a set of genre-based assignments and standards-based rubric sets.** Teachers can assign writing practice that includes effective prompts, guiding criteria, models of sample writing, differentiated scaffolding for any student performance level, and opportunities for peer and self-review.
- **Monitoring measurable data during the writing process.** Teachers can view real-time analytics from students as writers and as reviewers, noting strengths and weaknesses through ongoing, formative assessment. Additional scaffolds can be added to a whole class or a smaller group of writers based on key insights gained throughout the writing process.
- **Applying differentiation to any assignment.** Teachers can change the overall structure of an assignment for different levels of writers, or go further to add personalized follow-up or supporting materials for review.



Better feedback drives revision

Though providing guided writing practice is critical, the act of writing, in and of itself, is not enough. Providing feedback to peers and asking students to reflect on their own writing are additional methods required for improving their writing performance.

As noted previously, Vygotsky's work is foundational in demonstrating that people learn best when teaching others what they know. Both assessing their own writing and providing feedback to their peers move students forward as writers. In order to be most useful to a learner, the feedback students receive—as a key component of formative assessment—must be goal referenced, tangible and transparent, actionable, user-friendly, timely, ongoing, and consistent (Cizek, 2010).

In addition, feedback should help students develop self-regulatory skills so they can learn about their own learning. “When students have the metacognitive skills of self-assessment,” argue John Hattie and Helen Timperley, “they can evaluate their levels of understanding, their effort and strategies used on tasks, their attributions and opinions of others about their performance, and their improvement in relation to their goals and expectations” (2007).

Graham and Perin also discuss the necessity of targeted feedback to guide students in the use of key writing strategies, saying: “Writing improves when teachers and peers provide students with feedback about the effectiveness of their writing” (2007). The processes of engaging in self-assessment and peer feedback activate metacognition.

Students think about their own thinking too, as they identify successful traits in the writing of others. And, as documented 30 years ago by Wang, Haertel, and Walberg, “Metacognition has been suggested to be the most powerful predictor of learning” (1990). By tying targeted feedback to specific writing strategies, teachers can emphasize the skills that students need in their journey to writing proficiency.

Finally, related to the impact of peer review and self-review, Dr. Carmen Sanchez et al. concludes that “studies demonstrated that both self- and peer-grading positively affected subsequent achievement performance” (2017). In short, peer review—when done well—can make a significant difference in students’ writing. (See “Peer Review as a Proven Approach for Writing Gains” on next page.)

“Studies demonstrated that both self- and peer-grading positively affected subsequent achievement performance.”

Dr. Carmen Sanchez et al., Duke University

Peer Review as a Proven Approach for Writing Gains

Though Vygotsky long ago argued for the power of learning from peers, debates about the effectiveness of collaboration have continued for decades. Many educators, dissuaded by unsuccessful attempts to have their students review one another's writing, turned away from the practice. Recent research, however, sheds light on how effective peer feedback can be for both the writer and the reviewer.

In a 2017 meta-analysis of 33 articles that studied the effects of self- and peer-grading in Grade 3 through Grade 12 classrooms, Dr. Carmen E. Sanchez of Duke University and her colleagues noted that “recent educational reform has emphasized a participatory and collaborative culture of learning in the classroom.” They go on to document a number of ways in which students are invited to judge their own and peers' work, suggesting that “peer-grading . . . provides an opportunity to inform students of shortcomings of which they might have been previously unaware.” In other words, students are well-suited to provide feedback to others (Sanchez et al., 2017). In conclusion, Sanchez et al. reported that “studies demonstrated that both self- and peer-grading positively affected subsequent achievement performance” (2017).

In order to reach this level of success for peer review, teachers must provide adequate instructional scaffolding and clear criteria. Students, in most classroom contexts, are not accustomed to being evaluators. In reporting on their 2016 study of college students using “calibrated peer review,” Dr. Edward Price et al. argue that “successful implementation (of peer review) required prompts and evaluation questions that were highly structured and specific.” They go on to show that teachers must “frame and motivate the tasks in the context of the curricular goals, as well as provide frequent and detailed guidance to students on how to complete the CPR (calibrated peer review) tasks” (Price et al., 2016).

