Using Metacognition to Improve Writing

Aim: By June 2016, students will be able to use metacognitive strategies to improve their writing.

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Introduction

Scenario 1: You need an extension. You’ve had the idea in your head since the brainstorming started, but you haven’t been able to find the words to capture that idea on the page. You need to email your teacher, but again, you’re stumped about how to ask. You rewrite an email three times, and each is further away from the polite message of self-advocacy you were striving to reach. You never send the email asking for help. You struggle through a draft of something you hate. You know you’ll be receiving feedback on it the next day and you know exactly what that feedback will say: needs improvement. Why even share? You don’t get the critique you need, your writing doesn’t improve, the teacher doesn’t have time to meet with you, the assignment is due, you fail. Your teachers think you are being lazy or unmotivated when you say you have writer’s block, but you really do have it (can writer’s block last a lifetime?). In groupwork, your group members always take over the writing portion even if you have been assigned to that role. Down the line, when you’re asked to write cover letters, you are confronted by similar problems: what you want to say seems to be hidden in a cave that’s sealed with an iron gate and surrounded by lava; you can’t get to it. You’re a much better candidate than your cover letter says you are, but you’ll never be able to show that, because your cover letter is the key into the door. You feel ashamed to ask your friends for help; writing comes so naturally to them and you feel like something inside of you is just inherently messed up because that’s not the case for you. You stop applying for jobs that require cover letters. College? Hopefully you’ll have someone to sit down and write your application essay with you, because you know you can’t do it on your own.

Scenario 2: You’ve been given a writing assignment, and based on your knowledge of what good writing looks like across a variety of different genres, you have already begun thinking about what an effective piece of writing that meets the requirements of this assignment will look like. You begin by looking at models and taking ideas and inspiration from them. Then, you embark on a cycle of brainstorming and making possible outlines for your piece. After skimming your initial thoughts for ideas that might actually be worthwhile, you pick out a few threads to begin your first draft with. You know your first draft isn’t supposed to be a fit of perfection or genius, but a necessary, messy part of the process; you are okay with your first draft being jumbled and not sounding the way you want it to. You continually refine until the ideas in your head are laid out on the page. It turns out, the process of writing has helped you refine the ideas in your head, and vice versa. You elicit critique from family members and friends without hesitation, and you implement the feedback. You continually refine, debating what the exact right words and stylistic choices are. You create something that you are proud of. Writing is your tool. You can use writing to express yourself, explore opportunities, extend yourself to new opportunities, and self-advocate. You use writing to get your thoughts down, and then, to analyze your thoughts. You have specific strategies on hand to illuminate your writing; metaphors and sensory detail are your friends. You metacognitively and critically approach revision of your work, wondering, how can I better show what’s happening in this moment? Or, how can I explain my point with deeper articulation?
Writing is an indicator of students' success in school and as citizens. In their nation-wide study, “A Meta-analysis of Writing Instruction for Adolescent Students” Steve Graham and Dolores Perin said that “Writing well is not just an option for young people- it is a necessity. Along with reading comprehension, writing skill is a predictor of academic success and a basic requirement for participation in civic life and in the global economy.” They contrast the importance of writing with the problematic fact that “every year in the United States large number of adolescents graduate high school unable to write at the basic level required by colleges or employers (...) many of them because they lack the basic literacy skills to meet the growing demands of the high school curriculum (Graham and Dolores Perin, 2007, p. 3). If our aim is to increase equity in student outcomes and achievement, then we must address writing. Students must be able to write for academics, thinking, communication, and civic participation. Teachers must be equipped and ready to support all students.

Writing, unlike other subjects, is not an area of content in which all of the facts can be memorized and relayed. Rather, writing is a process and a skill that can and should be constantly improved. Students should be able to recognize these skills and strategies so that they can be transferred to other contexts (Ambrose et al., 2010). Students' level of development as writers run the gamut and their needs as learners are diverse; thus it’s not helpful to have a group of kids filling out worksheets on how to use commas, when half the class already knows that, and the half that doesn’t is struggling to identify the basic parts of a phrase in order to understand what the teacher means when he says, "commas paired with a conjunction should separate two dependent phrases." We can’t approach writing instruction as we do content instruction; instead, we need to endow our students with skills so that they can overcome barriers as they encounter them throughout the writing process. Teachers need to provide differentiated and personalized writing instruction to help the range of needs emerging writers possess. Students need to become active agents in their own journey of writing in order to become strong and skilled.

Metacognition has become increasingly listed as a method for helping students become more strategic and flexible writers who have more ownership over the writing process. “An ability to monitor their processes might also help them to become more fully aware of the skills and strategies they are learning so that they may strategically apply them,” James Pacello wrote in his study, “Integrating Metacognition into a Developmental Reading and Writing Course to Improve Skill Transfer,” (2010 p. 124). Instruction in metacognition allows writers to understand how thinking about writing can improve one’s writing. Metacognition is defined as “an ability to monitor the quality of one’s own thoughts and the products of one’s efforts”; “it is the control processes which active learners engage in as they perform various cognitive activities” (Raphael et al, 1989, p. 346). Metacognition makes all learning deliberate because learners are conscious of their own cognitive processes, their strengths, and their needs (Flavell, 1976); they are constantly checking and counter checking their understanding.

Metacognitive learners’ ability to monitor their learning allows them to acknowledge when they don’t understand something and go back over the content until they do; “metacognitive knowledge consists primarily of knowledge or beliefs about what factors or variables act and interact in what ways to affect the course and outcome of cognitive enterprises” (Flavell, 1976). It is one’s ability to monitor one’s understanding that is fundamental
Metacognition can be successfully applied to help students with differentiated skills and abilities push themselves in personalized ways. Nist and Simpson (2000) stated that many students lack metacognitive skills and opportunities to practice them. However, they found that students can be supported to strengthen their reflection and monitoring skills. When students are trained in metacognition, they can begin to understand the effects of thinking about writing on the writing process.
Literature Review

Why my students think writing is hard

I threw footballs and stuffed animals in the air and told my students to just write about what had just happened. They wrote and when they shared, each one expressed a unique perspective on the events. Some began at the point when the objects flew in the air, others, when they entered the classroom. “We all have different perspectives,” they concluded. “Yes, and a unique writing voice” I added. I asked, “knowing that you all have something to say, and that it’s all unique…. what makes writing hard?” Students wrote down their ideas on stickies and presented them on the board. We snapped to support each student as they slapped their sticky on the whiteboard and confessed why writing is difficult for them.

Whether it was because of self-judgement, criticism from others, feeling inadequate with their grammar skills, or just “having trouble,” an overwhelming pattern of not being able to transform thoughts in writing that accurately represented those thoughts emerged. “I have the idea up there, but I can’t get it down here,” one student described. Another commented, “I hate what my ideas look like on paper and I keep restarting until they are perfect.” My students felt like the hardest thing about writing was getting their thoughts on the page. One student said, “I have a picture in my head, but I can’t find the right words.” “I can see it all in my mind, so I don’t know which parts I need to explain on paper,” another said. “I don’t know grammar very well,” one student confessed, and a couple of others’ agreed. One student sighed, “I’ve never liked writing.”

What my students described was reminiscent of how one might feel when building a house without blueprints, a hammer, or the proper construction license. They were, in their own way, expressing that they lacked strategies, tools, and skills to write. As a teacher, I felt torn; some students needed strategies, some needed tools, and others needed skills. Within the skills, there was a wide-ranging gamut that needed to be addressed. Some students needed help with organization, others with punctuation.

Santangelo explains that writing instruction should promote and facilitate targeted and personalized interventions to help promote writing competency; she underlines the idea that there is no such thing as a one and done writing unit. For example, she said that “students who are challenged by managing certain aspects of the writing process benefit from learning strategies targeting their particular area of need (e.g., planning, revising). Students who have limited knowledge of the essential elements and characteristics of good writing across genres, need to acquire such knowledge. Students who lack automaticity and fluency with lower-level transcription skills (e.g., handwriting and spelling), require meaningful and contextually situated opportunities to develop those abilities. Finally, for students who have yet to recognize and understand the purpose, power, value, enjoyment, and relevance of writing, it is especially important to design authentic, extended, and engaging writing opportunities” (Santangelo, 2014, p. 17). Different students need different things when it comes to writing. Because writing is a skill, mastery cannot ever be completed, nor can it be achieved at the same pace by everyone.
Students need personalized, contextualized instruction that is both motivating and goal-oriented. Students need to be engaged in writing that is meaningful to them, so that they take the time to engage in refinement that will help them hone their skills and push their limits as writers. They need to have a vision of what they are reaching for in order to effectively employ strategies to get their writing to that place.

