NORTH CAROLINA ASSOCIATION FOR MIDDLE LEVEL EDUCATION

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Highlights in this issue:

- **Low-Stakes Writing as a Tool for Learning in Middle Grades**
- **Student Showcase: Creating a Peer-Led Middle-to-High School Transition Support Program**
- **Leveraging AI in the Classroom and as a Tool for Teacher Retention**
- **Strategies: Making the Science of Reading Work in Middle Grades**

Manuscripts

The NCMLE Journal, a double-blind peer reviewed journal, is an official publication of the North Carolina Association for Middle Level Education. It publishes a wide range of articles related to middle level practice, theory, commentary, and research. Its primary objective is to enrich the understanding of the developmental and educational needs of North Carolina's early adolescents.

Manuscripts should be written in a clear, non-technical style for an audience consisting largely of preservice teachers, in-service teachers, and administrators. Each article should not exceed 15 double-spaced pages, including in-text citations and an accurate list of references when appropriate (APA style). Authors should submit their article through the NCMLE Manuscript Submission Form with a separate title page that states the author(s), institutional affiliation, position within that institution, and a contact email address and telephone number. Deadline for submission to the Fall issue is May 15 and the deadline for the Spring issue is November 15.

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FROM THE EDITORS

Welcome readers! We are excited to share the Spring 2026 edition of the NCMLE Journal with you.

Spring offers a natural moment to pause, reflect, and look ahead. For educators across North Carolina, it is also a reminder that growth, within our students, our schools, and our professional practice, is continuous. In that spirit, this issue of the *NCMLE Journal* aligns with the theme of this year's conference: Moving the Middle Forward.

Middle grades represent a pivotal stage in students' academic and personal development. Young adolescents are discovering who they are as learners while navigating new expectations and opportunities. Supporting them well requires educators who remain reflective, innovative, and responsive to the evolving needs of students and classrooms.

The work featured in this issue reflects the thoughtful practice happening in middle grades classrooms and schools. Contributors highlight approaches that deepen student engagement, encourage reflection, and elevate student voice, while also demonstrating how strong learning communities are built through intentional leadership and collaboration. We're also excited to share our first student-authored column, the Student Showcase. Throughout this edition, our authors remind us that meaningful progress in middle grades education often grows from the daily decisions educators make to support young adolescents.

At the same time, middle grades education continues to evolve. Educators are exploring new technologies, revisiting research on literacy and learning, and considering how best to prepare students for the transitions ahead. The perspectives in this issue reflect that ongoing work—balancing innovation with research-informed practice while remaining grounded in what we know about the needs of young adolescents.

We are grateful to the authors who contributed their work and to the educators across North Carolina who continue to advocate for and support middle grades learners.

Dr. Joey Lord
Dr. Daniel Maxwell
Editors, *NCMLE Journal*

ORIGINAL PAPER

Writing Beyond ELA: Low-Stakes Writing as a Tool for Learning Across the Middle Grades Curriculum

Author: Jessica Yakout

Abstract: Middle grades classrooms are full of thinking that often disappears the moment a lesson ends. This article explores how low-stakes writing can make that thinking visible and gives students space to process new ideas, learn across content areas, and build confidence without adding to teacher planning or grading workloads. Drawing on classroom-based data, teacher reflections, and student work, the article demonstrates how brief, informal writing can be embedded directly into existing instruction. These small but intentional moments help adolescents engage more deeply with content-specific concepts in ways that are visible, reflective, and genuinely engaging. Grounded in research on adolescent development and disciplinary literacy, this piece argues that writing is most powerful when it functions as a tool for thinking rather than a product for grading. When students write regularly, they take intellectual risks, expand their understanding, and begin to see themselves as capable learners within every content area. Ultimately, this article positions low-stakes writing as a transformative instructional practice that supports student learning in every classroom while honoring teachers' time and capacity.

Keywords: Low-stakes writing, writing across the curriculum, interdisciplinary literacy

Introduction

Another Monday morning, another writing prompt in my 8th-grade ELA class. The prompt has changed from prior days, but the rhythm stays the same: groans, sighs, and then, like clockwork, the quiet scratch of pencils finding their way across the page. Within minutes, pages fill with fragments of thought, connections, and even a few questions. While nothing they write today will be graded or perfectly composed, something powerful is unfolding through this familiar process. As I circulate throughout the room, I watch their thinking take shape on paper. Their writing becomes a mirror of their learning, with each quiet movement of pencil to page becoming a thought made visible. Even when their handwriting tilts sideways and their hands dramatically cramp after five minutes, each sentence reveals something to me: their misconceptions, their leaps of logic, their sparks of insight. Every space between their unpolished sentences and words brims with such immense possibility.

At times, it feels like I've been handed an unfair advantage as an ELA teacher, a rare window into my students' thinking and a set of tools to spark synthesis and reflection every day through the writing opportunities that are a natural part of my daily instruction and my content. However, ELA shouldn't be a silo for these powerful learning opportunities. They belong in every classroom where equations are solved, hypotheses tested, histories debated, and ideas imagined. Writing is the thread that

connects learning across our contents and it belongs to us all.

When used consistently, low-stakes cross-curricular writing can deepen learning, critical thinking, and engagement across all middle-grade subjects. To accomplish this, we must restructure how we think about the role of writing in every classroom and reimagine it not as a polished product to grade, but as a simple, flexible practice that can be woven into existing instruction without reinventing the wheel. When reframed this way, writing becomes less about structure and more about strengthening student outcomes; it becomes less about perfection and more about *possibility.*

Why Writing Works: A Research Foundation

For decades, the research has echoed what teachers like me see every day: writing changes the way students think and learn. When students write, they do more than record ideas but rather engage in the construction of authentic thinking within that subject. Langer and Applebee (1985) long ago described writing as both a mirror and a catalyst of student thinking, explaining that as students put their ideas into words, they begin to shape understanding itself. Nearly 30 years later, Graham and Perin's (2007) national meta-analysis of writing in adolescent and secondary classrooms found that when students write frequently and for authentic purposes, they retain more conceptual knowledge, reason more deeply, and make stronger connections across what they learn. The premise that writing is a space where learning slows down just enough for reflection to take root has stood the test of time. It will undoubtedly continue to evolve as we better understand how students learn.

