Collaborating with "Ceci": How a Teacher-Designed Chatbot Supports Writing Confidence in Grade 9 Girls

Mary Jane Kennedy

Marymount School of New York, New York City, USA

Abstract

This action research study examined how a teacher-designed chatbot ("Ceci") supported writing confidence in 14 Grade 9 girls (14–15 years old) in an English classroom. This project was driven by a recurring revision challenge: students often identified issues in their writing but did not always know what to do next, and individualized feedback was difficult to provide consistently in real time. Data were collected across four structured revision sessions through surveys, chatbot transcripts, and classroom observations; writing artifacts were collected in the first two sessions and a focus group was conducted at the end of the study. Findings suggest that students saw Ceci as an extension of, rather than a replacement for, teacher feedback, using the chatbot for individualized support while still centering teacher expectations as they worked. Students' writing confidence was most often expressed as procedural clarity, or their sense that they knew the next steps to take in revision. Although students sometimes found Ceci's feedback frustrating or confusing, many demonstrated persistence by testing options, adjusting prompts, and making strategic decisions about how to apply Ceci's feedback. Finally, Ceci's relational design (name, avatar, gender, and tone) appeared to support both students' engagement during revision and their willingness to admit uncertainty. Overall, these findings suggest implications for how a teacher-designed chatbot can extend revision support beyond a traditional classroom setting. A subsequent action-research cycle could standardize implementation and evaluate whether revisions strengthened clarity and connections in addition to confidence.

Glossary

Clarity: Writing that communicates ideas in an understandable way (e.g., precise wording, clear sentence meaning, sufficient context).

Connections: How well ideas link together (e.g., logical flow, transitions, and clear cause-and-effect or evidence-to-idea links).

Engagement: Sustained participation in the revision task, including persistence through difficulty.

Procedural Clarity: Students' sense that they know how to proceed in their writing for next steps; procedural clarity is regarded as an indicator of writing confidence.

Support: Assistance that enables a student to continue or improve their writing (e.g., prompts, feedback, clarification, or structure) without doing the writing for the student.

Teacher-Designed: Created or customized by the classroom teacher to align with course goals/expectations and language (e.g., guardrails, prompts, and resources selected by the teacher).

Writing Artifacts: The paper-based written work annotated by students during the revision process

Writing Chatbot: A conversation-based AI tool used to support students while writing and revising.

Writing Confidence: Students' self-reported confidence in their writing or the revision process.

Collaborating with "Ceci": How a Teacher-Designed Chatbot Supports Writing Confidence in Grade 9 Girls

As a Grade 9 teacher, I have noticed several recurring challenges and opportunities that offer a new venue for exploring innovative approaches to teaching alongside AI technologies. Many students experience anxiety around writing, including helplessness, frustration, and the sense that they do not know how to "write well." At the same time, students' use, or perceived use from the perspective of many teachers, of generative AI to do the hard work of writing has added a layer of uncertainty to the writing process. Students also express perfectionist tendencies when it comes to writing that interfere with their ability to write. Finally, students often describe not knowing how to revise; while they are often able to discern and identify issues in their writing, they do not always know where to start, what to prioritize, or how to apply effective strategies to fix issues in their writing.

I chose to create "Ceci" (C-C), a writing chatbot designed to help students with clarity and connections, because I wanted to explore how generative AI tools could help both students and teachers to provide support with clear, customized guardrails to protect student critical thinking and skill development; to function as a friendly, supportive sounding board during the revision process; and to extend the teacher beyond what is possible in a traditional classroom setting.

My research question was, "How does using a teacher-designed chatbot support writing confidence in Grade 9 girls?" I used action research because I wanted an iterative, cyclical methodology that would allow me to investigate a real issue I identified in my own classroom and use cycles of action and reflection to improve my teaching. Additionally, I knew that action research would encourage me to more comprehensively and intentionally explore the students' experiences of a change I was introducing to my classroom.

