Using Automated Writing Feedback Tools in the Classroom: Research Insights for Tool Designers and Instructional Support Teams

This brief aims to help developers and instructional support staff of automated writing feedback tools—as well as curriculum developers interested in integrating automated writing feedback tools—understand what helps and hinders such tools' use in the classroom. The brief summarizes key implementation takeaways from studies of two such tools—Ecree and MI Write—in Grade 7–11 English language arts classrooms during the 2021–2022 school year. The brief also provides strategies for improving automated feedback tools to better meet the needs of teachers and students. The findings in this brief are synthesized from two studies, one focused on Ecree and the other on MI Write. The school contexts and groups of participating students and teachers differed across the two studies. Read more about the study methods for Ecree and MI Write.

About the Technology

Ecree and MI Write are automated writing feedback tools (also known in the field as automated writing evaluation tools) designed to support instruction and improve students' writing. Teachers assign writing, and students plan, draft, and revise essays in the tools. The tools provide feedback on writing traits, such as style, organization, argumentation, or development of ideas, in students' drafts. Both tools provide teachers with student data, reports, and essay scores. Research suggests that students' writing skills improve when students have frequent opportunities to practice and receive clear feedback on their writing and revisions.[1]

Key Takeaways

/ Teachers found Ecree and MI Write useful for their writing instruction and for helping students improve their writing.

/ Some students struggled to understand Ecree's and MI Write's automated feedback.

/ Teachers reported curriculum and technical integration challenges when implementing Ecree and MI Write in their classrooms.

/ Regular and tailored support helped teachers better understand how to integrate Ecree and MI Write into their teaching.

Implementation Contexts

The studies took place in five school districts during the COVID-19 pandemic. Students who are Black, Latino, and/or experiencing poverty were communities in focus for these studies. In the Ecree study, about a quarter of students in the samples used for analysis were Black or Latino. Information on student eligibility for free or reduced-price lunch through the National School Lunch Program, a common measure of students experiencing poverty, was not available. In the MI Write study, about 80 percent of students in the samples used for analysis were Black, Latino, and/or eligible for free or reduced-price lunch.

The study teams randomly assigned teachers to either have access to Ecree or MI Write (intervention groups) or teach using their typical methods (comparison groups). Although teachers and students in the intervention groups used Ecree and MI Write, very few completed all intended activities to support implementation and student writing practice. For example, Ecree staff and study researchers requested teachers assign at least six essays for students to complete in Ecree during the study. However, on average, teachers assigned 1.5 essays and students completed one essay in Ecree. Similarly, the MI Write team and study researchers requested teachers assign at least eight essays for students to complete in MI Write during the study. On average, teachers assigned 7.6 essays and students completed 3.6 essays in MI Write. Usage statistics of Ecree and MI Write

should not be directly compared because the types and lengths of writing assignments may have differed. In addition, variations in use across study classrooms and districts could be attributed to a number of factors, including the use of hybrid and virtual learning during the COVID-19 pandemic.

Samples Used for Analysis

Ecree

Teacher surveys:
17 (intervention)
Teacher interviews:
7 (intervention)

District leader interviews: 2

Student surveys:
368 (intervention)
Student interviews:
1 (intervention)

MI Write

Teacher surveys:
19 (intervention)
Teacher interviews:
9 (intervention)

Student surveys:
1,182 (intervention)

KEY TAKEAWAYS

1 Teachers found Ecree and MI Write useful for their writing instruction and for helping students improve their writing.

The majority of surveyed teachers in both studies found the automated writing feedback tools useful for helping students improve their writing. In interviews, teachers reported mixed impressions of automated feedback provided by the tools, but in both studies generally reported that the tools' feedback was helpful, especially for students with at least foundational, at-grade-level reading and writing skills. For students with these foundational skills, teachers reported that feedback afforded students opportunities to continue practicing habits of good writing. Similarly, teachers in both studies reported that the tools' automated feedback allowed students to work independently and incorporate feedback into their writing.