Teaching Writing should be Teaching Metacognition

Think about how you learned to write: Was it a worksheet? Was it a sentence diagram? Was it during the process of creating a piece of writing that you really cared about refining to the best of your ability? Santangelo, Hayes and Flowers, and Graham all argue that students really learn how to write after they understand and utilize an emboldened form of the writing process; “Writing development and performance are enhanced when teachers: blend process-embedded skills and strategy instruction with writing workshop elements; provide intense, individualized, and explicit instruction to students who need it; create a positive, collaborative, and supportive climate in the classroom; provide extended writing opportunities with authentic, relevant, and engaging tasks representing multiple genres; and utilize multiple resources, including technology” (e.g., Graham & Harris, 2003, 2005; Graham & Perin, 2007). Santangelo adds that students need to be excited about and invested in what they are writing writing to actually grow as writers. Many ask: how do teachers move inexperienced writers to the point where they can begin to engage in the writing process and make decisions in the same way an experienced writer would? B.M Sitko (1998) found that in order to engage students in the decision-making processes necessary to effectively work through the writing process, students must be provided instruction in metacognition (p. 1).

Explicitly teaching students how to use metacognitive strategies like self-reviewing, questioning, clarifying, and making predictions, makes it possible for students to enhance and automate their metacognitive skills (p. 1). Paliscar and Brown (1986) found that students could enhance their ability to monitor their own thinking through learning how to use basic metacognitive skills and being reminded to use them (p. 771). In their study, “How an Understanding of Cognition and Metacognition translates into More Effective Writing Instruction,” O’Brien-Moran and Soiferman (2010) wrote that utilizing metacognitive actually frees writers up to focus on other elements of the writing process: “once metacognitive strategies become automatic students are able to devote more of their working memory to the hierarchical stages of writing involving planning, generating, and reviewing” (p. 1). Additionally, when instruction comes with an emphasis on fostering metacognitive development in students, students become more active learners (Caverly, Nicholson, & Radcliffe, 2004; El-Hindi, 1997). Students need to be provided with many opportunities to reflect on the skills and strategies they are learning so that they can become more conscious of how those skills and strategies could be used beyond the classroom. Metacognition creates an avenue for all levels of writers to improve by monitoring their learning in order to seek out skills and strategies to improve upon their weaknesses and opportunities to utilize their strengths.

Teaching writing should be teaching metacognition at the same time. Because students run the gamut when it comes to their writing needs, and because writing is a skills that cannot
one can never finish learning, differentiation is key. For example, while writing, a student can monitor how effectively he or she is addressing the prompt. To be a strong writer, it is essential to not only possess knowledge regarding writing style and structure, but also to possess the ability to continually reassess one’s choices as a writer. Students need to be provided with many opportunities to reflect on the skills and strategies they are learning so that they can become more conscious of how those skills and strategies could be used beyond the classroom. Metacognition creates an avenue for all levels of writers to improve by monitoring their learning in order to seek out skills and strategies to improve upon their weaknesses and opportunities to utilize their strengths.

Ambrose et. al suggest that teaching students metacognition can help them become more self-directed learners. “Metacognitive interventions…may be an especially powerful tool in helping the "academically adrift" student find a way to get into the game, to become more aware of the kind of thinking that supports strong academic performance” (Ottenhoff, Liberal Education). In addition to writing improvement, metacognition can span content areas and college preparation skills. Engagement is key to learning, whether it’s writing or math; “research shows that the more actively engaged students are-with college faculty and staff, with other students, and with the subject matter they study-the more likely they are to learn, to stick with their studies, and to attain their academic goals” (Community College Survey of Student Engagement, 2006, as cited in McGlynn, p. 106).

Writing as a tool for equity

Writing skills span content areas and career paths. In a national survey on writing instruction, Steve Graham, Andrea Capizzi, Karen R. Harris, Michael Hebert, and Paul Morphy express that writing is vital to students’ success in school and beyond (2013 p. 2). Students’ learning is enhanced and extended by writing about material presented in class or texts that they read (Graham, Harris, Hebert, 2011; Langer & Applebee, 2011; Klein, 2000); writing instruction also effectively supports the improvement of students’ reading skills (Graham et al., 2011). Bodies of research help us conclude that if students hope to be successful in school and beyond, they need to be strong writers; if it is our hope to provide equitable outcomes to our students, we need to support them in becoming strong writers.

“Effective teaching of writing is an essential component in any successful school program: to improve the teaching of writing, particularly in the context of academic tasks, is also to improve the quality of thinking required of school children,” Judith A. Langer and Arthur N. Applebee write in their book, How Writing Shapes Thinking (2011 p. 1). They are not the first to argue that “good writing and careful thinking go hand in hand” (p.1). Historians of literacy have largely attributed the development of modern rationality and science to the people’s’ ability to write; “they attribute this development to the fact that the act of writing facilitates a logical, linear presentation of ideas, and to the permanence of writing (as opposed to the fleeting nature of talk), permitting reflection upon and review of what has been written (2011 p.1). The written word has not only allowed for ideas to be shared, but has also enhanced the creation and form of the ideas themselves (p.1). The notion that writing can enhance the development of ideas has shaped a new generation of teachers who advocate for “writing across the curriculum,” (Applebee, 1977; Fulwiler and Young, 1982; Gere, 1985; Marland, 1977; Maimon, 1981; Martin, 1984; Martin, D’Arcy, Newton, and Parker, 1976; Newkirk and Atwell, 1982; Young and Fulwiler,
Thinking, as a skill, is taught most effectively when it focuses on content and writing provides a forum for this kind of thinking to happen, be saved, and later, shared (p. 1).

Writing is also fundamental to success in the workplace. According to the National Commission on Writing, “Over 90% of white-collar workers as well as 80% of blue-collar workers use writing as part of their job” (2004, 2005). In their report, Writing: A Powerful Message from State Government, the National Commission on Writing finds that writing is a key component in the state’s hiring and promotion processes: “more than 75 percent of respondents report that they take writing into consideration in hiring and promoting professional employees” (2005, p. 5). Good writing is a key component to a candidate’s eligibility: “fully 91 percent of respondents in states that “almost always” take writing into account also require a writing sample from prospective “professional” employees” (p. 5). Written applications that demonstrate poor writing skills will likely hurt a candidate’s chances of employment: “four of five respondents agree that poorly written materials would count against “professional” job applicants either “frequently” or “almost always” (p. 5).

Even with the known importance of writing, the majority of students in the United States will not achieve mastery of solid writing skills. “Only 30% of grade 8 and 12 students performed at or above the “proficient” level (defined as solid academic performance) in writing on the most recent National Assessment of Educational Progress” according to the National Center for Educational Statistics (2012). This is not a new challenge, but a persistent pattern. In her 2010 article What Works in Writing Instruction, Deborah Dean wrote, “The claim that students’ writing skills (and consequently, writing instruction) are in a crisis has been raised for over a hundred years.” Students’ substandard writing has inspired a desire for writing reform instruction across the nation. Nevertheless, writing has not played a major role in education reform until recently; in fact, writing’s largest presence in education reform is seen in the Common Core State Standards, which enact benchmarks for a “wide variety of writing skills and applications students are expected to master at each grade and across grades (CCSS, 2010). The Common Core State Standards require students in all but five states (Alaska, Minnesota, Nebraska, Texas, and Virginia) to learn how to a “use narrative, persuasive, and informative writing for multiple purposes; produce and publishing well organized text by planning, revising, editing, and collaborating with others; use writing to recall, organize, analyze, interpret, and build knowledge about a topic or materials read; and apply both extended and shorter writing tasks to facilitate learning in a range of discipline-specific subjects. (Graham et al., 2011 p. 1).