Literature Review

To be effective, writing instruction depends on clear expectations and actionable feedback (Hattie & Timperley, 2007; Shute, 2008); however, the labor involved often limits how much feedback students receive. When developing their writing skills, students benefit from specific, personalized feedback that is

clear, recurs frequently, and is turned around quickly (Shute, 2008). While immediate, helpful feedback is an invaluable tool for students, it can require significant labor and time on the part of teachers, depending on the type of feedback and writing task. As class sizes grow and teachers are expected to learn, experiment with, and implement research-based instructional methods, detailed and specific feedback can fall by the wayside as teachers manage competing responsibilities. Students also benefit from narrative-based commentary in their teacher's voice because it offers encouragement, interacts with their writing, and reinforces concepts learned in class (Hyland & Hyland, 2006; Sommers, 1982).

Because generative AI is already shaping how students approach writing tasks, it is important to examine instructional uses that support revision and confidence and do not replace student thinking. While generative AI has been regarded with some concern and alarm, when thoughtfully tailored and implemented, it has the potential to serve as an ally to teachers rather than as a replacement for them. AI tools offer an interesting avenue for helping teachers with this and other problems that surface in the classroom when it comes to writing instruction and evaluation.

Research on Automatic Writing Evaluation (AWE) tools and large language models (LLMs) suggests that AI can provide some useful forms of writing feedback, though it is dependent on how well it is designed and how it is used. AWE tools such as Grammarly and Grammark help students not only increase the accuracy of their students' writing, but also their overall skills, especially when they provide clear, relevant explanations alongside critical feedback (Parra & Calero, 2019). Research also suggests that ChatGPT can offer helpful feedback on students' writing due to its practicality, adaptability, and interactivity, although it can also be inconsistent and its value is often shaped by the quality of its prompts (Kurt & Kurt, 2024). Although ChatGPT may be used to automate the feedback process, this process needs to be closely monitored, assessed, and verified by the teacher to ensure that it aligns with their professional views (Jukiewicz, 2024). Additionally, using AI tools with student writing raises issues around data protection (its storage, who can access it, whether it is used to train third-party systems), so teachers and schools must evaluate data handling practices and policies alongside AI's potential instructional value.

When strategically designed, chatbots can provide non-judgmental, neutral sources of support that reinforce skills and language used in class and may foster student motivation through increased skill development. Students who are motivated to improve their writing skills, rather than simply focusing on the end-product of a particular assignment, generally have higher writing evaluation scores than their peers (Süğümlü et al., 2019). There have been many studies concerned with the impact of motivation on students' writing abilities and the role that gender plays in this process. Camacho et al. (2020) focus on self-efficacy: students' sense that they are effective at completing a writing task. This is closely related to what I refer to as "confidence"- a student's belief that they can independently complete a task to their own relative satisfaction.

In my study, writing confidence is treated not only as a feeling but as a process-based sense of capability that is often expressed through knowing what steps to take next. A chatbot designed specifically by a teacher for writing in their class can echo the same successful strategies they employ in instruction. Using metacognitive, strategy-based writing practices effectively in teaching and learning helps students improve their writing skills (Cer, 2019). Under teacher direction, a chatbot may reinforce self-regulatory writing strategies (Teng et al., 2022) during the writing process, supporting students as they revise and make strategic decisions about their own work.

In an all-girls context, examining writing confidence is especially relevant. Girls generally outperform boys in both reading and writing abilities, with the latter especially reflected in the gender difference (Reilly, 2018). However, strong performance does not always translate into confidence during revision, particularly when writing is open-ended and students must decide what to do next. For this reason, it is important to examine writing confidence not only as a feeling, but also as a process-based sense of capability that supports persistence and clarity about next steps.

It is important to consider supports that sustain engagement and confidence during revision without replacing the human classroom environment. However, a friendly AI chatbot that echoes the language and tone of effective teacher or tutor feedback could provide interactive guidance that students can apply while revising their work. Positive emotions are critical for healthy classroom functioning, and

joy is reciprocally transmitted between teacher and student in the classroom (Frenzel et al., 2024), demonstrating the benefits of students learning in a human environment. Similarly, the effectiveness of artificial intelligence increases when it establishes a sense of positive social interaction through the building of rapport (Cassell, 2019). However, because anthropomorphic cues can increase perceived social presence while also exaggerating users' perceptions of AI capability and shaping their trust, the benefits and risks of relational design are an important consideration in classroom chatbot use (Konya-Baumbach et al., 2023; Peter et al., 2025; Placani, 2024).