Still, most middle-grade classrooms offer far too few opportunities for that kind of writing. National studies by Applebee and Langer (2011) and later by Wilcox and Jeffery (2014) revealed that most adolescent writing in middle-grade classrooms consists of short, surface-level tasks, such as recall responses, rather than writing tasks that require higher-level thinking skills. Accessing these thinking skills through writing should see students writing frequently in short, low-stakes bursts, such as jotting down quick reflections after a lab, summarizing a concept in their own words, or responding to a prompt that connects to their world, the learning sticks. These small acts of writing create big shifts in student comprehension, confidence, and critical thinking.

Recent work continues to highlight how deeply writing intersects with adolescent development. Childs (2022) reminds us that writing across the curriculum not only builds literacy but also our students' sense of identity, self-efficacy, and engagement. For middle schoolers standing at the edge of who they are and who they will become, writing can be both an anchor and a magic mirror of sorts: a way to test ideas, claim their voice, and see themselves as capable thinkers in every subject. The question, then, is not whether writing works but how we can make it work more often and more easily in every classroom. The research is clear; the challenge lies in translating that knowledge into daily practice.

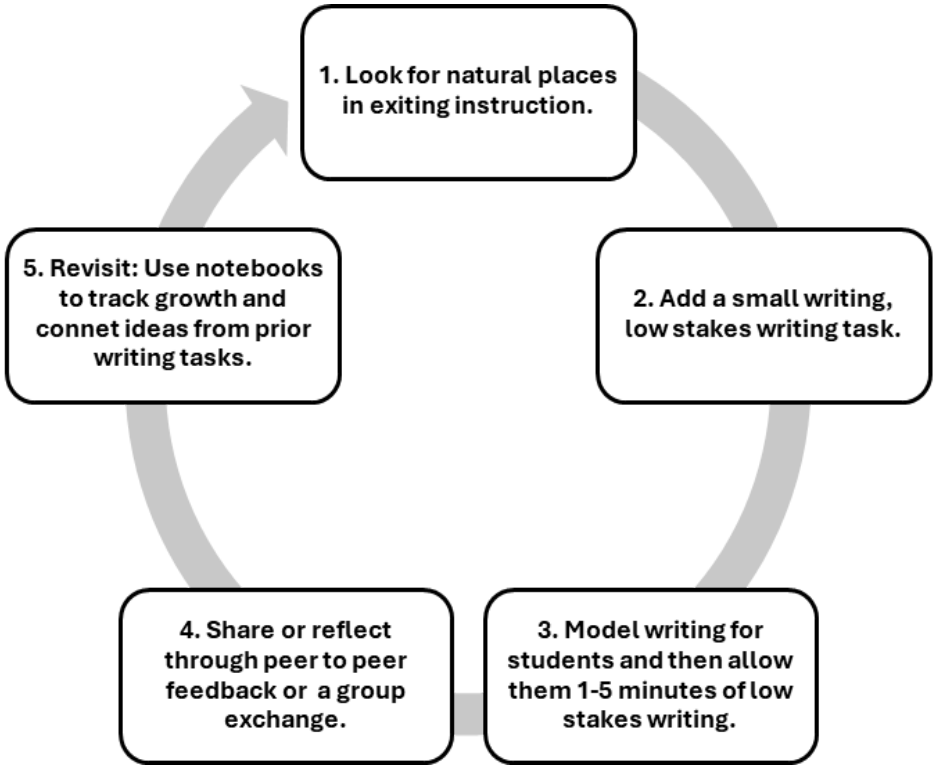
Building a Sustainable Framework for Writing Across Classrooms

It's proven that writing across content areas is one of the most powerful tools we have to deepen learning. Yet if the benefits are so clear, why do so many teachers still hesitate to use it consistently and confidently? In

conversations with colleagues, one concern keeps surfacing: the fear that adding more writing means adding to the already heavy workloads of classroom teachers.

Integrating low-stakes writing doesn't mean reinventing the wheel or redesigning the curriculum. Most teachers already have strong and well-crafted lessons that engage students and meet standards. The first step is simply learning to spot the moments that are already there, those places where a small burst of writing could help students pause, think, and make meaning. I call this the Hidden Writing Hunt. Essentially, it's about finding the natural opportunities for quick and meaningful writing that exist within what teachers already do every day. Maybe it's a one-sentence summary after a discussion, a "what surprised me" reflection at the end of a lab, or a short "why does this matter" note before moving to the next task. These small, intentional moments transform writing into a seamless part of the learning process. They keep instruction aligned with pacing, connected to standards, and rooted in authentic student thinking. When teachers begin looking for these small windows, they often find that the opportunities for writing have been there all along, waiting to be recognized and used. As Figure 1 shows, the Hidden Writing Hunt offers a simple path for noticing and capturing these moments.

Figure 1 *The Hidden Writing Hunt*



Note. The process of integrating low-stakes writing into existing instruction through the Hidden Writing Hunt.

Once students begin writing regularly, feedback becomes the next step. Meaningful feedback doesn't always have to come from the teacher. Much of the responsibility can shift to students when it's structured through clear protocols and expectations. For example, after a one-minute comparison task in which students connect the day's lesson to

something outside the classroom, they can quickly swap papers and offer peer feedback. A simple comment in sentence form, a question, or an annotation invites immediate reflection. In less than five minutes, students have written for an audience, received authentic feedback, and practiced critical thinking, all without a single paper added to the teacher's grading pile.

To make writing sustainable, it helps to rethink how we collect and assess it. One practical approach is to have students house their writing in a notebook, on paper, or in a digital format that serves as a working record of their thinking. This notebook doesn't need to be color-coded or Pinterest-worthy. What matters is that it's consistently used. Students can simply date their entries, label the prompt, and draw a line to separate each new task. Over time, that notebook becomes more than a collection of pages; it becomes a living artifact that evidences their learning growth. Students can revisit earlier work to see how their thinking has evolved, reference prior learning, or select pieces they're proud of to submit for instructor feedback or grading. Teachers can periodically check notebooks by sampling random pages or allowing students to choose which entries they'd like evaluated. Even if imperfect or messy, these notebooks provide a home for authentic writing that documents learning in motion in real time and keeps students accountable for their writing.