Gender, race/ethnicity, and socioeconomic status are related to writing achievement (National Center for Educational Statistics, 2012). For example, the average 2011 NAEP writing scaled score among female and male eighth-grade students was 160 and 140, respectively. The average score among Caucasian students was 158, whereas it was 132 and 136 among African American and Hispanic students, respectively. The average score among students who were not eligible for free or reduced meals was 161, whereas it was 134 among students who were eligible for free lunch. Thus, each of these variables may provide information about a student’s risk for experiencing difficulties with the development of writing competence (e.g., Graham, 2006).

If we are striving for equitable outcomes in student success, we need to address writing. If we want are striving for equitable access to higher education, we need to address writing. If
we are striving for equitable opportunities in the workplace, we need to address writing. Student writing, and thus, writing instruction, need to be improved. Because writers in a given class span a spectrum of skill levels, teaching students to identify their weaknesses and seek out strategies to improve. Teaching students how to utilize metacognition in order to monitor their progress and identify their areas for refinement can help teachers personalize writing instruction to meet the needs to individual writers.

**Strong writers are metacognitive**

Strong writers are dynamic problem solvers (Bruning & Horn, 2000, p. 2). They are constantly addressing a variety of problems and trying to meet multiple goals; they do this through the use of metacognitive thinking and analysis of their progress: They are using memory to answer questions. They are preemptively planning to meet a goal. They are summarizing their work progress and planning what needs to be added to it. They are addressing multiple needs and perspectives of their audience (Harris, Santangelo, & Graham, 2010). They are generating text, while simultaneously revising it. They are sensitive to their purpose and use precision in vocabulary, style, organization, and cohesion to achieve that purpose (Santangelo, 2014, p. 4). Strong writers must transition in and out of different frames of reference, including critical thinking, which might include perspective or logic, rhetorical stances, which might include description or persuasion, and writing conventions, which might include tone and mechanics (2000, p. 2).

In their study, *What Makes a Good Writer?* Ferrari, Bouffard, and Rainville argue that strong writers engage in a more complex task than poor writers because they a producing texts that are specifically adapted to an intended audience, whereas poor writers do not write for a specific audience (1998, p. 13). In addition, strong writers organize their ideas in a purposeful way to achieve a specific goal, like supporting a main idea, whereas, poor writers tend to “use narrative or descriptive text structures no matter what their specific writing assignment” (Englert & Raphael, 1988; Nodine et al., 1985; Thomas et al., 1987). “This sort of writing process is sometimes called “knowledge telling,” since the objective is apparently to produce a text that contains everything one knows about a given topic, without organizing one’s ideas in any purposeful way” (Bereiter & Scardamalia, 1987; Scardamalia & Paris, 1985).

Some researchers argue that the fact that good writers’ have greater knowledge about how to generate and organize ideas allows them to move quickly through text-generation, spend more time on refinement, and therefore, compose a better writing piece than poor writers with greater ease (Kellogg, 1987; McCutchen et al., 1994) (p. 1). In addition, strong writers have a clear understanding of writing conventions and what constitutes good writing across a diverse range of genres (Santangelo 2014, p. 4).

Strong writers understand that writing is a process that is “recursive rather than constrained and sequential” (1998, p. 2). The concept of writing as a process was introduced in the 1980’s through the work of Donald Graves (1983) and the model proposed by Flower and Hayes (1980; 1986). “Central to process writing is ‘ownership’ and ‘voice’ of the writer as connections are made and meaning is constructed through the crafting of text” (Graves, 1994). The writing process has three main parts: “planning and generating ideas; translating ideas into text; and revising and checking what one has written” (1998, p. 2). Strong writers know that this
is not a linear process but a cyclical one that can be modified as needed. For example, translating ideas might inspire a new idea, or realize an old idea’s new importance, which could push a writer back into the generation stage.

Patterns in research suggest that strong writers actively and metacognitively involve themselves in the writing process by spending more time recursively planning and refining their writing (Graham & Harris, 1992; Hayes & Flower, 1986), by actively monitoring and adjusting the text they are generating (Beal, 1990; Beal et al., 1990), and by maintaining an awareness of their audience (Bereiter & Scardamalia, 1987; Nystrand, 1986). Strong writers often engage and succeed in other areas of literacy. Writing is closely linked to other linguistic systems: speaking, listening, and reading. It can be inferred that if a writer displays ability (or disability) in one area it will enhance (or impede) another, including writing (see Shanahan, 2006 for a review of the research base). (2014, p. 4). Some argue that the most important identifiable trait of a strong writer is that they are motivated. “Writers need to develop strong beliefs in the relevance and importance of writing and, as they grapple with writing’s complexities and frustrations, learn to be patient, persistent, and flexible” (2000, p. 2).

**How writing is taught today**

Consistently, the most influential theoretical frameworks maintain that writing is cyclical process that requires a strategic approach; students must: 1) plan the content and style of the writing, 2) translate their ideas into writing, and 3) refine the text they have written (Bereiter & Scardamalia, 1987; Hayes, 1996; Hayes & Flower, 1980; Zimmerman & Risemberg, 1997). The instruction of writing is designed around the recursive process taken by competent writers; teachers often look to style guides, models, and inspirational readings on how to write in order to help students develop their own confidence over the process. Instruction focuses on this process of prewriting, writing, and post-writing rather than the final product. “When a process writing approach is adopted, the purpose and relevance of writing is foreground, while instruction and assessment include planning, composing, recording, revising and publishing written texts” (Graham & Sandmel, 2011). This is in contrast to a traditional teaching of writing which was much more linear and simplistic; now we see composition instruction as “cognitive, linguistic, affective, behavioral, and physical in nature and set within a larger socio-cultural context. Although much still remains to be learned about the composing process, the existing models help create a portrait of skillful writers” (Santangelo, 2014, p. 2).

More than 35 years ago, the National Commission on Reading released a report called *Becoming a Nation of Readers*, which popularized a nationwide push for literacy based on the grounds that according to research, “if practices seen in the best classrooms of the best teachers in the best schools in America could be introduced everywhere, improvements in reading could be dramatic” (1985 p. 11). The report listed several practices: constructing meaning from written texts, integrating reading instruction with listening, speaking, and writing instruction, and embedding literacy across all subjects. The report emphasized the importance of frequently teaching and utilizing writing in the classroom: “If students are to make knowledge their own, they must struggle with the details, wrestle with the facts, and rework raw information and dimly understood concepts into language they can communicate to someone else. In short, if students are to learn, they must write” (p. 15). Chiefly, the report affirmed the positive
correlation between quality teaching of literacy and increased literacy. It also argued that standardized testing cannot measure everything due to the complex nature of literacy and teaching (p. 11).

The model of composition that writing teachers use today is largely based off of the first cognitive model of written composition introduced 30 years ago by Hayes and Flower (1980). It remains popular due to its recognition of the cognitive processes that are performed while writing; these include planning, translating, and revising. Researchers and educators have built on and expanded these processes in nuance, but they remain the core cognitive components in more updated models (Berninger & Winn, 2006; Hayes, 1996, 2012; Kellogg, 1996). In their model, Flower and Hayes (1981) incorporated strategies that facilitated the development of metacognition. They felt that metacognition provided an avenue for writers' individual styles and skill levels to be improved, while honoring their unique natures. Flower and Hayes (1981) believed that there were a "relatively small number of cognitive processes that were able to account for a diverse set of mental operations during composing" (p.188). This model led to other cognitive oriented approaches to writing instruction. MacArthur, Graham and Fitzgerald, (2006) say that an understanding of cognition in the writing process helps "change how writers' compose by helping them employ more sophisticated composing processes when writing" (p. 188).

According to Teresa Limpo, Rui Alves, and and Raquel Fidalgo's study on “The Development of Planning and Revising and their Contribution to Writing Quality,” (2014) several studies have shown that students' pre-planning skills impact the quality of students' composition. Both outlines and graphic organizers were found to be the most effective methods of pre-planning (p. 2). The quality of students' writing was also found to be highly dependent upon their ability to revise; a further level of nuance reveals that the nature of the revision (mechanical vs. substantive) is vital. It appears that younger writers' revisions are less effective because they focus on "mechanical and local problems," while older writers' revise more effectively because they “consider meaning and global problems,” (Graham, Schwartz, & MacArthur, 1993; MacArthur, Graham, & Harris, 2004). Across the board, results showed that revising for meaning are more difficult to find and fix for students and adults alike (Butterfield, Hacker, & Plumb, 1994 p. 4).