In short, peer review is highly useful—both for the reviewer and the person receiving the feedback—but only when implemented intentionally.

Writable on Feedback and Peer Review

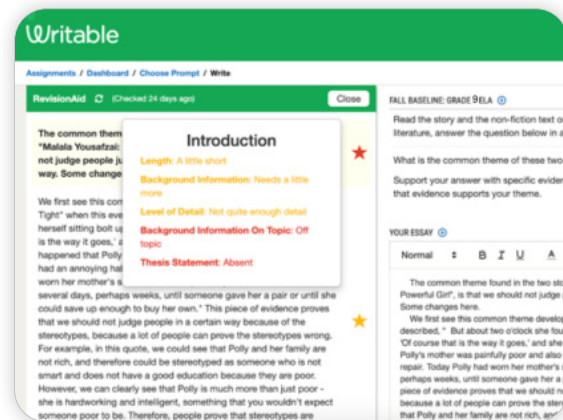
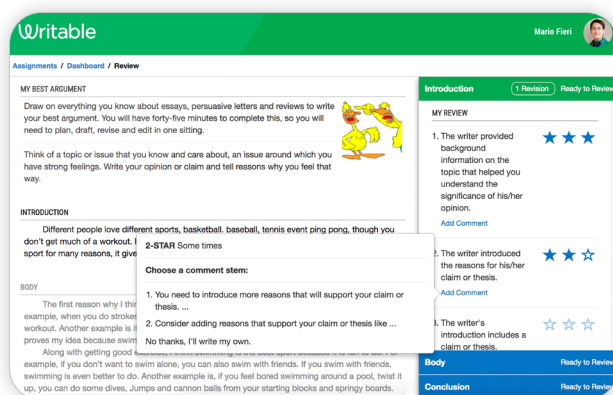
Building on theoretical and empirical work that shows how peers can help one another grow through the process of giving and receiving feedback, *Writable* uses instructional scaffolding to guide students through a cycle of anonymous peer review. *Writable*'s review is structured around skill-based rubrics and standards, and it therefore drives effective self-reflection, motivation, and an authentic purpose for writing. By recognizing how writers approach similar tasks, students engaged in peer review will be able to internalize the criteria for high-quality writing and integrate those criteria into their own writing. According to Tsivitanidou, Zacharia, and Hovardas (2011), "as students apply assessment criteria (during the revision process), they develop a clearer conception of the assessed material because of increased exposure to it."

In *Writable*, peer review is always calibrated against two sources: 1) the group of other anonymous peer reviewers, each guided by the same structured rubric used in self- and teacher assessment, and 2) the teacher, who can jump into the feedback process at any time to model, guide, or differentiate. Teachers' feedback is considered of primary importance, and one piece of feedback from a teacher can guide both student writers and reviewers. As Sanchez et al.'s research indicates, feedback scores from peers are "highly correlated with expert scores and the average weighted peer scores were statistically equivalent to expert scores" (2017).

Writable also allows students to reflect on their own work through built-in self-review. We know, from Graham and Hebert (2010), that "when students are taught how to self-grade their own work, scores improved by .46 standard deviations" and "self-assessment is an evidence-based practice for improving the writing of American students."

Writable helps students improve as writers by structuring feedback in a variety of forms by:

- **Providing students with feedback that is specific, aligned to goals, timely, easy-to-use, and accessible.** Making rubrics transparent, understandable, and available to students helps them to understand their learning goals and objectives, encouraging them to take ownership of their learning.
- **Focusing students on metacognitive behaviors and encouraging them to think about the strategies they use as writers.** By using standards-aligned rubrics to guide their peer reviews and self-assessments, students employ metacognition, asking themselves about their own strengths and needs as writers, and thinking about their strategies as learners.
- **Guiding students with a process of focused and calibrated peer review.** Student-friendly rubrics, sentence stems, and point-of-use training in giving constructive feedback all develop students' ability to offer targeted peer review.