The success of this approach depends on thoughtful, intentional frontloading: teaching clear procedures, modeling writing and feedback frequently, and nurturing a classroom culture built on respect, empathy, and curiosity. It is not a framework that blooms overnight, and it is hard work - but it is work worth investing in. During a recent professional development session, a colleague asked if all the effort - the modeling, the reteaching, the constant reminders, the high expectations for student behavior during peer feedback - was truly worth it. The answer is yes. Because when writing becomes routine and low-stakes, it no longer feels like one more procedure to teach or one more thing to grade. It becomes what it was always meant to be: a powerful way for students to think, to connect, and to grow in every classroom. With this mindset in place, the next step is action. How can teachers bring these ideas to life in ways that feel authentic and aligned with what they already do each day?

Every Classroom, Every Student: Practical Writing Strategies

With this framework in mind, the next step is to translate the idea of low-stakes, cross-curricular writing into practical, classroom-ready strategies that make thinking visible in every content area. Writing across the curriculum isn't about adding more to teachers' plates but about using the lessons and routines that already work to help students think more deeply. When students write within their disciplines, they begin to think *as* experts: math students reason like mathematicians, science students investigate like scientists, and social studies students interpret like historians. In electives, they reflect as artists, athletes, or creators. Writing becomes the bridge between learning and expertise and an everyday act of making thinking visible. The QR-linked booklet in Figure 2*, Writing Beyond ELA*, expands on these ideas and offers ideas for quick, adaptable writing tasks that make this kind of disciplinary thinking accessible to all students.

Figure 2 *Booklet: Writing Beyond ELA*

Each strategy pairs a thinking skill or engagement move with a simple writing prompt that fits naturally within existing instruction. None of these activities requires essays or heavy grading; rather, they invite students to pause, reflect, and write on paper. Each of these strategies reflects the heart of interdisciplinary literacy: empowering students to use writing as a tool for thinking within the language, habits, and methods of each discipline. When writing is reframed this way, it no longer feels like time filler or an assessment and instead becomes the shared language of inquiry, creativity, and understanding that unites all classrooms. Below is a sampling of strategies for use in every content:

Science - S*tudents write and think as scientists: questioning, testing, and revising their understanding.*

- Quick CERs (Claim-Evidence-Reasoning): Students construct scientific arguments that strengthen reasoning and data interpretation.
- Lab Reflection Micro-notes: Brief reflections on what surprised or puzzled students encourage curiosity and metacognition.
- "What-If" Prediction Slips: Students alter a variable and predict outcomes, applying their understanding of experimental design.
- Science Confessions: Prompts like "I used to think…, but now I know…" help students recognize conceptual change.

Social Studies - *Students write and think as historians: analyzing evidence, interpreting context, and connecting past to present.*

- Perspective Postcards: Students write from the viewpoint of someone living through an event, building empathy and historical perspective.
- One-Minute Compare/Contrast Responses: They link historical events to modern issues, emphasizing continuity and change.
- Historical Headlines: Students distill complex events into concise summaries that emphasize cause and consequence.
- Decision Dilemmas: They assume the role of historical figures and justify their choices, building moral reasoning and analytical depth.

Mathematics - *Students write and think as mathematicians: reasoning, justifying, and reflecting on the logic behind numbers.*

- Number Stories: Students turn equations into short narratives, reinforcing conceptual understanding.
- Explain Your Reasoning Micro-Journals: Students articulate problem-solving steps to strengthen clarity and logic.
- Math Mythbusters: They challenge misconceptions and use counterexamples to correct errors.
- If-Then Reflections: Students predict outcomes to deepen cause-and-effect reasoning.

Electives - *Students write and think as creators, artists, athletes, and experts: connecting process, reflection, and purpose across disciplines.*

- Artistic Reflection Prompts: Students describe creative choices and artistic intent.
- PE/Health Skill Logs: Quick reflections promote goal setting and awareness of progress
- Music Performance Journals: Musicians analyze practice habits and interpret expressive choices.
- Tech Ethics Reflections: Students consider the moral implications of innovation and technology use.

Insights from Practice: Voices from Middle Grades Classrooms

To see how these ideas might take shape beyond the ELA classroom, I invited a few colleagues to join me in a small but meaningful experiment. Teachers across 6th through 8th grade in math, science, social studies, and Spanish classrooms each selected one or more strategies from the *Writing Beyond ELA* booklet to weave into an existing lesson. After trying them, they shared their reflections through a short survey. Five teachers participated, representing more than 600 students. Most writing tasks took only five to ten minutes and fit into these teachers' existing instructional plans as quick reflections, cool-downs, or connections to real-world contexts.

Across all classrooms, the same themes echoed: students were more engaged, their thinking clearer, their discussions richer, and their reflections deeper. A social studies teacher wrote that students "became more comfortable expressing their opinions and connecting lessons to their own experiences." A science teacher observed that even short reflections "made it easy to see what students understood and where they were still unsure." In math, students "began writing more thoughtfully about how math shows up in their daily lives," leading to more authentic conversations.