Peer critique has gained recognition as an effective part of the refinement phase. In their study of the efficacy of peer critique, Joanne Crossman and Stacey Kite (2012), found that face to face peer review improved the quality of writing assignments. They explained that peer critique helped students engage in actions to clarify their writing and align it with their intentions and enhance and develop their writing (p. 1). Paul Black and Jane Jones reiterate the power of peer critique and add that it helps students develop effective self-assessment tools; they explain that “developing effective self-assessment is an essential part of managing one's own learning. It requires the pupil to have a clear picture of the learning targets, an understanding of what would count as good quality work that meets them, an idea of where one stands in relation to those targets, and a means to achieve them” (Black et al., 2006, p. 6).

The work of Lee et al. (1998) demonstrates that students are often missing a clear picture of their goals, which often leads to them be unaware about the justification behind certain elements and makes it difficult for students to create a path toward achieving their own
Black explains that achieving “metacognition, which is the power to oversee and steer one’s own learning so that one can become a more committed, responsible and effective learner” is an extremely important part of the writing process that can be aided through critique. Black’s study shows that peer assessment helps students develop their ability to monitor their own writing; by being taught to recognize strengths and weaknesses in their peers’ writing, students can begin to think metacognitively about the quality of their own work. Teachers can assist this process of self-assessment by providing feedback and models; students can begin to pick up on nuanced ways that small changes can improve the quality of their work.

In a study (2012) about the whether peer critique was as effective as teacher critique in improving writing quality, researchers discovered both methods of feedback yielded similar results; groups that only got peer critique improved their writing at a very similar rate as groups that only got teacher critique. They did find that “students got caught up in correcting surface level problems before moving to deeper level problems more often, but that they eventually moved toward looking at global level changes like argument and arrangement” (Eski p.1). Black adds that peer critique helps students to understand the criteria for success so that students can transfer the writing skills and knowledge they learn in the future (Black et al., p. 6).

The necessary skills and knowledge of a writer have been debated heavily, which has translated into a debate over how writing instruction should happen. In Shifting Pedagogies: A Diagnosis and Prescription for Grammar Instruction, Debra Lynn Reece (2013) explains why most educators have moved away from explicit grammar instruction that focuses on parts of speech, diagramming sentences, and practices that focus on preventing and correcting error. She cites a 1960’s study that looked at composition and composition instruction and found that “The teaching of formal grammar has a negligible or, because it usually displaces some instruction and practice in actual composition, even a harmful effect on the improvement of writing” (Braddock, Lloyd Jones, and Schoer 37–38). Reece credits Braddock et al’s. study as a major shift in composition instruction toward an emphasis in “elements like writing process, collaboration, modeling, and prewriting” (p. 1). The principles of this refocus toward rhetorical skills that can help students express themselves effectively can be found in Steven Graham and Dolores Perin’s Writing Next: Effective Strategies to Improve Writing of Adolescents in Middle and High Schools (2007). Reece highlights that the shift in pedagogies can be summed up as a movement to help “students see writing differently. We’re teaching them that “good writing” is more than correct spelling and well placed commas. We’re teaching them that writing is a way to create, share, and influence, not a tool for torture in school” (p. 1). In sum, a focus on process in context has become central to writing instruction.

Concerns with writing instruction

In an effort to explain why less than 30% of students are performing at or above proficient in writing, Applebee and Langer (2011) have taken to observing writing instruction in 260 middle and high schools across the US over a 4 year period, they observed writing instruction in 260 middle and high school classes and surveying teachers; their findings raised serious concerns about the overall quality of writing instruction in the typical middle school and high school classes (p. 2). A chief concern of theirs was that most writing instruction did not involve actual composition (instead it was mostly filling in blanks, short response answers, and
copying) (p. 2). Another concern was that only 7.7% of class time was devoted to writing extended texts (p.2).

Despite acknowledging the efficacy of evidence-based writing practices identified by Graham and Perin (2007), Applebee and Langer found that “very little writing instruction actually took place in even the schools with the best reputations for teaching writing” (p. 2). Five out of every six middle school teachers acknowledged that high-stakes standardized tests from external government organizations influenced how they teach and develop their writing curriculum and instruction; “One half or slightly more of the teachers in this study indicated that high stakes assessments had a negative impact on their writing program” (p. 2). Finally, writing and writing instruction was much more common in the language arts than in other subject areas. Graham states that these findings “provided an indication of how much work still needs to take place to implement the writing objectives in CCSS” (Graham, p. 2). Graham notes that only a small majority of teachers expressed that they received adequate (41%) or extensive (14%) preparation to teach writing from inservice preparation after college with a sizable minority of teachers indicating they received minimal (40%) or no (4%) such preparation. Similarly, 36% of teachers reported making adequate personal efforts to learn how to teach writing, with another 21% making extensive efforts. A sizable minority of teachers made either no (10%) or minimal (33%) personal efforts to learn how to teach writing (p. 14).

An important inspection of current writing instruction strategies and their failure to support students with learning disabilities bring up another set of concerns; Tanya Santangelo’s article, Why is Writing So Difficult for Students with Learning Disabilities? A Narrative Review to Inform the Design of Effective Instruction (2014), sheds light on the problems students with disabilities encounter in Hayes and Flower’s model of planning, drafting, and revising and the importance of motivation in writing, which has been neglected in the mainstream body of research of writing instruction. She writes that in addition to the mere 27% of students who perform at or above a proficient level of writing in the US, “a substantial body of research further documents that students with learning disabilities (LD) are at particularly high risk for experiencing writing difficulties” (see Graham & Harris, 2003 for a review of the research base) (p. 1). Santangelo writes that writing instruction should promote and facilitate targeted and personalized interventions to help promote writing competency; “For instance, students who are challenged by managing certain aspects of the writing process benefit from learning strategies targeting their particular area of need (e.g., planning, revising). Students who have limited knowledge of the essential elements and characteristics of good writing across genres, need to acquire such knowledge. Students who lack automaticity and fluency with lower-level transcription skills (e.g., handwriting and spelling), require meaningful and contextually situated opportunities to develop those abilities. Finally, for students who have yet to recognize and understand the purpose, power, value, enjoyment, and relevance of writing, it is especially important to design authentic, extended, and engaging writing opportunities” (p. 17). Although we believe that these beliefs and attitudes ultimately fall clearly within the realm of intrinsic motivation, their development is in the hands of those who set the writing tasks and react to what has been written.

Improvement-oriented feedback has been shown to be more effective at raising writing achievement than simple evaluative feedback. In a study that investigates whether teachers
differ in the feedback they give to weak and strong writers as well as how feedback differs across grades, analyses indicate that both weak and strong writers received minimal improvement-oriented feedback. However, strong writers received more positive evaluative feedback while weak writers received more negative evaluative feedback. This research has implications for both teacher education and the professional development of teachers because it reinforces the importance of metacognition in the process of creating strong writers; part of metacognition is monitoring progress, identifying weak spots, and seeking out action plans to improve. Improvement-oriented feedback is a cognitive progress. If stronger students are getting this type of feedback from teachers more frequently, that reinforces their ability to metacognitively create this feedback for themselves; on the other hand, if students who struggle with writing are missing out on this type of improvement-oriented feedback, they are also missing out on models of metacognitive thinking that are vital to their future success as writers (Dinnen, Collopy, 2009, p. 2).
Setting Description

High Tech High Chula Vista is a project-based learning school in Chula Vista, California that where teachers and students strive to connect to their community and environment, and the world outside their classroom. Personalization, equity, empowerment, engagement, and student voice are at the center of every teacher’s practice. Teaching teams composed of two classes in different subjects (often science and humanities classes) are paired together and share a set of around 60 students. Teaching teams often integrate subjects to create complex, real-world projects for students to engage in.