Better revision drives growth

Any teacher who has asked a student to revise his or her writing—or has had to revise his or her own writing—understands the gravity of the task. Revision is difficult, yes, but can be an engaging, meaningful, and even fun process.

However, students are usually taught to see revision as a process of merely editing for errors, not as a way to literally re-envision their work. In her groundbreaking 1980 article, “Revision Strategies of Student Writers and Experienced Adult Writers,” Nancy Sommers argued that, “it is not that students are unwilling to revise, but rather that they do what they have been taught to do in a consistently narrow and predictable way.” Until instructional practices change and we treat—and teach—the revision process with the same disposition as professional writers do, significant changes in both students’ revision and growth will not occur.

In order to develop their overall proficiency as writers—and to improve specific pieces of writing—students must engage in a substantive revision process. Dr. George Hillocks’ research demonstrates that good writers are both able to identify the qualities of good writing in the work of others (declarative knowledge of writing), and able to employ writing strategies that emulate these qualities in their own compositions (procedural knowledge of writing) (1986). Guided by feedback from teachers—and, with

appropriate scaffolding, their peers—writers are able to identify specific strategies and gauge the effectiveness of their writing upon an audience.

According to Dr. Walter Kintsch (1998), skilled revisers develop a macrostructure of the text they are revising and consider large sections of text as they work, whereas less skilled revisers edit their work in a word-by-word manner. It’s critical for students to understand that deep revision requires more than simple surface-level editing. They must see that writers play with word choice and punctuation as well as with the order of ideas, the amount of detail, and the overall organization of a piece of writing. More recently, the field of composition has looked at ways to foster “habits of mind” in writers, such as creativity, persistence, and flexibility—skills that are transferable to other contexts (Council of Writing Program Administrators et al., 2011).

Highlighting the importance of timely feedback mentioned above, Dr. Royce Sadler (1989) argues that “When students receive feedback after an assignment is already completed, they have no opportunity to actually use the feedback to revise their work. This is detrimental because students miss out on the learning involved in revision.” Instead, he suggests, “revising allows individuals to close the feedback cycle” (Sadler, 1989).

“When students receive feedback after an assignment is already completed, they have no opportunity to actually use the feedback to revise their work . . . revision allows individuals to close the feedback cycle.”

Dr. Royce Sadler, University of Queensland

Writable on Revision

Writable provides writers—as well as teachers—with the opportunity to see the revision process in a transparent manner. What is usually made known through a feature like “track changes” in a word processor is amplified in *Writable* through a powerful dashboard that documents specific strategies that the writer has attempted. Students can monitor their writing and review progress in terms of overall goals and current scores. Moreover, they can receive both rubric-driven and open-ended feedback from other reviewers, as well as look back on their own revision history.

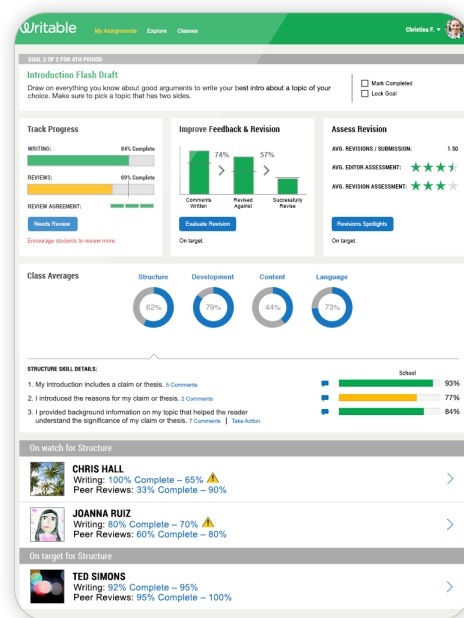
Writable goes beyond making revision progress more visible; it also uses a combination of feedback types—specifically teacher guided, peer to peer, and student self-assessment—to drive substantive revision. *Writable* allows the writer to create a revision goal, and this is done contextually at the moment he or she begins revision.