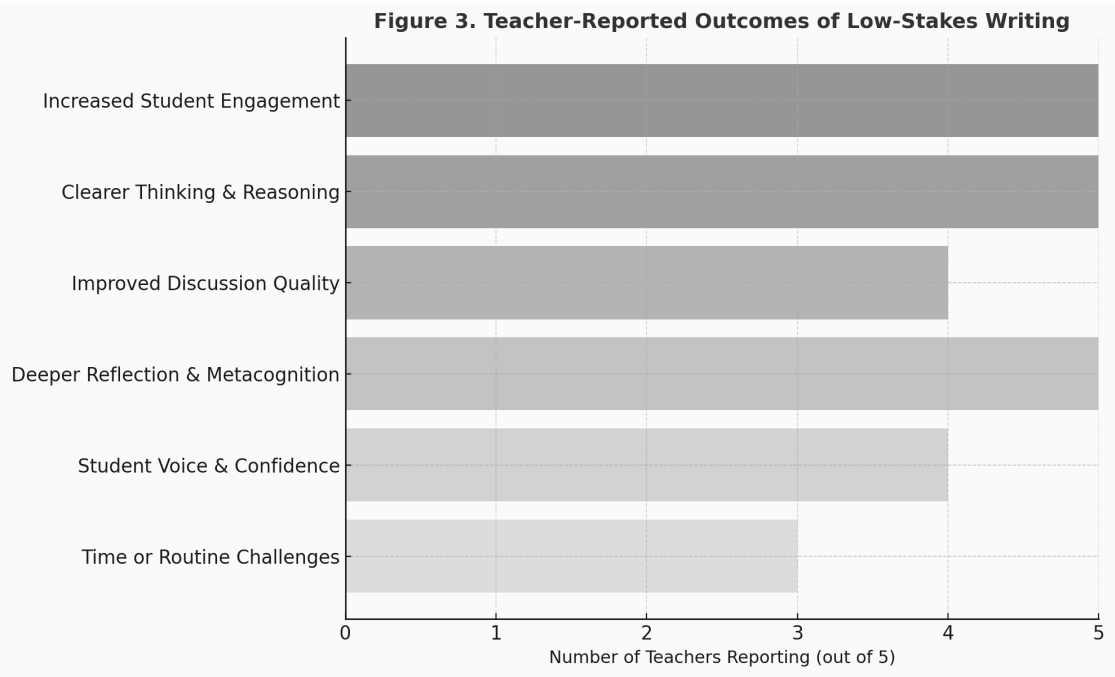
Teachers described a quiet shift in classroom energy. "Writing doesn't have to be a long process to show learning," one noted. "It's the act of putting thought into words that deepens understanding." Another shared that students "challenged themselves to come up with better examples, not just quick answers." A Spanish teacher reflected that even hesitant learners "found their voice when given the chance to write about culture and connection."

Naturally, there were some challenges noted, such as time constraints, new routines, and convincing students that writing belongs everywhere. One teacher admitted, "Some students felt that writing should not happen in math class," yet those same students later realized that writing helped them "make sense of their process." For most, the rewards far outweighed the effort. "Writing in any form can be used to collect data on student understanding," one colleague wrote, "and students see that their ideas matter."

What emerged from this collaboration was more than anecdotes; it was a glimpse of what happens when writing becomes part of the daily rhythm of learning in every classroom. When students write across subjects, they begin to see learning as something they build and grow, rather than something delivered to them.

Their written words reveal thought taking shape, curiosity deepening, and their confidence as learners quietly growing. These classroom stories offer more than inspiration; they offer direction. They suggest how schools might harness the power of writing not only to improve instruction but to shape professional learning and curriculum design.

Figure 3:
Teacher Reported Data from Cross-Curricular Writing Implementation



Note: Survey data from teachers revealed consistent outcomes across subjects: higher engagement, clearer reasoning, and stronger reflection, which evidences that low-stakes writing supports both thinking and participation.

Looking Ahead: Implications and Next Steps

This shared experiment became more than a collection of reflections: it revealed what might be possible when middle schools embrace writing as a shared practice. Low-stakes writing is simple enough to fit within the rhythm of any lesson yet powerful enough to change the way students think. It gives middle schoolers who are still forming their identity, confidence, and voice a space to slow down, reflect, and make sense of their learning across subjects.

For professional learning communities, these practices provide a shared language for teaching and reflection. When math, science, social studies, and language teachers plan with writing in mind, they begin to see common ground in how students reason, explain, and connect ideas. Scaled across grade levels, low-stakes writing can serve as a unifying thread that deepens literacy, fosters interdisciplinary collaboration, and elevates conceptual understanding in every subject throughout the middle grades.

There is still more to learn. Future study should explore quantitative outcomes such as how frequently informal writing supports retention, comprehension, and academic growth as well as lift up student

voice, inviting middle schoolers to describe how writing helps them understand, engage, and see themselves as capable thinkers and learners. In the end, writing beyond ELA is not just a method but a mindset, one that reminds us that every child deserves space to think in ink and to find meaning in their own words.

Conclusion: Writing as Hope and Habit

Writing has always meant to be so much more than words on a page, more than worksheets or graphic organizers, more than notes copied from the board. It's meant to operate in our classrooms as a way for students to learn to think, question, and make sense of their world. As decades of research have shown, and as teachers continue to rediscover, writing remains one of the most powerful ways to help students think, learn, and belong. Whether students are solving equations, testing hypotheses, analyzing history, or learning a new language, the act of writing spurs their thinking so that insight can emerge and learning can deepen. It gives them space to reason, reflect, and see their own growth unfold.

For teachers and school leaders, the path forward is both simple and profound: to make writing a daily habit of thought in every classroom and to reimagine it not as an addition to the curriculum but as the heartbeat of it: a living and breathing literacy practice that strengthens comprehension, communication, and connection in every discipline. When students write, they learn, and we are, after all, in the business of teaching and learning. It is time we ask ourselves: If not in our classrooms, then when? If not in our instruction, then in whose?

It's another Monday morning, and I am filled with hope. Hope that each classroom, no matter the subject, becomes a place where writing lives and breathes alongside inquiry, creativity, and curiosity. Hope that teachers see in their students what I see in mine: that every learner carries ideas worth exploring and voices worth hearing. Hope that through writing in every classroom, we continue to open new doors for thinking, connection, and possibility.