High Tech High Chula Vista opened in 2007 and has grown from 150 students to over 600. Our students, who are admitted through a randomized lottery system, represent every community in the South Bay and many other areas of San Diego. High Tech High Chula Vista is a Title 1 school, with over 51% of our students qualifying for free and reduced lunch.

Our school is full inclusion; 12% of our population has an Individualized Education Program (IEP). On our 9th grade teaching team (which is an integration of physics and humanities), we have nine students with IEPs. We have two students that qualify as English Language Learners, while 7% of our school’s students in total qualify as English Language Learners. 64% of my students are Hispanic, 14% are Asian, 10% are Caucasian, 6% are African-American, 5% are Native American, and 1% are Pacific Islander. 40% of my students have a reading level below grade level, and 20% of my students are three or more levels below grade level.

Sometimes, skill acquisition within project-based learning can be tricky to facilitate: many teachers often face a decision about whether they should place more emphasis on the process of the project or the product; others question whether to focus on content or skills; teachers also wonder when and how to integrate skill-building into the project timeline. As a humanities teacher, I often fear that I am not spending enough time helping students in need build skills, and instead, I am allowing the students who are already equipped with skills to practice their fluency.

In a survey, 60% of my students rated themselves as “emerging” writers; the options were: needs additional support, emerging, satisfactory, exceeding. 10% listed themselves as “needs support,” 20% as “satisfactory,” and “10%” as “exceeding.” Knowing this, along with my students reading levels, and state testing results that rate only 30% of writers as proficient, my desire to improve my writing instruction practice has grown immensely.
Methods and Design

Goals of Methods and Design

The driving goal behind this project has been for my students effectively turn their ideas into writing. I have identified that students lack the metacognitive skills to translate their ideas onto the page; these are skills such as being able to monitor their progress, identify their weaknesses in relation to exemplars, and take action to employ strategies to revise their work. Thus, my aim has become: by June 2016, students will be able to metacognitively analyze and discuss their decisions as a writer in order to take action to refine their writing.

Improvement will be evident when I can actively see students using metacognition, or “an ability to monitor the quality of one’s own thoughts and the products of one’s efforts” (Raphael et al, 1989, p. 346). Students will be able to explain their use of metacognitive strategies such as generating questions, monitoring comprehension, summarizing, rereading when comprehension breaks down, thinking about prior knowledge, establishing a purpose for learning, making predictions, and self-questioning when it comes to their writing (El-Hindi, 1997; Gourgey, 2003; Laverpool, 2008). I will also see students’ writing growth increase (on a particular style of argumentative writing that we have been using all year long called Claim, Evidence, Reasoning format.) I will be evaluating this based on the following rubric:

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<th>Writing Score Meanings</th>
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Students will be able to rate themselves on a metacognitive rubric (modified from Wildwood School) that identifies how they are thinking about their work; improvement will be made if students can increase the amount of metacognitive strategies they rate themselves as using during the writing process. I have been tracking students’ metacognition on a variety of assignments through the use of this rubric.

Last, students will be able to explain and use the writing process, as this is part of the metacognitive aim I am reaching toward. I will conduct interviews and record how students explain the recursive process of writing; I will be seeking out highlight points where students can talk about times that they noticed they had weak spots and how they metacognitively
acknowledged and addressed them. Students should be able to give examples of specific times when they used metacognition to improve their writing by locating specific excerpts that were identified as weak and then refined. Because metacognition involves the monitoring of one’s own thoughts and products, I will be closely examining student’s self evaluations; I would like students to rank the quality of their work in comparison to goals and then point out specific examples as evidence of why they evaluated themselves the way they did.

The Process

Improvement research was used as a methodology for this research. Improvement research is focused on learning by doing “iterative cycles of change” which are all meant to enact an aim (Carnegie Foundation, 2016, p. 1). This aim, in my case, improving students’ writing through teaching them metacognitive strategies, was developed after conducting empathy interviews and identifying drivers that affect it. Improvement research emphasizes understanding the problem you are trying to solve in a deep way before actually making changes.

Improvement research serves as a method for accelerating change and efficacy is measured in disciplined ways. The acceleration is achieved through enacting small changes which can be easily measured, and in turn, improved upon. Plan, do, study, act cycles make up these small cycles, and move you through the implementation of research and change in an active, yet data-driven way. Each time you enter a PDSA, the goal is to garnish results which can guide a new and more effective PDSA. For the purposes of my project, each PDSA was aimed at implementing ways to build my students’ metacognitive tool boxes.

Baseline Data

To start, I took a variety of different forms of baseline data. I was originally seeking data that would tell me what problems students are facing in the writing process. I did two main things to find this out: first, I did a whole-class discussion activity which sought to answer the question: we all have unique, amazing stories to tell… what makes writing so hard? After coding the results, I found that the reasons why writing is hard that students came up with fell into four main categories: distractions (9 students listed this), lack of confidence (6 students listed this), grammar/spelling (7 students listed this), and translation (21 students listed this). There were a lot of implications to these results, a main one being that the reasons why writing was difficult was wide-ranging. However, I noticed two important trends: first, the most popular reason for facing difficulty fell under the act of translation, or as one student called it, “putting my thoughts down on the page” which is a process that can be broken down into several metacognitive steps, and therefore, serviced through the improvement of metacognitive skill-building; second, I noticed that the other three categories all had to do with either lower-order writing skills or emotional responses to writing, which I had a hunch could be assuaded if students had more metacognitive tools to actually translate their ideas. Thus, I focused in my study on metacognition.

PDSA Cycles
Thus far, I have implemented five PDSA cycles which have aimed to increase students’ metacognitive skills. These PDSAs were directly shaped and inspired by students’ self-named needs and the needs I identified around writing improvement. My hope with the PDSA cycles has been to correlate an increased acquisition of metacognitive skills with an overall growth in writing (claim, evidence, reasoning style). Overall, I have noticed a positive trending relationship between the two areas: the more PDSAs around metacognition I do, the more highly students perform in their writing based on the writing quality rubric.

The first PDSA cycle was called “Monitor check-ins.” I wanted to start with a simple PDSA cycle where I could easily measure success based on exit cards. I wanted my students to practice the metacognitive skill of monitoring their progress. I tried this monitor check-in rhythm in class: while writing or planning to write, students will stop and do a quick informal check in their their critical friend (a pre-established relationship.) The goal is for students to collaboratively monitor their progress. I will give sample questions and suggest that students discuss: “How am I doing? Am I on the right track? How should I proceed? What information is important to remember? Should I move in a different direction? Should I adjust the pace because of the difficulty? What can I do if I do not understand?”

After checking in, I found out that only 60% of students found this to be useful. I asked if students could share why they didn’t find it useful, and what they said was that often people didn’t listen while they shared. I also noticed that many students shared in a way that seemed like they didn’t expect the person to listen; what I mean by this is students shared quietly, without making eye contact, and without waiting to get the other student’s attention.

For the next PDSA, I tried three intervention: making the groups larger, modeling good listening skills, and the use of a speaking token. 90% of students found this to be effective and 100% of students were able to list the listening skills I modeled in a short skit in an exit card. A further refinement of this change idea is to have students develop a to-do action plan to make sure that they are taking action to ask questions if they don’t understand or need help.

For the next PDSA, I wanted to focus on the high need area of evidence. It was my hunch that students were not metacognitively evaluating whether or not they had sufficient evidence to support their claims, so I decided to make it a collaborative effort. In this change idea, I had students pass their essays around to three other students and ask them if their evidence is sufficient to support their claim. Similar to a critique, this exercise will provide an opportunity for students to collaboratively evaluate a key component of their writing, their evidence. I wanted to know if by asking other students to sign off on whether or not they have sufficient evidence, students will get in the habit of checking themselves. In an exit card, I asked: Did others help you identify whether your evidence was sufficient or insufficient? Due to the overwhelming success of this change idea (97% said others helped them), I began thinking about making more of the metacognitive change ideas collaborative. Many students commented that they reason why this was helpful is that it involved talking to other people about their work.