While well-trained evaluators consistently offer better feedback than ChatGPT in almost all domains (Steiss et al., 2024), it still can be useful in some contexts with distinct guardrails and under the supervision of a skilled evaluator. Students spend more time with feedback, and are thus more engaged with it, when it is individualized (Fleckenstein et al., 2024). While AI can help with grammar and style, university-level writing courses help students cultivate critical thinking skills, creativity, and perseverance (Aljuaid, 2024). Taken together, the research supports investigating how a teacher-designed, guardrail chatbot like Ceci can extend access to individualized feedback while ultimately keeping a course's writing expectations centered on the classroom teacher.

Research Context

Marymount School of New York is a Nursery–Grade 12 independent Catholic all-girls' school on the Upper East Side of Manhattan in New York City. Marymount's dedication to a well-rounded education is demonstrated by its innovative approach to STEM education for girls, as well as its commitment to a rich humanities program.

Participants in this study were 14 Grade 9 students enrolled in my English class. In Grade 9, English is part of Marymount's "Humanities" curriculum, a course integrated with History and Art History, which are taught by separate teachers. All students in the class participated. When the study began, the school year had been in progress for approximately six weeks. I had also taught some participants in earlier grades, while others were newer to the school.

After the project was approved by the divisional head and head of school, I sent a parent/guardian permission letter via email link. Participation was voluntary and carried no penalty for opting out. A separate permission request was later sent for a video-recorded session.

To protect confidentiality, students used “writers’ tags” rather than names during their Ceci sessions, on their written work, and in their post-session Google form surveys. At the beginning of the study, one of the students assigned tags to all students, consisting of the class section number and a random letter (e.g., “1A”). Students recorded their tags in a spreadsheet for reference; I did not have access to the spreadsheet, which was managed by a colleague. Students used writer’s tags for submissions and when interacting with Ceci. Data were stored in Google Drive in accordance with the school’s data protection policies and in PlayLab’s (Playlab, n.d.) AI interface.

Action

Before beginning the project, I introduced the idea to students and explained the role they would play in helping me collect data. I explained how Ceci worked and reviewed Ceci-specific responsible use guidelines posted to our class website. Before each Ceci session, I gave students advance notice–typically a few days beforehand–and clarified what they would revise. In the first two sessions, students revised the same writing assignment, and in the last two, the students chose what they wanted to revise, even if it was work for other courses.

Ceci sessions followed the same basic structure in each iteration. During sessions, Ceci asked students what they were working on and if they wanted to focus on clarity or connections in their writing. Students continued a conversation with Ceci about their writing and made revisions based on their interactions. At the end of each session, Ceci provided a summary of the areas of focus of their session, as well as relevant tips for strengthening their writing.

Over the course of the study, I made three adjustments based on student feedback and my own observations. Students requested additional time with Ceci, so I extended their work window from 7 minutes to approximately 10-15 minutes by the end. Additionally, I shifted from a handwritten revision annotation process to a fully digital process because it seemed more streamlined and less disruptive to the

revision process. Instead of annotating their revisions on a paper copy of their work, they revised in the chat and applied changes into their digital drafts. Finally, I refined Ceci's interface by shortening prompts, limiting Ceci to one question at a time, and adding differentiating features to support students with varying levels of independence.

Data Collection

Data were collected to examine how a teacher-designed chatbot supported Grade 9 girls' writing confidence during revision. I used a mixed-methods approach to track both what occurred during sessions and how students described their interactions with Ceci. Using several sources allowed me to identify themes across methods rather than over-emphasizing one perspective. This polyangulation strengthened the credibility of my findings because it allowed me to see where data across surveys, Ceci transcripts, classroom observations, and student testimonials converged or contrasted from one another.