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ORIGINAL PAPER

Practical Strategies and Emerging AI Tools for Supporting Teacher Retention

Author: Sravan K. Nemani

Abstract: Getting accomplished teachers to stay in K-12 classrooms is a systems priority that has both direct effects on student learning, school stability, and community well-being. This article subjects peer-reviewed information about teacher career longevity and retention and integrates this information with a prospective analysis of two potential future teacher-helpful products, (a) an AI-assisted content production pipeline that lessens planning and materials-generation workload and (b) a minimized-assessment retrieval augmented generation (RAG) submission analysis pipeline that lessens the assessment workload and maintains professional judgment. Based on an integrative review, the paper posits that resilient professional identity, supportive leadership, and well-designed professional learning, serve as the best anchors of long-term commitment; incentives are not enough; that technology can be used as a facilitating support when it can be shown to save time of routine operations and is applied with professional and ethical protection. The discussion supported that a few levers relate to action plans for school and district leaders, gaps in the literature are identified, and a roadmap offered, which combines evidence-based human supports with accountable automation to enhance the daily experience of teachers and, subsequently, their professional intentions.

Keywords: teacher retention; career longevity; resilience; professional identity; burnout; incentives; leadership; artificial intelligence; RAG

Introduction

The problem of teacher retention is one of the most urgent problems in education today. This weakens institutional knowledge, learning continuity, and results in substantial financial expenses related to recruitment and training (Boyd et al., 2008). High-need schools with disadvantaged populations create inequities in turnover, depriving students of access to consistent, high-quality instruction (Podolsky et al., 2019). Career longevity is not just putting the number of years of service in a box. It can be described as long-term adaptive interaction in teaching under fluctuating personal and system conditions. Notably, attrition is multifaceted and nonlinear: educators can leave and return in the short term, change jobs, or transfer to different schools (Lindqvist et al., 2014). This complexity questions the policy discourse that portray attrition as a simple issue and highlights the necessity to study approaches in detail.

This article pursues two goals: first, it summarises the literature on the causes of teacher turnover and the solutions that contribute to long-term career perspectives, with resilience, identity formation, professional learning, incentives, and organizational circumstances as key factors. Second, it introduces two futuristic teacher-friendly tools, specifically, an artificial intelligence-powered curriculum

creation pipeline and a RAG-based submission analysis pipeline, that demonstrate how the new technologies can ease workload and improve wellness, should they be implemented safely. Integrating both traditional and innovative supports can help schools and systems retain teachers and create an environment where teachers can pursue long-term careers.

Understanding Career Longevity and the Retention Problem

Career longevity denotes the long-term involvement of teachers over several years, as evidenced by their capacity to adapt to emerging demands and to balance their professional and personal roles. The key aspect here is resilience, which enables teachers to balance time-related conflicts (professional and family demands) and strain-based conflicts (work-family spillover). It is important to note that attrition is seldom linear. Quite a number of teachers move in and out of schools and grades. The issue of early-career attrition is particularly complicated because, according to the example of Lindqvist et al. (2014), the exit is associated with a set of factors (workload, working conditions, and identity formation difficulties).

Retention and attrition factors are multi-layered. Abundant workload, growing pressure on accountability, and escalated performativity stress are consistently identified as pivotal factors in dissatisfaction and early departure. On the other hand, intent to stay is well predicted by job satisfaction, manageable student behaviour, satisfactory pay, and growth opportunities (Toropova et al., 2020). Moreover, turnover intention is mediated by organizational commitment, especially teachers' affective commitment to their schools; the more committed teachers are, the greater the retention. The retention crisis is also affected by external factors, such as challenging school settings in high-poverty and rural districts (Darling-Hammond and Sykes, 2003). Understaffing is associated with low pay, fewer resources, and greater stress in these contexts, which continue to face constant shortages (Podolsky et al., 2019). Teacher longevity needs to be addressed, not only in terms of individual resilience, but also in the context of systemic inequity that erodes sustainability.

Enhancing Well-Being and Resilience

Resilience is one of the determinants known to contribute to teacher persistence, yet recent scholarship has highlighted the relational aspect of resilience. Instead of being a personal characteristic, resilience is acquired through positive relationships with peers, managers, and professional networks (Gu, 2014). When teachers are embedded in networks of collegiality, they are better positioned to adapt to stress, remain motivated, and maintain professional engagement. As an illustration, professional learning communities (PLCs) and mentorship programs offer secure environments of problem-solving projects and emotional confirmation, overcoming feelings of isolation. This relational resilience may cushion against the pressures of the system, enabling teachers to see problems as collective rather than personal weaknesses (Buchanan et al., 2013).

Psychological and emotional conditions are also key factors. Burnout is negatively correlated with resilience, decreasing emotional exhaustion and turnover intentions (Liu et al., 2021). A particularly effective mediator of stress is self-efficacy, the conviction in the ability to make a positive impact on student outcomes (Huang and Yin, 2018). Self-efficacy is reinforced, and teachers remain positive about supplying their professional

self-concept, through reflective practices, self-affirmation activities, and emotional regulation patterns (Cohen and Sherman, 2014). Policies that provide flexible scheduling, workload redistribution, and structural recognition of teachers' personal lives increase career sustainability. When cultures indicate that well-being and balance take priority, reports indicate higher satisfaction and commitment among teachers, thereby supporting retention.

Professional Learning and Career Adaptability

Continuous professional learning is inseparable as a path to maintaining teacher engagement over time. Nevertheless, more traditional workshop-style models have frequently been ineffective in treating the affective and motivational elements of teacher development. Researchers propose an alternative paradigm, Professional Development 3.0, that designs professional learning to consider personal identity, contextual dynamics, and system-level factors (Korthagen, 2016). Practically, it will involve transcending one-off workshops and creating multidimensional learning environments where teachers can collaborate across disciplines, professional learning communities, and in longitudinal mentorship. An example is STEM teachers in professional communities, who indicate substantial changes to professional identity and long-term flexibility.

Career longevity is also based on career adaptability, which is described as the capability to self-manage learning and adapt to changing needs. Those teachers who actively plan, observe, and note their development patterns are better placed to withstand change (Margaryan et al., 2013). Mentorship and coaching, specifically, offer systematic access to flexibility through shaping positive practices and retrospective comments on significant transitions. However, it is worth noting that the pre-service and early-career stages are crucial for nurturing resilience and adaptability. Isolation is mitigated, and identity is built through induction programs that incorporate mentorship, peer support networks, and resilience development (Mansfield et al., 2020). When teachers formulate what Buchanan et al. (2013) term as a stay identity, an intentional focus on an attempt to persist, there is a great deal more possibility to withstand the strainors encountered at the beginning of the career and stay in the field.