The writer “likes” (or selects) the piece of feedback—at the subskill level—that he or she will act on, thereby making revision decisions metacognitive. The cycle then positively rewards the contributing reviewer for a well-structured comment, while allowing a revision to be judged with the writer’s goal in mind. Writers have a single, consistent, student-centric list of criteria as well as rubric descriptions to help them spot the gaps between where their writing is today and where it needs to go next.

The process of revision is celebrated as ongoing and essential for students; they continue to be motivated to write for an anonymous audience of their peers, not just for a final grade in the gradebook. *Writable* offers teachers the ability to “spotlight” or model instruction in a single click, saving valuable time by allowing them to showcase examples of successful review and revision.

Writable promotes writing growth by providing multiple opportunities for revision by:

- **Driving focused revisions through rubric-directed, anonymous peer review.** The awareness that their writing will be reviewed by their peers provides students with an authentic purpose for writing and drives greater interest and participation in the revision process.
- **Making revision more accessible and actionable.** Multiple feedback types, including self-assessments, calibrated peer reviews, and comparison to mentor texts, all help make the revision process and next steps more transparent.
- **Promoting revisions as a meaningful part of the writing process.** Engaging students in the writing process helps students realize that substantive revision is a core part of writing, as important as brainstorming, drafting, or editing.



Summary

From Research to Practice

Practice. Feedback. Revision. These strategies all drive student writing proficiency. With an emphasis on standards-driven writing practice in ELA and content-area classrooms, a focus on delivering targeted feedback—from teacher, peer, and self-review—and finally, an emphasis on high-quality revision that leads to metacognition and growth, *Writable* takes these principles supported in the research and makes them accessible to teachers and students through three overarching principles:

- **Writers need scaffolded practice that connects instruction to feedback:** Writing practice is important to ELA and content-area proficiency and is most effective when it extends directly from instruction. Writing growth happens when students get ongoing support that is personalized to their needs—and prepares them to develop their voices as writers, both inside and outside of the classroom.
- **Better feedback inspires writers toward revision:** Feedback should be targeted and aimed at meeting students where they are as writers, with the end goal of driving substantive revision. Feedback is most effective when it's connected to instruction and put into context for students in a way that combines teacher, peer, and self-review. The act of reviewing helps students build metacognition that drives additional reflection on key writing skills and gains in proficiency; the act of being reviewed by an authentic audience drives purpose and a more successful push into high-quality revision.
- **Better revision leads to a writer's growth:** Revision should be tied to both self-assessment and targeted feedback received from others. Revision is most effective when it's viewed as holistic, incorporated in the earliest stages, and emphasized as both an outcome and a contributor to the writing process.

Writable has not been designed as a self-paced, computer-assisted alternative to teacher-led instruction, nor as an automated essay evaluation service. Instead, *Writable* builds upon the principles of high-quality writing instruction, and helps teachers in Grades 3–12 take a practical approach to the task of facilitating well-structured, timely, authentic review and revision in their classrooms.

Based on a foundation of teacher feedback, peer review, and student self-assessment, *Writable* provides a robust system to support writing, review, and revision. As the past president of the National Council of English, Carol Jago, has argued, “students need to write more than any teacher could possibly read” (Will, 2016), and *Writable* helps teachers make this goal achievable for students of all abilities and backgrounds.