> *By using Ecree, [students] get immediate feedback [on] the whole process as they input their work... It took the anxiety away from those students that ask for immediate reassurance with their writing.*
> — Grade 11 teacher

> *By the end of the year, [students] were proud of their own accomplishments, how big or how small it was. MI Write was able to show them just by the data... So at least they had a little bit of confidence in their abilities.*
> — Grade 8 teacher

The tools' automated scoring and score reports were also helpful in identifying areas where students struggled and providing data that teachers could use to analyze student writing skills. Teachers reported they used tools' automated scoring and score reports to focus comments and feedback when conferencing with students and to develop their instructional practice. As one grade 8 teacher

commented, "[The tool] helps me look at what I have to reteach. That's how I use the data—I look at it and say, 'Okay, what are the things that most of [my students] missed? Do I have to review them? Can I go over them?'" In one study, it was particularly common for teachers who expressed feeling less confident at teaching writing to describe applying the tool's data and reports in this way. However, teachers' impressions were mixed on whether the automated scoring lessened their grading workload and reduced the amount of individualized help students needed during class time. In one study, for example, some teachers said the tool gave misleadingly low scores and they wanted more information about the evaluation rubric used to produce them.

Strategy. Tool designers and their instructional support teams should continue to gather feedback from teachers and students about which features of automated writing feedback tools they find helpful and easy to use, and which features could be improved. In addition to direct feedback, developer teams could enhance usage analytics to explore how teachers and students take advantage of specific features in the tools. Developer teams could also provide further guidance to teachers on how to integrate the tools into their daily classroom instruction and routines.

2 Some students struggled to understand Ecree's and MI Write's automated feedback.

A key feature of automated writing feedback tools is providing students with formative feedback about their writing when they need it the most: when they are engaged in the act of writing. However, this requires students to understand and respond to formative feedback largely on their own. Although more than two-thirds of students in one study said they could easily understand the formative feedback, more than a quarter of students (29 percent) disagreed. A similar statistic was not available from the other study.

I don't really understand the feedback that I get [from MI Write], so sometimes I don't know what to change.

— Grade 8 student

I think [Ecree] may have intimidated them a little bit… it's amazing to me, but they were overwhelmed.

— Grade 8 teacher

More research would be useful in identifying which groups of students find the tools more difficult to use, but about half of surveyed teachers (53 percent) in one study reported that students' reading skills were a barrier to using the technology consistently in their classroom. A specific concern for teachers in the other study was that the tool's automated writing feedback used language that was too advanced for their students. Some teachers in that same study noted that their students felt overwhelmed, frustrated, or confused by aspects of the tool such as the type of feedback, amount of underlining, and unclear directions.

Strategy. Tool designers and their instructional support teams should provide options and guidance on how educators can implement tools differently to support students with different skills levels. For example, developer teams could design tools that provide simpler feedback based on the classroom context and teachers' judgments about students' reading and writing skills. Developer teams could also provide teachers with guidance on how to supplement the tools' feedback with their own and how to help students break down

feedback and make it more manageable. An example of this could be teachers holding distinct sessions of classroom review, each of which focusing on a specific writing skill (such as essay organization or use of supporting evidence).

3 Teachers reported curriculum and technical integration challenges when implementing Ecree and MI Write in their classrooms.

A lack of both curriculum integration and alignment was a common barrier to using the tools that teachers cited in interviews. For instance, in one study, some teachers reported that their English language arts curriculum did not prioritize writing or writing-process practice as much as the tool did. This misalignment made it difficult to keep up with tool usage expectations, and some teachers fell behind in their curriculum. In one district, teachers reported they typically assign writing-process assignments— which require a cycle of prewriting, drafting, and multiple revisions—only once per marking period. The study, however, required monthly assignments of this type using the tool.