To maintain anonymity in students' interactions with Ceci, students used their writer's tag when interacting with Ceci, submitting their written drafts, and filling out their Google Form reflections. Ceci's "remember user" feature allowed students' work to be tracked across sessions within the chatbot environment via their writers' tags.

Data were collected over the course of four structured revision sessions between early October 2025 and late January 2026. Across all four sessions, I collected surveys with both scaled items and open-ended responses (e.g., clarity, connections, "better writing," next steps, and confidence in the writing/revision process), chatbot transcripts of students' prompts and Ceci's responses, and classroom observation notes recording how students engaged, where they became stuck, and how they sought support. Writing artifacts (writing samples annotated for revision) were collected in the first two sessions. At the end of the study, I videorecorded focus group interviews (four sessions of three-to-four student groupings) to gather students' collective reflections on their experiences with Ceci.

Data Analysis

I analyzed the data using Mertler's (2025) organize, describe, interpret, and report sequence. First, I organized each dataset by session date. Google Sheets allowed me to toggle between a chronological order and by writers' tags, so I could look at student data longitudinally and discern patterns over time. Ceci session transcripts were likewise organized by date and writers' tags. My own classroom observations were organized by date but varied based on how much support or interaction students sought on a given day.

While reviewing the data, I identified elements that were relevant to my study, grouping them based on the key elements they pertained to how students described writing confidence, how they responded to feedback, how they expressed frustration, the function of playfulness and humor, and the impact of Ceci's design. After considering how broader categories related to my research question, I identified four thematic findings. I checked whether themes were supported across multiple data sources. I selected representative evidence of my findings but also included examples that challenged or complicated my findings. For Likert-scale survey responses, I used graphs to visualize averages, contextualize outliers, and zoom in on particular writers' tags. Consistent with a descriptive reporting approach, findings particularly focused on short answer survey responses, direct student quotations, and Ceci session transcripts.

Discussion of Results

Ceci Extends Teacher Feedback in Ways That Support Girls' Revision and Confidence

Students consistently echoed not only the importance, but the centrality, of my feedback and presence to their learning. During our first session with Ceci, students generally worked quietly and only verbally checked in with me if they encountered technical problems or to ensure that they were "doing it right." However, they became animated after the session ended, eager to share their experience with me as well as each other. As one student explained, "[W]e take what you like and what you prefer … [W]e make sure we ask her for things that we think are important to [you]." One student said that the resonance

between me, my feedback, and our classroom made it feel like Ceci did not "remind" them of me, but that it was "giving" me:

> I remember you gave us … pros and cons of … things in our writing and … you were like come to my office if you want me to … discuss it with you and it's … very constructive. And I feel like Ceci did the same thing. It was like, 'oh you need help with this? This is what you can do to help it. I'm not going to give you the answer, but this is what to think about' and it was very much … like you in a sense.

One student emphasized that their ultimate success in a class depends upon understanding a teacher's criteria for achievement: "Teachers know what they're looking for. Ceci doesn't know exactly what the teacher's looking for." Likewise, another echoed that teachers can be more "specific" and relevant.

Students emphasized the importance of their teacher, even while talking about Ceci's helpfulness. As one student explained, the "individualized learning" that AI platforms can offer is "helpful definitely," but that the "bond" created by "face-to-face" teacher interactions was "need[ed]." One student acknowledged the challenges facing teachers: "[T]eachers have … a bunch of … students, obviously, so they can't teach every single one of their students in specifically … what they need to … work on." Another student noted the "personalized" writing support Ceci offered, and yet another echoed: "[S]he can help you work on … exactly what she thinks and you know yourself what you need to fix and work on." As another student put it, "[W]ith Ceci it's … your words … and then you can put it in again, and it'll be like, oh that's better, but … what else can we do?"

Ceci supported student agency during the revision process by affirming what could be improved while encouraging continued revision; rather than replacing teacher feedback, Ceci became an additional support, "like extra reminders and extra advice." Additionally, interacting with Ceci felt safer for some students; this could be because they "fe[lt] more comfortable when it's one-on-one rather than … in front of the whole class," or because, as one student attested, she felt unsure whether she was derailing the class if she asked questions about her writing that were only relevant to her work. One student attempted to clarify the complex dynamic between teacher-student-Ceci by noting that while I faded into the

background during her Ceci sessions, I was not replaced, but just momentarily out of focus. “When Ceci's there … you're not part of the vibe anymore … I'm just with Ceci… It's two separate things.”