AI usage to enhance writing instruction

With the rise of AI usage in classrooms across the nation and around the world, researchers have examined the effects of AI on student achievement. Meta-analyses conducted on numerous research studies have found a significant positive effect of artificial intelligence (AI) on student achievement and on AI's usage to enhance student learning (Dong et al., 2025). AI has been shown not only to improve students' literacy achievement but also to enhance students' writing performance. AI-powered tools have demonstrated benefits in grammar and spelling correction, vocabulary, structure and organization, personalized learning, and engagement (Nguyen, 2025; Sedita, 2025; Vieriu & Petrea, 2025).

Researchers have found that AI-supported technology improves not only students' writing skills but analytical thinking skills in secondary students. These AI tools strengthened higher-order thinking skills and writing abilities, and at all grade levels in K–12, researchers found that peer collaboration and feedback were essential to support deep learning (Bal & Öztürk, 2025).

Sedita (2025) provided guidelines in the appropriate use of AI across each phase of the writing process: think, plan, write, and revise. Students need explicit instruction, modeling, and guided practice to learn how to use AI to support their learning process without the overreliance on having AI compose and generate their writing. Teaching students how to think critically on using AI to enhance writing that is produced independently is crucial for optimizing AI's benefits.

Researchers also caution the usage of AI, as there are ethical concerns with its misuse. Instances such as plagiarism and other compromises of academic integrity may arise, biases can be found in AI, not all students may have equal access to the AI tools leading to disparities in opportunities, and an overreliance on AI can hinder students' critical thinking skills (Sedita, 2025). Therefore, there is a need for structured guidelines and policies around the proper usage of AI in order for students and teachers to ensure responsible integration and to reap its full benefits (Vieriu & Petrea, 2025).

Writable on AI-enhanced instruction

Writable's AI supports are teacher-guided, build teacher agency, and allow teachers to decide when and where to support their workflows with AI. These AI-powered tools assist teachers in creating assignments, providing individualized feedback, grading quickly, and monitoring student authenticity.

With the "Import Student Work" feature educators can get AI feedback on any piece of student writing. In Writable®, administrators can choose to disable specific AI-powered feedback tools, as well as create Shared Assessments with the right AI settings in mind.

AI support in writing instruction

Writable's AI Teaching Recommendations leverage generative AI and writing expertise to support teachers with introducing assignments, guiding revisions, supplying differentiated resources, providing AI writing exemplars, and suggesting practice recommendations and other professional learning supports. The Pre-Teach Insights function provides different types of supports and recommended instructional focus based on the class's previous performance. There are suggested mini lessons and resources for those focus skills.

In addition, the Differentiation tab allows educators to see students categorized in two different groups based on their previous writing performance: those who are below or approaching proficiency and those who are meeting or exceeding proficiency. Each group will have tailored resources and mini lessons to support their needs.

AI support in providing feedback

AI Suggested Comments. Writable's AI Suggested Comments make it possible to get skill-aligned and editable comments while grading and reviewing student work. Teachers can view and request AI Suggested Comments from the "Guide/Grade" page and can easily edit the suggested comments with personalized feedback before the comments are sent to the students.

GradeAssist. AI Draft Scores, which assist teachers with grading students' writing, are now enabled in all Writable assignments; score suggestions can always be adjusted by teachers. Writable's GradeAssist helps teachers save time by using AI-suggested draft scores to support teacher feedback at the rubric item level. As always, teachers can adjust draft scores based on their customized rubrics.

RevisionAid. RevisionAid is a student-facing AI feedback tool helping students revise and saving teachers time on grading. Writable's RevisionAid allows students to request AI-generated feedback to guide the writing and revising process. While working on their assignment, students can request RevisionAid feedback up to three times per assignment section.

Teachers can enable or disable RevisionAid on an assignment-by-assignment basis. RevisionAid can also be enabled for individual students. However, district administrators will decide if RevisionAid is available for the school or district.

AI Detection. Writable's AI Detection (powered by Copyleaks) can be used by teachers to check for AI use in students' writing. To best assess writing authenticity, teachers are recommended to use Authorship Scores and Draft History with the AI Detection reports to determine the likelihood of whether a student used AI to write a submission.