In the other study, teachers noted that the tool's automated feedback sometimes addressed topics or terms teachers had not yet taught, such as certain grammar conventions and sentence structures. For example, one grade 9 teacher said the tool provided feedback on "passive voice," a term the teacher had not yet introduced to students. Another grade 9 teacher commented, "[The tool] would flag stuff that we haven't even discussed yet. I wish I could customize some features, like saying, 'Please only grade for XYZ, not everything.'" This misalignment between topics and terms in the tool's feedback and what teachers had covered to date made the feedback unhelpful for students in those moments.

Relatedly, a lack of technical integration with other digital platforms teachers commonly used may have slowed implementation. In one study, a common question teachers posed was whether students could use the tool in Google Docs— a familiar platform for both teachers and students according to survey responses, but one the tool did not support at the time of the study. In two districts in the other study, teachers were implementing the tool alongside a new English language arts curriculum, and some teachers faced challenges integrating the tool into the new curriculum, which included its own technological writing platform. Finally, one school district was unable to integrate the tool directly into its learning management system (Clever and Google Classroom), requiring teachers to instead create separate accounts for their students in the tool's digital platform.

> *The only problem we had this year was that we were simultaneously having MI Write and a new curriculum... so that became a problem. MI Write itself was easy to use, but trying to fit it in became really difficult.*
>
> — Grade 7 teacher

Strategy. Tool designers and their instructional support teams should use a variety of strategies to make automated writing feedback tools easier for teachers to use alongside their curricula and lesson plans. For example, they could provide teachers with tips for more easily integrating the tools with commonly used English language arts curricula or develop features that enable teachers to customize which feedback students see in the tool to fit with their instructional pacing. Tool and curriculum developer teams could also collaborate to directly embed automated writing feedback tools into English language arts curricula and guide teachers on usage expectations. Developer teams could also consider how to

streamline access to tools by integrating with learning environments and applications that teachers commonly use.

4 Regular and tailored support helped teachers better understand how to integrate Ecree and MI Write into their teaching.

Teachers who received tailored support and coaching reported that those activities helped them address implementation challenges and understand how to integrate the automated writing feedback tool into their teaching.

Although not a standard feature of the tool, during the study one developer offered teachers monthly and ad hoc coaching support. In this study, most surveyed teachers reported that the resources provided during coaching sessions were useful (95 percent) and that training and implementation supports helped them understand how to use the tool (90 percent). More than three-quarters of surveyed teachers also reported these activities helped them integrate the tool with their writing instruction (79 percent).

79% of surveyed teachers in one study reported that training and implementation supports helped them integrate the tool with their writing instruction.

As one grade 7 teacher reported, "The coaching really helped me home in on different aspects of how I teach writing and give feedback." Anecdotally, coaches in this study also reported that developing strong relationships with teachers helped build trust, allowing coaches to tailor their sessions to the experiences and implementation challenges teachers faced. For instance, the coaches provided resources such as sample lesson plans with a structure for how to prioritize the content of students' writing revisions.

In the other study, teachers attended a kickoff training before using the tool, participated in a webinar in the middle of the fall semester, and received technical support upon request. Interviewed teachers in this study said they appreciated the on-demand support and timely communication they received from the developer. They also noted that opportunities for additional training and ongoing support would have been useful for implementing the tool.

Strategy. Tool designers and their instructional support teams should clearly communicate what resources (such as staff support and sample lesson plans) are available to help teachers integrate automated writing feedback tools into their teaching. They could also consider offering regular training, coaching and/or troubleshooting sessions to help teachers find the best ways to implement the tools with their students. If these supports are offered, developer teams should seek to continually improve on these offerings by gathering feedback from teachers. Developer teams could also collaborate with school leadership to establish time and resource expectations for teachers to make the best use of the tool in the classroom, including encouraging them to allocate time before and during the school year for training and coaching sessions related to the tool.