Incentives, Compensation, and Working Conditions

The world has been using financial incentives to recruit and retain teachers in shortage areas. Signing bonuses, loan forgiveness, and salary supplements may decrease turnover by 10-12 percent among specific groups of workers (Feng and Sass, 2017). Nevertheless, although such actions do yield short-term retention outcomes, their effectiveness on a long-term level is low, unless combined with more comprehensive working conditions changes. Besides, the performance-based incentive plans, including IMPACT in Washington, DC, demonstrate the intricacy of connecting compensation with assessment. Teachers with high achievement are receptive to bonuses, whereas dismissals augment voluntary attrition, particularly among lower achievers (Dee and Wyckoff, 2015). These contradictory outcomes show the necessity of a compromise: the incentives should drive performance, but they should be incorporated into developmental models that focus on evolutionary growth and equity.

Non-financial activities such as recognition, autonomy, and professional voice are usually more durable. Leadership

behaviors that promote collaborative cultures, respect for expertise, and opportunities for career advancement contribute significantly to job satisfaction (Podolsky et al., 2019). Retention is also enhanced by flexible workplace policies that support family responsibilities, as they align with the institutional framework and the lived realities of teachers.

Burnout Dynamics and Prevention

One of the most significant predictors of teacher turnover intentions is burnout, often characterized by emotional exhaustion, depersonalization, and a reduced sense of accomplishment (Richards et al., 2017; Boe et al., 2008). Stressed teachers tend to lose motivation, deliver lower-quality instruction, and quit the profession earlier. This is exceptionally severe in high-demand school settings, where workload, accountability demands, and a lack of support converge to create new conditions that promote chronic fatigue and disconnection.

Even though the phenomenon of burnout has frequently been discussed as a personal psychological phenomenon, there is growing evidence that it has structural origins. For example, emotional strain and a drop in job satisfaction are often exacerbated by high administrative requirements, unnecessary class sizes, and insufficient resources (Toropova et al., 2020). It follows that the organization's response is crucial to prevention. Good leaders have the ability to restructure timetables to protect planning time, create fair workload allocations, and create collaborative cultures whereby teachers do not feel watched but rather trusted.

Not only do these system-wide interventions lower stress levels, but they also send educators the message that their well-being is valued by the institution, thereby strengthening their commitment to their profession (Harmon et al., 2018). Resilience and self-efficacy development strategies are useful buffers to burnout at the individual level. Reflective teachers who engage in routine peer debriefing and emotion-regulation practices tend to be better able to withstand stressors without losing their professional meaning (Mansfield et al., 2020).

The prevention of burnout must be defined as a collective responsibility. The institutions should provide enabling environments to reduce the frequency of unwarranted stressors, and also help teachers develop their own ways of handling situations they cannot help. Such a two-pronged strategy recognizes organizational and agency-level efforts to address burnout, as well as teachers' agency in managing stress. The profession can begin when systemic reforms and individual supports are synchronized, thereby reducing one of the most difficult-to-address aspects of teacher attrition and creating conditions in which career longevity can be maintained (Liu et al., 2021).

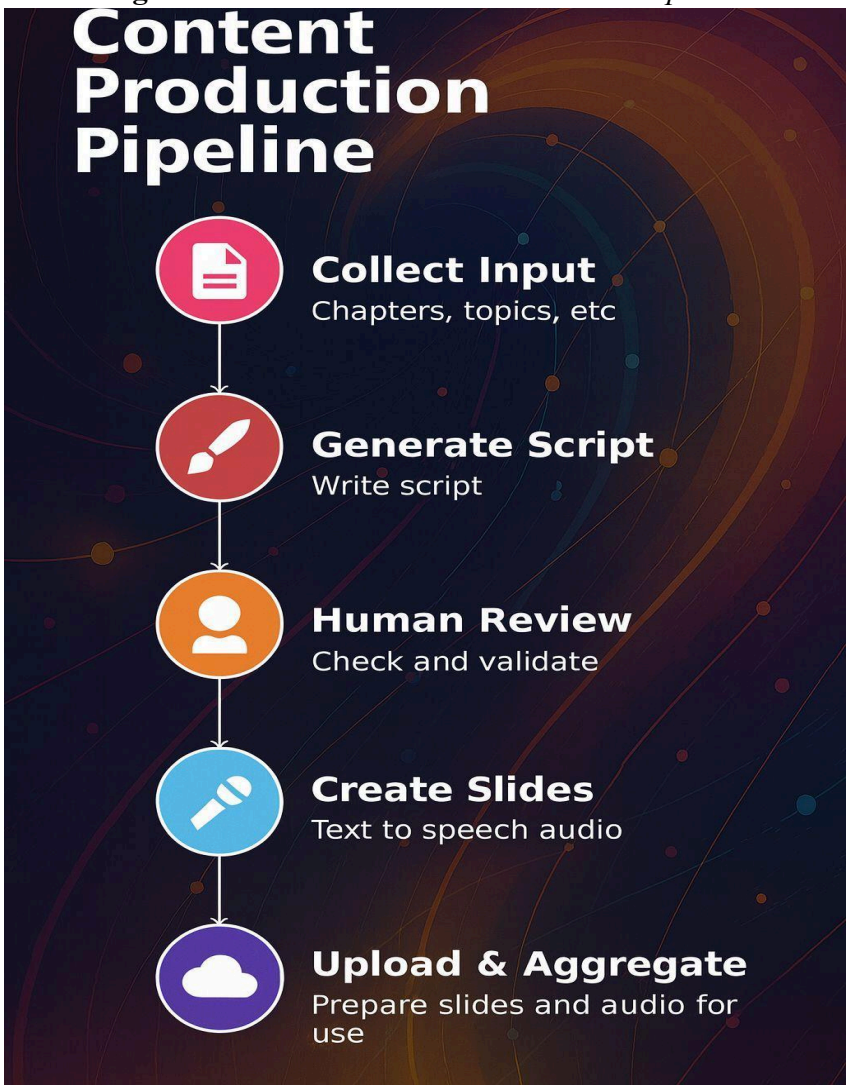
Emerging Teacher Tools: AI Pipelines as Workload-Reduction Allies

The access of artificial intelligence (AI) in educational practice has been met with excitement and fear. On one hand, people are warning about a set of risks associated with data privacy, bias in artificial intelligence, and the loss of teacher autonomy. Conversely, supporters also highlight that AI can alleviate routine labor and allow teachers to devote more time to relational and instructional practices that sustain professional activities (Hashem et al., 2023). In this discussion, the pipelines in the flow charts below depict how technology may not be a replacement for professional opinion, but becomes an empowering

companion that promotes efficiency, without denying human control.