References

- Bal, M., & Öztürk, E. (2025). The potential of deep learning in improving K–12 students' writing skills: A systematic review. *British Educational Research Journal*, 51, 1295–1312.
- Cizek, G. (2010). An introduction to formative assessment: History, characteristics, and challenges. In H. Andrade & G. Cizek (Eds.), *Handbook of formative assessment*, 3–17. Routledge.
- Council of Writing Program Administrators, National Council of Teachers of English, & National Writing Project. (2011, January). *Framework for success in postsecondary writing*. Retrieved from <http://wpacouncil.org/framework/>
- Dong, L., Tang, X., & Wang, X. (2025). Examining the effect of artificial intelligence in relation to students' academic achievement in classroom: A meta-analysis. *Computers and Education: Artificial Intelligence*, 8, 100400.
- Graham, S., & Hebert, M. A. (2010). *Writing to read: Evidence for how writing can improve reading. A Carnegie Corporation time to act report*. Alliance for Excellent Education. Retrieved from <https://all4ed.org/wp-content/uploads/2010/04/WritingToRead.pdf>
- Graham, S., & Perin, D. (2007). *Writing next: Effective strategies to improve writing of adolescents in middle and high schools*. Carnegie Corporation of New York. Retrieved from <http://www.all4ed.org/files/WritingNext.pdf>
- Greenwald, E. A., Persky, H. R., Campbell, J. R., & Mazzeo, J. (1999). *The NAEP 1998 writing report card for the nation and the states* (No. NCES 1999–462). Institute of Education Sciences, U.S. Department of Education.
- Hattie, J., & Timperley, H. (2007). The power of feedback. *Review of Educational Research*, 77(1), 81–112.
- Hillocks, G. (1986). *Research on written composition: New directions for teaching*. National Council of Teachers of English.
- Kintsch, W. (1998). *Comprehension: A paradigm for cognition*. Cambridge University Press.
- Lemov, D., Woolway, E., Yezzi, K., & Heath, D. (2012). *Practice perfect: 42 rules for getting better at getting better*. Jossey-Bass.
- National Center for Education Statistics. (2012). *The nation's report card: Writing 2011* (NCES 2012–470). Institute of Education Sciences, U.S. Department of Education.
- National Writing Project, & Nagin, C. (2006). *Because writing matters: Improving student writing in our schools*. Jossey-Bass.
- Nguyen, T. T. (2025). Artificial intelligence in higher education: A systematic review of impacts, barriers, and emerging trends. *IOSR Journal of Research & Method in Education*, 15(3, Ser. 1), 53–61. <https://www.iosrjournals.org/iosr-jrme/papers/Vol-15%20Issue-3/Ser-1/H1503015361.pdf>
- Price, E., Goldberg, F., Robinson, S., & McKean, M. (2016). Validity of peer grading using Calibrated Peer Review in a guided-inquiry, conceptual physics course. *Physical Review Physics Education Research*, 12(2), 20145–1–12.
- Sadler, D. R. (1989). Formative assessment and the design of instructional systems. *Instructional Science*, 18(2), 119–144.
- Sanchez, C. E., Atkinson, K. M., Koenka, A. C., Moshontz, H., & Cooper, H. (2017). Self-grading and peer-grading for formative and summative assessments in 3rd through 12th grade classrooms: A meta-analysis. *Journal of Educational Psychology*, <https://doi.org/10.1037/edu0000190>
- Sedita, J. (2025). *Writing instruction in the age of AI: Implications for how writing is taught and learned*. Keys to Literacy. <https://keystoliteracy.com/wp-content/uploads/2025/05/Writing-Instruction-in-the-Age-of-AI.pdf>
- Sommers, N. (1980). Revision strategies of student writers and experienced adult writers. *College Composition and Communication*, 31, 46–49.
- Troia, G. (2014). *Evidence-based practices for writing instruction* (Document No. IC-5). Retrieved from University of Florida, Collaboration for Effective Educator, Development, Accountability, and Reform Center website: <http://ceedar.education.ufl.edu/tools/innovation-configuration/>
- Tsivitanidou, O. E., Zacharia, Z. C., & Hovardas, T. (2011). Investigating secondary school students' unmediated peer assessment skills. *Learning and Instruction*, 21(4), 506–519.
- Vieriu, A. M., & Petrea, G. (2025). The impact of artificial intelligence (AI) on students' academic development. *Education Sciences*, 15(3), 343. <https://doi.org/10.3390/educsci15030343>
- Vygotsky, L. S. (1978). *Mind in society: the development of higher psychological processes*. Harvard University Press.
- Wang, M. C., Haertel, G. D., & Walberg, H. J. (1990). What influences learning? A content analysis of review literature. *Journal of Educational Research*, 84, 30–43.
- Will, M. (2016, July 20). As teachers tackle new student-writing expectations, support is lacking. *Education Week Teacher*. Retrieved from <http://www.edweek.org/tm/articles/2016/06/20/as-teachers-tackle-new-student-writing-expectations-support.html>