I noticed a thread of comments on the exit cards about how to find evidence in the first place. One student wrote, “I know my evidence is bad, but I don’t know where to find it.” This developed into the next PDSA which was based on the metacognitive skill of planning. I created demo lesson and steps on how to find and use evidence in writing. I walked students through the step-by-step process of identifying what evidence they needed and how to chunk that into
small, searchable terms. I showed them how to look for reliable research. Then, together a class, we looked at models and found the most valuable quotes and looked for how we could integrate quotes into a claim, evidence, reasoning style paragraph (CER). 90% of students were able to successfully integrate a relevant piece of evidence into a CER after this activity based on looking at their work.

The last PDSA cycle that I did was based on restating. I noticed that prior to turning in their essays, many students' theses still were not effectively translating their ideas onto the page. We did a two part change idea: the first part of the process was individual. Students had to write their thesis in three different levels, a 3rd grade level that was not meant to focus on elevated vocabulary and was only focused on getting their point across, a 9th grade level that was meant to use more powerful language to portray their argument, and a college level that was meant to add power and specificity to their thesis. 100% of students were able to write a 3rd grade level thesis, 90% of students were able to write a 9th grade thesis, and 86% of students were able to write a college level thesis. Next, I added in a collaborative component. I had students go around and show their thesis to two other people; then those two other people restate their ideas. The goal of this activity was for students to go through the metacognitive refinement phase of “restating.” Sometimes it’s hard to restate words you’ve already written, but having others collaborate helped. Last, students took the restatements of others, glean the best parts of each, and combine those words into one final, more powerful thesis. 23 out of 26 students used some of the rephrased writing and combined it into their final thesis. I quick check-ins with students in my focus group and they said that their thesis improved and became more specific and argument-driven. A problem that I noticed come up was when students had trouble rephrasing theses for other student; it was helpful to have them talk to the author and find out, “what were you really trying to say here?” This not only helped the new writers, but it also made the original authors more aware of problems or areas where they lacked clarity in their writing.

**Midpoint Data**

After this cycle of PDSAs, I collected more data. I had my focus group of students complete the 1-4 self assessment of their writing, I had students take the metacognitive self-assessment, I assessed student work quality, and I conducted interviews based on student work.

<table>
<thead>
<tr>
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<tr>
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Overall, I saw a very positive correlation between the emphasis I have been placing on improving metacognitive skills students’ writing. Students usage of metacognitive terms have become a commonplace in the classroom. In a focus group meeting, 5 of 6 students were able to name metacognitive strategies without prompting, and all of the students could list metacognitive strategies when prompted. I’ve also noticed improvement on writing quality scores. Students ability to refine each other’s work and refer them to the writing process, specifically listing out metacognitive strategies they could use has been a highlight of growth. In class recently, students were asked to write a claim, evidence, reasoning piece that argued what the biggest effect of the industrial revolution.

Here is a sample piece of student writing from my focus group student Jose, that was taken through the refinement process:

<table>
<thead>
<tr>
<th>INDUSTRIAL REVOLUTION CRITIQUE</th>
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<tbody>
<tr>
<td>Summarize:</td>
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<tr>
<td>● What do you think this is saying? Say it in a sentence.</td>
</tr>
<tr>
<td>-It's explaining how small farmers were left behind by technology.</td>
</tr>
<tr>
<td>Evaluate:</td>
</tr>
<tr>
<td>● Does the writing have a claim that can be argued for or against?</td>
</tr>
<tr>
<td>-Sort of. It is showing how we have big farms.</td>
</tr>
<tr>
<td>● Does the writing have evidence that supports the claim?</td>
</tr>
<tr>
<td>-Sort of, but it could be deeper and more straightforward. Facts.</td>
</tr>
<tr>
<td>● Does the writing have reasoning that explains the evidence?</td>
</tr>
<tr>
<td>-Well the evidence just goes into the writing. It needs to be broken up.</td>
</tr>
<tr>
<td>Compare:</td>
</tr>
<tr>
<td>● What does this piece of writing look like compared to the sample? What are the biggest differences?</td>
</tr>
<tr>
<td>-It's one long sentence compared to three. It's kind of hard to understand. The way he ordered it doesn't make sense. It doesn't use numbers or places to make the fact believable. It doesn't connect to anything that happened in history specifically it's more explaining. I think the evidence needs to be stronger.</td>
</tr>
</tbody>
</table>

The industrial agriculture is still one of the many things that is still accruing today, the reason it still kept happening was because the people were poor and needed jobs but most farmers were evicted from their own land because poor farmers did not have the new technology to grow crops like the rich farmers so they needed more land to grow crops so they evicted most poor farmers for crops which then lead to agriculture revolution.

This piece was given a 2 based on the writing quality rubric because it lacked specific parts of the claim-evidence-reasoning structure, and instead melded them altogether, which created redundancies and disorganization.
Here is draft two:

The industrial agriculture is still one of the many things that is still accruing today. After technology was brought to farms, rich farmers could grow more crops faster. Poor farmers needed jobs but most farmers were evicted from their own land because poor farmers did not have the new technology to grow crops like the rich farmers. The agriculture revolution was started in the 1700’s in England when rich farmers bought new technology. With this new technology they took over the farming industry.

This draft was given a 3 because it included all parts of the claim evidence reasoning format and was much better organized and less redundant.

Using metacognitive-based critique has allowed me to support my students as writers in their refinement process, but also as critiquers. I find it much easier to base critique in these skill areas, so students can help frame their thinking.

A puzzling piece of data that has emerged is that while I see a positive relationship between the improve of metacognition and the improvement of student writing, some students in the focus group reported that sometimes the reason why their writing is not strong is because they don’t have a firm understanding of the material. My original study was based off of the premise that students have good ideas, but don’t know how to translate them onto the page; this thread of data was different. This thread of data is forcing me to ask: how do I set up writing tasks? What learning is a writing task symbolic of? How is the writing I am asking my students to do in class aligned with the learning they are doing? Are they learning enough about a topic to effectively write about it?

My hunch is that while this may take a different angle on the route I was headed (focusing on translation), this problem is still very much located within the realm of metacognition, but at the planning and monitoring stage. I am wondering if students are not planning their writing by seeking out evidence in the text. I am also wondering if students are not monitoring their progress and understanding (or lack of it) in a way that helps them take action when they face speedbumps. I will be creating change ideas out of both of these, as well as a change idea around how I plan and decide on writing assignments.
Findings

In my data collection of student work and interviews from focus groups, I coded for how often different the following metacognitive skills were mentioned, explicitly or implicitly. Based on O’Brien-Moran & Soiferman’s ideas about how training in metacognition allows novice writers to begin to understand the effects that thinking about writing has on the writing process my main goal in data collection became seeing whether or not the explicit instruction and heightened focus on metacognition was becoming a part of my students writing process. I emphasized the following areas of metacognition which are all surrounding process, because Santangelo, Hayes and Flowers, and Graham all argue that students really learn how to write after they understand and utilize an emboldened form of the writing process. Negretti also further supports focusing on metacognition around process through her ideas that an awareness of one’s language choices combined with a heightened disposition to overtly thinking about one’s writing process, consequently, should result in a greater ability to self-regulate and self-evaluate throughout the writing process (Negretti, 2010, 2012). I derived the following process-oriented metacognitive from a collection of important metacognitive skills listed by El-Hindi (1997), Gourgey (2003), Laverpool (2008) in their writing.

- Planning: are you making a plan or outline of what you are going to write and what evidence you need to collect?
- Summarizing: are you going over what you just wrote and making sure it says what you want it to say?
- Questioning: are you asking questions about what you’ve written (does it make sense? does it sound too wordy?)?
- Comparing: are you looking at models and comparing your work to it?
- Restating: are you writing it out in a different way or using different phrasing and seeing if it sounds better?
- Monitoring: are you looking over your progress and making sure you are where you need to be/making a plan to get where you need to be?
- Refining: are you seeking out critique and critiquing yourself and then making needed changes?
- Evaluating: are you asking yourself whether or not your work meets the requirements and is high quality?