The first tool is an AI-wrapped content production pipeline, which provides a lesson-planning process that is mechanized (see Figure 1). Teachers start by keying in unit objectives and curricular standards, and the AI then produces rough drafts. Such drafts are then reviewed by humans to ensure they align with the learning objectives and the context of the situation before slides, worksheets, or other instructional materials are automated. This system can save time on heavy preparation by taking such time-intensive tasks and formatting to the background, which is constantly mentioned as a factor in teacher stress and burnout. Hashem et al. (2023) emphasize that AI-based planning software can significantly reduce preparation time and administrative burden, although full empirical support has not yet been established. The corresponding critical protection in this area is teacher agency: final control guarantees correctness and specificity to the context, strengthening the professional position instead of destroying it. The AI-based content production pipeline, as shown in Figure 1, is based on a clearly defined process that allows teachers to simplify the lesson planning process without neglecting the quality of instruction.

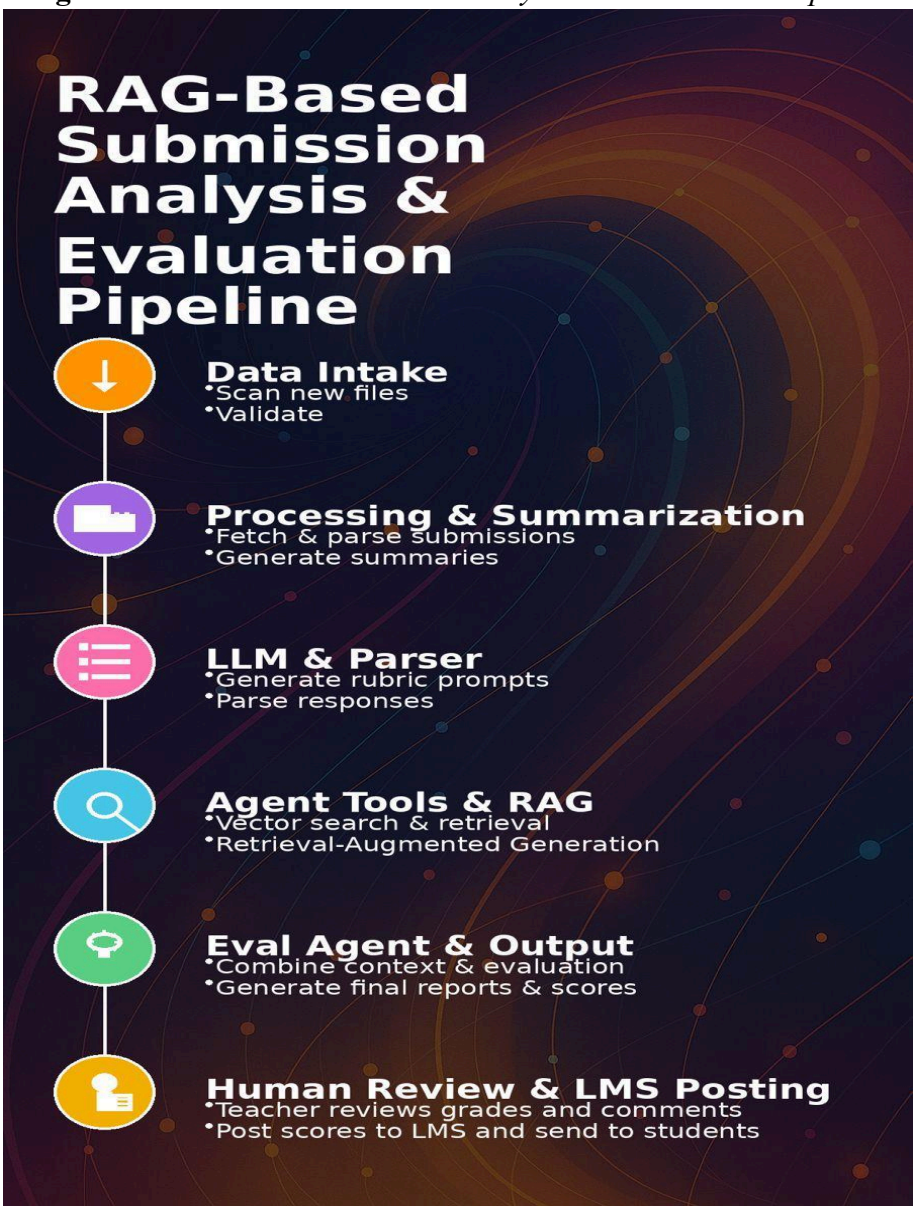
Figure 1 *AI-Assisted Content Production Pipeline*



AI-assisted content production pipeline demonstrating the process from inputting unit goals to generating draft scripts and automated teaching aids, with teacher oversight at each stage.

The second tool, a retrieval-augmented generation (RAG)-based submission analysis and evaluation pipeline, also targets the minimization of administrative burden. Student work is ingested, corresponding exemplars and rubrics are found, and draft feedback is generated for teacher review. Instead of automating grading directly, the system relieves the laborious process of collecting evidence and matching comments against assessment criteria. The teachers ensure accountability and professional integrity by ensuring that all outputs are validated prior to being released. According to previous evidence, such systems can cut grading time by a wide margin, yet the teachers are still able to offer individualized and rubric-grounded feedback (Hashem et al., 2023). The second pipeline (Figure 2) shows how a retrieval-augmented generation (RAG) model assists teachers in handling student submissions by generating draft submissions that are later revised and completed by the teacher.