About the author

Dr. Troy Hicks is a professor of English and education at Central Michigan University (CMU) and focuses his work on the teaching of writing, the intersections of literacy and technology, and, more broadly, teacher education and professional development. A former middle school teacher, he collaborates with K–12 colleagues and explores how they implement newer literacies in their classrooms. Hicks directs CMU's Chippewa River Writing Project, a site of the National Writing Project, and he frequently conducts professional development workshops related to writing and technology.

Also, Hicks is author of the Heinemann titles *Crafting Digital Writing* (2013) and *The Digital Writing Workshop* (2009) as well as a coauthor of *Because Digital Writing Matters* (Jossey-Bass, 2010), *Create, Compose, Connect!* (Routledge/Eye on Education, 2014), *Connected Reading* (NCTE, 2015), *Research Writing Rewired* (Corwin Literacy,

2015), *Coaching Teacher-Writers* (Teachers College Press, 2016), *Argument in the Real World* (Heinemann, 2017), and *From Texting to Teaching* (Routledge/Eye on Education, 2017). His edited collection, *Assessing Students' Digital Writing* (Teachers College Press, 2015), features the work of seven National Writing Project teachers. Hicks has authored or coauthored over 30 journal articles and book chapters. He blogs regularly at hickstro.org.

In March 2011, Hicks was honored with CMU's Provost's Award for junior faculty who demonstrate outstanding achievement in research and creative activity and, in 2014, he was honored with the Conference on English Education's Richard A. Meade Award for scholarship in English Education.

He can be followed on Twitter: [@hickstro](https://twitter.com/hickstro)



Troy Hicks

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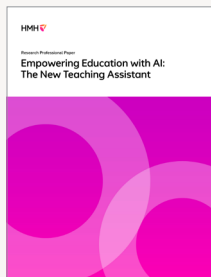
HMH research publications

Research-based, evidence-proven



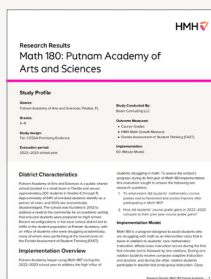
Research Evidence Base

Research Evidence Base papers provide an in-depth account of the theoretical underpinnings, evidence base, and expert opinions that guide the design and development of new and revised programs. These papers map known research and design principles to practical applications of the program.



Research Professional Paper

Research Professional Papers highlight an important theoretical construct, practical application, program component, or other topic related to learning in the context of HMH programs. They are authored by experts in the field, researchers, and thought leaders within the industry.



Research Results

Research Results papers summarize the findings from research studies conducted on HMH programs, including research conducted internally by HMH and externally by third-party research firms. Research Results papers document the efficacy of a program in terms of ESSA evidence levels: strong evidence, moderate evidence, promising evidence, and evidence that demonstrates a rationale for program effectiveness.

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Research Evidence Base

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