Ceci Supports Writing Confidence by Clarifying Next Steps in Revision

Students' interactions with Ceci demonstrated that their writing confidence most often took the form of knowing what to do next. According to post-session surveys, students’ reported confidence scores were moderate, as was their sense that, as a result of the session, their writing was “better.” However, their scores for feeling like they knew “how to proceed in [their] writing for next steps” tended to be higher. Across surveys, students’ writing confidence was not primarily based on how they felt about their abilities, but that they felt confident that they knew what steps to take next in the revision process.

They further demonstrated this during sessions with Ceci by exercising control over the revisions they chose to incorporate, engaging when they found Ceci’s feedback helpful or worth further exploration, and strategically disengaging (stopping an unhelpful process and moving on) when they felt Ceci’s feedback had ceased to be helpful. Moreover, this procedural clarity often appeared to precede broader feelings of confidence about the quality of their work.

Ceci Supports Writing Confidence by Sustaining Student Engagement When Challenges Arise in the Revision Process

Students’ experiences using Ceci were not universally positive; sometimes they found their sessions confusing or frustrating. As one student explained, “There was … a lot of repetition and I wanted to … swerve out of the repetition but … it just kept going back and she would say the same thing.” Students became frustrated when they felt Ceci did not accurately “understand” what they were trying to accomplish or continued prompting them on a point they believed was complete (“We were spending minutes on one sentence.”); when they disagreed with her evaluation of their needs or next steps; or when they knew they wanted to improve their writing but felt uncertain about where to begin (“When she would give me tips, I didn’t know how to incorporate it … [S]he would just tell me steps, but I didn’t know where to start.”). When confronted with a question from Ceci, a frustrated student responded, “I DON’T KNOW ur going to make me cry,” and (hyperbolically) accused Ceci of “ragebaiting” her.

Students often worked through moments of frustration using strategies that reflected critical thinking, resulting in what is sometimes referred to as "productive frustration" or "productive struggle," a process that feels uncomfortable but can lead to more engaged, flexible, and resilient thinking. Through iterative prompting, they began to refine how they interacted with Ceci ("I figured out what to ask her"). Although one student said, "If I get stuck, I just ke[ep] asking," the transcripts show that they were not simply repeating the same request; rather, they were often testing out different ways to reframe requests or providing additional context by elaborating more on their intentions to receive relevant feedback.

Engaging with Ceci in conversation prompted students to clarify their own thinking in response to, and beyond, Ceci's guidance. During one session, Ceci asked a student if a phrase like "as a result" might make the cause-and-effect connection she was trying to make clearer, but the student countered, "I think it might be better to use 'this proves that.'"

Students also learned from observing one other. They offered guidance to peers about how to prompt more effectively, building a sense of collaborative problem-solving in the classroom. As one student reflected, "Seeing how other people were prompting Ceci helped me understand what she wants me to ask." While after the first session, one student remarked, "I didn't want to think," another student later said, "She really made you think."

Relational Aspects of Ceci's Design Support Girls' Engagement and Persistence During Revision

Most girls responded positively to Ceci's name and character design. They said they liked her name not only because "you can … address her easily," but also because it made her "a little bit more personable." One student remarked that her name sounded friendly and familiar, "like one of your dolls." Others commented on her avatar design (one appreciated the "pop of color" in comparison to the "black and white" interface of ChatGPT). As one student explained, Ceci is "more fun"; with ChatGPT, "you know you're talking to a bot but this one gives you a little story and … someone to talk to."

Many girls used playful or affectionate terms to address Ceci. They used various names that reflected a range of affective relational positions and attitudes, both to address her directly and in their post-session reflections, including "best friend," "amigo," "witchcraft girl power," "girl," "gurrllllll,"

"sweetie," and "sweet child." This seemed to increase over time; after more sessions, they seemed more comfortable and used to her, and after our final session, one student humorously remarked that ending the interaction "felt like a breakup text."