STUDY OVERVIEWS

Study designs. Each study team randomly assigned participating English language arts teachers to either have access to the tool (intervention group) or to teach using their typical methods (comparison group). The study teams then compared student and teacher outcomes for the intervention group to outcomes for the comparison group. The Ecree study included 45 teachers and about 1,800 students in grades 8–11 across 19 schools in two school districts. The MI Write study included 39 teachers and about 2,500 students in grades 7 and 8 across 14 schools in three school districts. Read more about the study methods for [Ecree](#) and [MI Write.](#)

Data and methods used for the brief. The brief draws upon student and teacher surveys collected from the intervention group at the end of each study to assess usability and usefulness of the tools, along with individual or small-group interviews with teachers, students, or district staff. For the Ecree study, this included 368 completed student surveys, 17 teacher surveys, and interviews with seven teachers, two district staff, and one student. Data for the MI Write study included 1,182 student surveys, 19 teacher surveys, and individual or small-group interviews with nine teachers. The study teams also reviewed Ecree and MI Write usage data. The study teams calculated descriptive statistics from the survey and usage data and identified themes in the qualitative data.

Implementation contexts. The studies took place in rural, urban, and suburban school districts in Alabama, New Jersey, and North Carolina during the COVID-19 pandemic. Instruction in all districts was conducted in person, but some classrooms and schools had to pivot at times to virtual instruction due to COVID-19 outbreaks. School districts provided students with laptops, and schools had internet access, which are required to use the tools. Teachers and students in the intervention groups had never used the tools before. Both studies recruited schools serving students who are Black, Latino, and/or experiencing poverty (as measured by eligibility for free or reduced-price lunch), which were communities in focus for the studies. In the Ecree study, about a quarter of students in the samples used for analysis were Black or Latino (information on free or reduced-price lunch eligibility was not available). In the MI Write study, about 80 percent of students in the samples used for analysis were Black, Latino, and/or eligible for free or reduced-price lunch.

Levels of implementation. Although teachers and students in the intervention groups used Ecree and MI Write, very few completed all intended activities to support implementation and student writing practice. For Ecree, teachers were requested to attend webinar trainings, set up prompts, and assign at least six essays for students to complete while using the writing diagnostic feature and revising their essays. On average, teachers assigned 1.5 essays and students completed one essay in Ecree, and 76 percent of teachers attended the webinar training. For MI Write, teachers were requested to assign at least eight essays (each with two required revisions), eight pre-writing activities, eight interactive lessons, and three peer reviews for students to complete in the tool during the study. On average, teachers assigned 7.6 essays in MI Write, and students completed 3.6 essays overall and 1.3 essays with at least two revisions. Although not a standard feature of MI Write, teachers were also requested to attend monthly coaching sessions during the study. In the spring semester, teachers were requested to use the tool's annotation feature to supplement feedback on all submitted essays. Teachers attended 5.8 of eight coaching sessions on average, and no teacher used the MI Write annotation tool for all spring essays. Usage statistics of Ecree and MI Write should not be directly compared because the types and lengths of writing assignments may have differed. In addition,

variations in use across study classrooms and districts could be attributed to a number of factors, including the use of hybrid and virtual learning during the COVID-19 pandemic.

Read more briefs in this series here: Evaluating the Development of Secondary Writing Teaching & Learning Solutions.

Interested in implementing Ecree or MI Write in the classroom? Email contact@ecree.com (for Ecree) or info@miwrite.net (for MI Write).

Endnote

[1] Graham, S., Hebert, M., & Harris, K. R. (2015). Formative assessment and writing: A meta-analysis. *Elementary School Journal, 115*(4), 523–547; Kellogg, R. T., & Whiteford, A. P. (2009). Training advanced writing skills: The case for deliberate practice. *Educational Psychologist, 44*(4), 250–266; Tehrani, F. A. (2018). Feedback for writing or writing for feedback? *Journal of Language and Linguistic Studies, 14*(4), 162–178.

Let's Progress Together. Contact…

mathematica.org