I created a focus group of students to dig into their writing. This group was made up of eight students; six of the students were girls and two of the students were boys. Four of the students have identified as emerging writers, two of students have identified as satisfactory writers, and two of the students rated themselves as exceeding writers; it was important to me to have a mixed group of writing levels so that I could see how a range of my students were receiving the metacognitive supports. All students are students of color. In the 9th grade, we work on a specific style of writing called Claim, Evidence, Reasoning. Students often turn in writing pieces in this format. I had students assess their writing on a 1-4 scale based on the following explanations:

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### Metacognition Score Rubric

1: Little to No Use of Metacognition
2: Use of Metacognition
3: Effective Use of Metacognition in Most Phases
4: Effective Use of Metacognition in all Phases

**Baseline Data:**

After students rated their writing, I asked them to explain why they gave the score they did. The majority of students gave themselves a score of 2 and explained that it was because they did not have enough evidence to support their claims. This showed me that I needed to scaffold an activity around the metacognition behind finding and evaluating evidence, which turned into a change idea. Next, students explained they gave themselves a low rating because they didn’t understand the material they were writing about in the first place. This pushed me to design a change idea about monitoring your understanding and developing research questions and another about monitoring your progress with a partner. I noticed another pattern around critique. Many students felt like they were not given helpful critique so I decided to create a change idea to help students give very specific critique, where students are not necessarily giving feedback, but noticing and annotating. I also noticed that a lot of students felt like they were having style and wording problems, which inspired a change idea around students collaboratively restating each other’s’ writing.
The next baseline data I took was focused on a metacognition rubric. I read through and explained the rubric and then answered questions using specific examples. The sections of this rubric asked students to rate whether they were “using effectively,” “using but needing support,” or “not applying” the following metacognitive methods: planning, summarizing, questioning, comparing, restating, monitoring, refining, and evaluating. The data showed that most students were not applying or needing support around all of them, with a high need around planning, restating, refining, and evaluating. This was interesting to me because I felt like these were metacognitive parts of the writing process that were most vital, as well as most challenging and time-consuming. For the duration of my study (about 3-4 months) I implemented change ideas to support metacognitive habit-forming in my classroom.

Below is the end data, which shows where students ranked their writing and use of metacognition at the end of the study:

A trend I’m seeing is that the writers who are scoring themselves higher and getting higher scores on both their writing quality and in metacognition are also able to name metacognitive skills and how they are used in their writing. Kiley, for example went from a one in metacognition to a two. She was able to explain how she was increasing her use of metacognition:

_I’m using a lot more evidence and thinking- what could they argue back?_  
**What could the counterargument be? I plan in advance. Choosing the right word and restating until you get it is really important too.**

Sam, for example, did not name any metacognitive skills while discussing his growth. He was very much focused on writing the correct amount of pages, even though there was not a required page minimum. He was also focused on using the writing skill goal (sensory detail) to improve his writing, but not focused on integrating the metacognitive skills he was using. He said, “before I wouldn’t use sensory details or a lot of examples… wouldn’t write enough as required. Now I write a lot.” My hunch is that Sam was giving his attention to what he thought was getting assessed, when in reality, what was getting assessed was the efficacy of his ability to communicate his points clearly through writing and back them up with evidence.

Max, who did not show growth in metacognition displayed that he was not being metacognitive, but instead relying on help from others to improve his work. He said, “I think the improvement plans help,” which makes sense because these are done collaboratively and I noticed he was relying on his peer’s feedback to create his plan. He also said, “Also, critique is really good. I still don’t feel like I’m good at critique.” This struck me because in order to be
metacognitive you need to be able to evaluate your own work. If Max was not able to evaluate his own work, it makes sense he was still feeling that it was a stretch to evaluate others’.

**Recommendations**

I found two effective approaches to support the instruction of metacognition for writing. First, I found that planning writing instruction with a framework that involves play and collaboration helps students engage in metacognition more effectively. Second, I found that common language used across writing genres can help simplify the metacognitive process.

**A New Framework**

My original goal was to infuse instruction of metacognition into my teaching and see if it made an impact in my students’ writing. After confirming that strong metacognitive skills can be applied to improve writing, I realized that I needed to find ways to intertwine metacognition into the class in an engaging way. This came after my first focus group meeting. Loni, a student whose writing was self and teacher evaluated to be as 4, or accurately representing what she intended to say, and whose metacognitive skills were ranked as “using effectively,” was able to explain the metacognitive skills she was gaining and why they were helpful to her. She said:

*I feel like I’ve taken in a lot of the metacognitive skills and just realized, like that’s what it is to be a good writer. Anyone can do it. If you read over your work with a critical eye, read it all out loud, make improvement plans, and actually make those changes, it’s going to get better. The people that do that have great work.*

Another student, Sam, whose writing was self and teacher evaluated as “emerging” and whose metacognitive skills were ranked as “not using” was not able to explain metacognition or why it might not be helpful. However, what he was able to do was name activities I had used to teach metacognition. The activities he named all involved play and collaboration.

*Metacognition… I don’t know what it is… (Interviewer gives reminder of specific metacognitive play strategy used in class) Oh, when you make us read our final draft aloud in an English accent to each other? Yeah, that is helpful because it’s funny and it forces you to hear your mistakes and the other person could catch them if they are listening. Then you can refine.*

Sam was explaining the important metacognitive skill of refinement, which we tackled in a play-based, collaborative way in class. As soon as Sam mentioned the activities, the other students in the focus group lit up and started mentioning how helpful those activities were. They did not mention the individual reflection activities we did. Below is a list of the collaboration and play-infused activities we did to build metacognition with samples of student writing and student quotes about how they felt it helped improve their writing. (See Appendix for an explanation of the metacognition building activities I created.)

*Looking at an example of student work transformed through metacognitive activities:**

In looking at their own writing, students were able to explain the metacognitive activities that helped them improve their work. Below is Elli’s thesis, which she improved using several of the activities above.

Here is Elli’s original thesis about the impact of the Industrial Revolution:
The Industrial Revolution changed the relationship between humans and their environment.

After the sentence puzzle activity which students compared Elli’s work to a model, she realized: “it was not specific enough. The puzzle we picked apart was really specific. The idea was there but I was not saying what exactly happened.

During the Industrial Revolution manual labor was replaced by machinery, causing an increase in factories.

After the 3rd grade, 9th grade, college level activity, Elli realized she could add more of a significance to her thesis: “the college level was supposed to answer ’so what?’ so I made sure to add that.

During the Industrial Revolution manual labor was replaced by machinery, causing an increase in factories for the crowded population and making a large amount of coal pollution and waste that affects our health today.

After the restating activity, Elli’s peers gave her many ideas: “I could use a semicolon so I could attach two thoughts, I could mention the word surplus to show cause and effect, and I could make the last part of my sentence a parallel so it felt more organized." Below is her final thesis:

During the Industrial Revolution manual labor was replaced by machinery; this created a surplus of workers amongst an already crowded population and caused us to use a huge amount of coal which causes pollution and waste that continues to affect our health today.

Common Language
Kylie, Elli, Sam and Max all expressed a feeling that writing was subjective. In an interview, Kylie said, “you are a good writer or a bad writer, we all know who they are in class.” Sam said, “refine to get your work to where the teacher wants it.” Max said, “Writing seems like a puzzle, like, I hope the teacher will like it, but I’m not sure sometimes.” Elli, expressed a similar feeling, “I like knowing exactly what I need to do and writing seems more creative.”

However, when I asked the same group of students how they have improved in their writing, they were able to name explicit writing skills such as, “using evidence to support my claims,” “using sensory detail,” and more metacognitive skills such as “reading my writing aloud to proofread it,” and “create an improvement plan and update it.” Thus, I am finding a correlation between how much students feel they are improving and their ability to list specific writing skills, especially amongst the emerging writers. The writers who are not emerging at all, and really not showing growth, are only able to name a few skills they’ve learned, but are unable to name any metacognitive skills. Thus, collecting, modeling, using, displaying, and continually fostering the language around metacognition is vital if students are expected to begin implementing it themselves.

Focused writing skill goals can help writers improve while increasing metacognitive abilities. Using a portfolio to collect and categorize all of the students’ newly attained skills has been a really effective tool. (Here I will insert photos of student portfolios and flipper books). When students are able to list their skills, they feel like they have been improving. This also
helps student build confidence about their writing. Often, struggling writers feel stuck or lack a growth mindset. Max demonstrated this correlation between being able to name growth and perceived growth in an interview: “Last year my writing was horrible; my teachers didn’t care about my writing. There were a ton of mistakes and they would publish it anyway. I learned to revise this year because well I read back to my first draft and I noticed that there was a lot I would improve on if I revised. CFFs read it over. Helping by comparing models and planning helps a lot because I could set up my whole story.”