The students consistently used gendered language when talking both about and to Ceci. I intentionally gendered Ceci as female, and students consistently echoed this language. This occurred verbally during sessions as ("Ceci, you're being repetitive, but I get you, girl") and in their chat transcripts ("thanks gurrrrllllll"). This gendered, personified framing appeared to lower affective distance and keep sessions conversational. In an all-girls educational context, and with a female teacher, this gendered framing also aligned with our classroom. They also attested that they preferred a gendered, and specifically, a female-gendered avatar, as a gender-neutral or male-gendered avatar would have been less personal or off-putting. At the same time, the limitations of Ceci's symbolic representation, as a two-dimensional, anthropomorphized but cartoonish lion, allowed her to remain safely symbolic, and students were adamant they would not want a realistic, more humanized, or an animated depiction of Ceci.

Many girls also used the interaction to communicate uncertainty or frustration directly with Ceci. Ceci was also attentive to students' emotional states in ways that reflected instructional care. When one student expressed frustration about her progress on a writing assignment, Ceci responded, "That's ok– take a deep breath! Let's work together step-by-step." Students sometimes prefaced moments of uncertainty in their interactions with phrases like "in all honesty," or saying things like, "I'm gonna be honest with you, I did not really understand this book," treating the interaction as an authentic conversation with a trusted mentor. She characterized their work as "thoughtful," reassured them that writing is a "process," and even reciprocated flower emojis.

Conclusions

Ceci supported writing confidence in Grade 9 students by extending, not replacing, teacher feedback, allowing the chatbot to fill in important gaps beyond a teacher's reach. After working with Ceci, students often expressed writing confidence as knowing what steps to take next. While working

with Ceci, many students remained engaged even when the process felt difficult, confusing, or frustrating. Design choices in Ceci's interface mattered to students and supported engagement during revision.

The finding that writing confidence was often expressed as procedural clarity rather than simply an affective feeling is significant. It reorients the lens through which we think about girls' confidence about (or in) their writing, and it highlights the idea that writing is both open-ended and process-based, especially when it comes to teaching students how to revise. For students with lower confidence in their writing skills, the feeling of knowing next steps–and being able to test out those steps with a supportive presence using familiar classroom language and strategies–can help students persist even when frustrated, mitigating overwhelm.

Several practice-based strategies used in this study are worth carrying forward. Giving students advanced notice of Ceci sessions helped some feel more organized and more equipped to make strategic decisions about their work. The consistent focus on "clarity or connections" narrowed the revision task enough to give students direction, while remaining flexible enough to allow students to work on what they identified as needing attention in their writing.

There were also several design features of Ceci that were particularly helpful. Limiting Ceci to one question at a time, even when this was not followed consistently, helped direct students along a clearer path in their revisions, making next steps more apparent. Students connected with her supportive tone, which also reinforced continuity with the feedback norms of our classroom. Non-generative guardrails lent Ceci credibility as an ethical alternative to non-approved AI tools and encouraged critical thinking and active engagement in the revision process. The end-of-session summaries Ceci provided gave students a clear idea of what they worked on in their session and helped them leave sessions with next steps. Finally, shifting to a purely digital workflow was more streamlined and less cumbersome for students, allowing them to test their revision ideas in the chat and apply wholesale revisions to their digital drafts.

There were also clear limitations to this study. The sample size was small (14 students) and response totals sometimes varied due to student absences, difficulty logging into the interface, or students

not having a writing task available at the start of a session. The shift from paper-based annotations to a purely digital workflow changed the mode and framing of revision midway through the study. Similarly, I made changes to Ceci's design during the cycle (for example, limiting responses to one question at a time and adding differentiation features) in response to student feedback, which shifted Ceci's intervention over time. I also had a prior teaching relationship with some, but not all, of the participants, having taught some students previously in Grade 6. Finally, since gender played an important role in the ways in which students responded to Ceci, the context of an all-girls' school with a female teacher may have shaped these findings in ways that would limit their application to other settings.

In future studies, I would like to test additional variables related to Ceci's use. For instance, I would like to test her usefulness in a writing center context, where students from different classes and teachers might use her. I also wonder how she might be used with older or younger students. Finally, I would examine her usefulness with longer assignments and with assignments students work on with her across multiple sessions. I would also like to see how working with her more frequently might yield different patterns in students' revision behaviors and expressions of confidence.

Reflection Statement

When beginning this study, I hoped that Ceci would help me provide my students with individualized, low-stakes writing support during revision tasks. I also hoped it would make my students feel more confident as writers, strengthening their skills and giving them actionable strategies that they could apply to future writing assignments. At the same time, I worried that they might not connect with a teacher-designed chatbot, that it would impede our ability to progress through essential curricular content, including exercises intended to strengthen writing skills, and that the process might leave them feeling more muddled about how to write and revise.

However, once I began seeing my students' engagement with the process–how they persisted through difficulty and what that reflected about their own investment in their development as writers and their curiosity as learners–I felt encouraged. Students seemed, and indeed stated, that they felt energized to be a part of a research project focused on a technology where public discourse is still evolving rapidly

and the technology itself is advancing every day. Many of them appeared to see themselves as "navigating the AI frontier" alongside me.

That shared sense of exploration also pushed me to reconsider something I thought I already understood: confidence. In the early stages of the study, I tended to treat writing confidence primarily as an affective and retrospective state, and therefore as something students either felt or did not feel. Over time, I expanded that understanding. I began to recognize that confidence can show up earlier in the process, as procedural clarity: knowing what to do next, persisting through uncertainty, and making decisions about revision even before students might consciously describe themselves as "confident." I started to recognize how anticipating "next steps" might precede conscious feelings of confidence and how making that idea *itself* explicit to students might support both their confidence and their development as writers.

Conducting this project within an action research framework offered me a flexible and responsive approach that I could adapt to my students' needs, as well as my own needs as their teacher. I did this by expanding the time window for Ceci sessions, shifting to a fully digital workflow, and refining Ceci's interface based on student feedback. Through this process, I came to appreciate how action research can bridge the gap between educational research and educational practice, allowing instructional decisions to be guided by evidence gathered in real time.

I would like to thank the International Coalition of Girls' Schools (ICGS) for offering me the opportunity to join a wonderful and impressive community in the GARC program, especially as we navigated the uncharted frontiers of AI in education together. Particularly, I would like to thank Debbie Hill, whose expertise, patience, and sense of humor acted as both anchor and compass in the research and writing process. To the rest of Team Hill–Laura, Linda, and Alex–it's been such a pleasure getting to know you, and I admire you all greatly.

I would like to thank Marymount School of New York for its generous support and interest in my project, as well as its commitment to investigating how the presence and prevalence of AI will continue to shape the field of education as we know it. I also owe a significant debt of gratitude (and a free coffee in

the Café!) to Eric Walters, my Marymount GARC mentor, who guided and encouraged me throughout the research process. My biggest thanks belong to my English students (both past and present), but especially those in Section 1, who were the thoughtful, inspiring, spirited, and hilarious collaborators in this project. Thank you for trusting the process, persisting through frustration, and showing me what confidence looks like in real time.

References

Aljuaid, H. (2024). The impact of artificial intelligence tools on academic writing instruction in higher education: A systematic review. *Arab World English Journal (AWEJ),* (Special Issue on ChatGPT), 26–55. https://dx.doi.org/10.24093/awej/ChatGPT.2

Camacho, A., Alves, R. A., & Boscolo, P. (2020). Writing development in children and adolescents: The role of self-regulation, motivation, and writing environments. *Educational Psychology Review, 32*(3), 643–674. https://doi.org/10.1007/s10648-020-09530-4

Cassell, J. (2019). Artificial intelligence for a social world. *Issues in Science and Technology, 35*(4), 29–36. https://issues.org/artificial-intelligence-for-a-social-world/