Being able to name specific skills one is building can help elicit feelings of growth. I had students keep a flipper book of the writing skills they had gained, which they could use as a reference book. All 7 of my focus group students referred to this book when talking about their writing improvement, each in different ways.

When critique and the language used in critique is geared toward the metacognitive process, anyone can do it. However, when critique is more wholesome and relies on a student’s ability to give quality feedback and suggestions, the writing hierarchy is only further entrenched. Instead, critiques that ask students to engage in metacognitive activity are not skill-based, but process based and allow all to participate effectively. Kiley discussed feeling growth as a writer and mentioned the feedback groups as a reason for her improvement: “I write with a purpose. Peer editing, feedback with groups, when we talk about our writing in class and we talk about how our writing needs work.”

In order to have successful conversations about writing in feedback groups, students need to be able to communicate with language about the writing process. For example, we did a critique were all a student had to do was summarize another student's' thesis and by doing so explain if they understood the thesis, if they felt it followed the five established rules we had created for a thesis, and if they saw any ways it could improve. While only 70% of students were able to give helpful advice about how a student's thesis could improve, 100% of students effectively summarized another student's' thesis, explained what it meant, and evaluated whether or not it met the criteria for a thesis. The language for this critique as instructed in a prior lesson, posted on the wall in a model, and defined on the critique sheet. Improving students’ ability to critique helps improve the writing quality of the classroom.

High quality writing is a goal that can help motivate writers and make them feel proud of their work, as Loni explained during an interview: “There was a project last year that we didn’t revise. We weren’t proud of our work. This year there is a bar we need to meet and we talk about and see examples of how to meet it. When we check in and set goals and encourage each other, it’s really good.”

Another valuable reason for developing a common language around metacognitive skills used in writing is that it provides a way to have a growth-mindset oriented conversation (Dweck 2000). When students are evaluating whether or not they actually engaged in the metacognitive processes, and they see that maybe they skipped a couple of parts, it provides an excellent opportunity to have a conversation with the student about where the piece of writing could be if they student had completed the process. This moves the students from having a set mindset about their writing to having a growth mindset about it.
Conclusions

My study was centered around improving my students’ writing, and changed my mindset around teaching from being reactive to responsive and proactive. Rather than thinking, ‘what should I do if my kids are struggling with this?’, I began to identify areas of difficulty and develop ways to provide support. I started pairing areas my students were struggling in with metacognitive skills I thought could help them improve upon that specific problem-area. I think this was due to the nature of improvement science: I got used to figuring out what needed to be improved and how I could make it better. I noticed that once I began thinking this way, my students began thinking this way as well. One of my favorite moments of the year was while writing spoken word poems, one of my focus group students, Kiley, asked “is there an outline I can use to help plan my writing?” She helped me develop an outline using models that we distributed to the whole class. Later on in the process she said, “I am going to need you to send me more models so I can compare how good my writing is.” Max, who had struggled with writing all year wanted to read his spoken word aloud to a partner so they could check it for “weird sounding sentences” (evaluation) and later asked me how he could “use different words to make it sound better?” (re-stating).

The beautiful thing about this year was the multitude of students who began engaging in metacognitive habits, from students questioning the wordiness of their writing to other students summarizing a partner’s writing to check if that’s really what they meant to say. In environments where writing is valued and revision is the norm, students are eager to improve their written work. Students want to be proud of their writing and show it off to an audience. Giving them metacognitive tools to do so helps empower their mission, which is already very much in motion.
Appendix

List of metacognition-building activities:

- **Monitor Check-Ins**
  Metacognitive Goal: Monitoring (are you looking over your progress and making sure you are where you need to be/making a plan to get where you need to be?)
  Collaboration/Play Aspect: Talk with a group of four; compile questions together; give stickers after sharing progress
  Quick Directions: During a writing assignment, have students sit with a group of four. Each person in the group has a speaking token. Each person in the group is asked to share their progress on their writing, including one element they are proud of and at least two areas they need help on. Together, the group should come up with a list of questions they want to ask to get support on their writing.

- **Improvement Plans**
  Metacognitive Goal: Planning (are you making a plan or outline of what you are going to write and what evidence you need to collect?)
  Collaboration/Play Aspect: Another person writes for you; using a big sticky you add yours to the board
  Quick Directions: Using critique from peers and a teacher, student collaborate to make an improvement plan for their writing. One student lists out what they need to do and the other student makes a checklist on a giant sticky. All stickies are posted and updated on the wall to celebrate the revision process.

- **3rd grade, 9th grade, college level**
  Metacognitive Goal: Restating (are you writing it out in a different way or using different phrasing and seeing if it sounds better?) and Summarizing (are you going over what you just wrote and making sure it says what you want it to say?)
  Collaboration/Play Aspect: Turned into a performance challenge
  Quick Directions: The point of this is to enhance writing. We did this with writing a thesis. First, students pretended to be third graders and wrote an incredibly simple version of their thesis using third grade language- the point was to focus on the idea not the writing. The class votes if it passes 3rd grade level. Then, students are required to make their thesis flow better and be more specific about the language their use and again students vote if it passes 9th grade. Last, students focus on improving the language to the best of their ability to make the theses college level.

- **Sentence Puzzles**
  Metacognitive Goal: Comparing (are you looking at models and comparing your work to it?)
  Collaboration/Play Aspect: Solving puzzles made out of writing; make it into a competition for who can solve fastest and who can best explain how they solved it
  Quick Directions: Teacher cuts up an excerpt from a writing model and students have to reorder the line. As we are focusing on claim, evidence, reasoning style writing, it is helpful to find writing that fits this format so that the students have to deeply consider what makes claims, evidence, and reasoning.

- **Restating**
  Metacognitive Goal: Restating (are you writing it out in a different way or using different phrasing and seeing if it sounds better?)
Collaboration/Play Aspect: Students move around and reword one another’s work
Quick Directions: In this exercise, students have to get at least three other people to restate a sentence they are struggling with. Then, they choose the best of the restatements and use it for a final revision.

- **Evidence Checks**
  Metacognitive Goal: Refining (are you seeking out critique and critiquing yourself and then making needed changes?) and Evaluating (are you asking yourself whether or not your work meets the requirements and is high quality?)
  Collaboration/Play Aspect: This is a debate style tournament
  Quick Directions: In this activity, students are having a tournament debate; two students go head to head and debate using their evidence. Whoever has stronger evidence moves on, and suggests how their former opponent can improve their evidence. Finally, a top two are revealed, and the rest of the class evaluates who has stronger evidence and “wins.”

- **English Accent**
  Metacognitive Goal: Questioning (are you asking questions about what you’ve written (does it make sense? does it sound too wordy?)?)
  Collaboration/Play Aspect:
  Quick Directions: Students perform their writing to another student in an English accent to see if it makes sense or if there are any typos. They are really pushed to listen to their writing and the writing of their partner and try to spot where improvements can be made by sound.

- **Evaluate, Vote, and Refine**
  Metacognitive Goal: Refining (are you seeking out critique and critiquing yourself and then making needed changes?) and Evaluating (are you asking yourself whether or not your work meets the requirements and is high quality?)
  Collaboration/Play Aspect: Group talk and work
  Quick Directions: Students read a piece of their writing to a small group. That group votes on whether that aspect of their writing is meeting the intended goal. For example, a student could read a portion of their writing that they have labeled as reasoning and the group will vote on whether or not it is effective reasoning by giving thumbs up (effective), sideways (needs some improvement), or down (needs major refinement). Then the group will discuss how to refine the work and the student will take notes.

- **Feedback Groups**
  Metacognitive Goal: Refining (are you seeking out critique and critiquing yourself and then making needed changes?)
  Collaboration/Play Aspect: Group talk and work
  Quick Directions: Students work in groups and using a speaking token they share one part of their writing they are proud of and one part they are struggling with. The other students are equipped with a list of metacognitive skills which they could recommend the student uses to improve their work.
References