Cer, E. (2019). The instruction of writing strategies: The effect of the metacognitive strategy on the writing skills of pupils in secondary education. *SAGE Open, 9*(2), 1–17. https://doi.org/10.1177/2158244019842681

Fleckenstein, J., Jansen, T., Meyer, J., Krüger, M., Raubach, E., & Keller, S. (2024). How am I going? Behavioral engagement mediates the effect of individual feedback on writing performance. *Learning and Instruction, 93,* 101977. https://doi.org/10.1016/j.learninstruc.2024.101977

Frenzel, A. C., Dindar, M., Pekrun, R., Reck, C., & Marx, A. K. G. (2024). Joy is reciprocally transmitted between teachers and students: Evidence on facial mimicry in the classroom. *Learning and Instruction, 92,* 101896. https://doi.org/10.1016/j.learninstruc.2024.101896

Hattie, J., & Timperley, H. (2007). The power of feedback. *Review of Educational Research, 77*(1), 81–112. https://doi.org/10.3102/003465430298487

Hyland, K., & Hyland, F. (2006). Feedback on second language students' writing. *Language Teaching, 39*(2), 83–101. https://doi.org/10.1017/S0261444806003399

Jukiewicz, M. (2024). The future of grading programming assignments in education: The role of ChatGPT in automating the assessment and feedback process. *Teaching and Teacher Education: Leadership and Innovation, 7,* 101522. https://doi.org/10.1016/j.tsc.2024.101522

Konya-Baumbach, E., Biller, M., & von Janda, S. (2023). Someone out there? A study on the social presence of anthropomorphized chatbots. *Computers in Human Behavior, 139*, 107513. https://doi.org/10.1016/j.chb.2022.107513

Kurt, G., & Kurt, Y. (2024). Enhancing L2 writing skills: ChatGPT as an automated feedback tool. *Journal of Information Technology Education: Research, 23,* 407–431. https://doi.org/10.28945/5370

Mertler, C. A. (2025). *Action research: Improving schools and empowering educators* (7th ed.). SAGE Publications, Inc.

Parra, L. G., & Calero, X. S. (2019). Automated writing evaluation tools in the improvement of the writing skill. *International Journal of Instruction, 12*(2), 209–226. https://doi.org/10.29333/iji.2019.12214a

Peter, S., Riemer, K., & West, J. D. (2025). The benefits and dangers of anthropomorphic conversational agents. *Proceedings of the National Academy of Sciences, 122*(22), e2415898122. https://doi.org/10.1073/pnas.2415898122

Placani, A. (2024). Anthropomorphism in AI: Hype and fallacy. *AI and Ethics, 4*, 691–698. https://doi.org/10.1007/s43681-024-00419-4

Playlab. (n.d.). *Where educators do their best work with AI.* https://www.playlab.ai

Reilly, D. (2018). Gender differences in reading and writing achievement: Evidence from the national assessment of educational progress. *American Psychologist, 73*(4), 445–458. https://doi.org/10.1037/amp0000356

Shute, V. J. (2008). Focus on formative feedback. *Review of Educational Research, 78*(1), 153–189. https://doi.org/10.3102/0034654307313795

Sommers, N. (1982). Responding to student writing. *College Composition and Communication, 33*(2), 148–156.

Steiss, J., Tate, T., Graham, S., Cruz, J., Hebert, M., Wang, J., Moon, Y., Tseng, W., Warschauer, M., & Olson, C. B. (2024). Comparing the quality of human and ChatGPT feedback of students'

writing. *Learning and Instruction, 91*, Article 101894. https://doi.org/10.1016/j.learninstruc.2024.101894

Süğümlü, Ü., Mutlu, H. H., & Çinpolat, E. (2019). Relationship between writing motivation levels and writing skills among secondary school students. *International Electronic Journal of Elementary Education, 11*(5), 487–492. https://doi.org/10.26822/iejee.2019553345

Teng, M. F., Wang, C., & Zhang, L. J. (2022). Assessing self-regulatory writing strategies and their predictive effects on young EFL learners' writing performance. *Assessing Writing, 51,* 100573. https://doi.org/10.1016/j.asw.2021.100573