Figure 2 *RAG-Based Submission Analysis and Evaluation Pipeline*



RAG-based submission analysis and evaluation pipeline illustrating how student work is processed through retrieval and generation before final teacher validation.

The value of such pipelines, in this respect, is not automation in itself but the capability of these pipelines to recalibrate time to the centerpiece professional activities. Educators with reduced time commitments to low-level and routine duties can devote increased time to innovativeness and pedagogical development, alongside interpersonal interaction. Considered in combination with evidence-based retention tools, AI tools therefore have a level of potential as partners in enhancing the sustainability of teachers, although their application must be ethically grounded and teacher-oriented (Hashem et al., 2023).

Professional Identity, Commitment, and the Role of Context

Teacher professional identity, that is, the way teaching professionals perceive themselves and their social purpose, is a very strong predictor of the commitment to most careers (Suarez and McGrath, 2022). Notably, early career goals, including altruistic, intrinsic, or pragmatic motivation, can be a source of identity formation and condition the potential presence or absence of long-term dedication and exit contemplation in teachers (Bergmark et al., 2018). Experience, reflection, and community are some of the ways that identity is constructed, and robust identities resist external pressures.

Leadership and Policy Levers Supporting Teacher Retention

One of the most crucial retention factors is school leadership. Principals encouraging constructive feedback and advocating resources, as well as creating positive climates, cut stress and turnover considerably (Harmon et al., 2018). Walkthroughs, timely recognition, and trust-building are leadership practices that put forth strong signals that teachers are important, which increases commitment. Systemic policies like loan forgiveness, mobility systems across states, and coordinated manpower planning respond to workforce imbalances (Darling-Hammond and Sykes, 2003). Notably, policies should be contextualized. Here are some examples: rural and low-income schools need more advantageous partners and local professional development (Harmon et al., 2018), and the industry of early childhood education needs wage adjustments to achieve systemic undercompensation resolution (McDonald et al., 2018).

The succession planning is also important. Structured career education, such as hybrid teacher leadership, offers opportunities to grow without leaving the classroom. Higher education evidence supports the way gender inequalities in access to leadership may undermine career progression. Moodly and Toni (2017) describe systemic obstacles to female progress in South African universities as an example. Their research is situated in the tertiary education sector, but the findings are echoed in K-12 education, where women comprise the majority of the teaching population and remain underrepresented in senior positions.

Professional Skills Beyond Content Knowledge

The effectiveness of educators remains unaffected by content knowledge alone, but it requires a cognitive ability with a non-cognitive skillset that includes resilience, perseverance, and social-emotional competence. These are versatile skills that are indicative of future success. Cognitive plus non-cognitive professional learning enables flexibility in the fast-evolving educational environments. Goal setting, monitoring, and reflective adjustment are self-regulated learning strategies that are essential in terms of long-term professional development. When teachers use these strategies, they will be in a better position to adjust to changing requirements (Margaryan et al., 2013). Interdisciplinary communities of practice further show how skilled communities can transform identity development through mutual interaction.

Recommendations and Future Directions

The literature and practice evidence indicate that no particular intervention will address

the multifaceted issue of teacher retention. Rather, the key to maintaining career teachers is a consistent strategy incorporating structural assistance, professional development, and new technologies. The redesign of workloads should also be improved to meaningfully reduce stress and guard planning time, a first priority. Studies have always indicated that excessive administrative load is among the most powerful predictors of attrition. In this case, the merging of AI-powered pipelines, including automated lesson-planning tools and retrieval-mediated feedback systems, offer promising opportunities to reallocate teachers' time toward creativity in their instruction and engagement with their students.

Meanwhile, teacher resilience and professional identity need to keep the core of retention measures. Teachers can overcome adversity without professional disillusionment through relational resilience, which is built on networks of colleagues, mentors, and supportive leaders (Gu, 2014). Critical spaces of reflection and identity building, particularly with novices navigating initial efforts to negotiate the efficacy dip, are offered by professional learning communities (PLCs) and formal mentorship plans (Buchanan et al., 2013). The integration of identity work in the professional development process enables teachers to maintain a feeling of purpose in dynamic environments.

The need to stabilize early-career teachers is particularly well met through multi-year induction programs that use scaffolded responsibilities. Induction also encourages retention and long-term development when it is combined with well-planned career opportunities, including hybrid teaching and leadership (Mansfield et al., 2020). Leadership, by a larger margin, serves a conciliatory role: leaders who assist in securing instructional time, offer encouraging feedback, and develop favorable climates positively influence retention rates (Harmon et al., 2018).

Financial incentives, such as bonuses and loan forgiveness, can attract teachers to hard-to-staff schools, but they work best when systemic changes in working conditions and professional development opportunities are combined with them (Feng and Sass, 2017). Similarly, retention policies should be localized with respect. Career development is customized, and community partnerships in rural schools help boost school quality, whereas early childhood education needs wage reforms due to years of chronic underpayment (McDonald et al., 2018). Lastly, longitudinal tracking of attrition, re-entry, workload, and burnout rates should be measured systematically with an assertive refinement of intervention as evidence-based on what actually enhances career longevity with time.

Conclusion

Teacher retention is a complex issue that needs a multidimensional approach that incorporates individual and systemic factors to eliminate teacher burnout. It has been demonstrated that professional identity, supportive leadership, equitable workloads, and meaningful professional growth are the cornerstones of career longevity. Financial and non-financial inducements cannot do the work, but they are ineffective without structural and relational sustenance. Introducing AI pipelines, when applied in ethical ways and with teacher agency, can be a promising tool to help to decrease workloads and safeguard teacher welfare. Nonetheless, they need to be cautiously measured in real production, such as shorter preparation time and better work-life balance. Sustainable teacher workforces will finally materialize when schools and systems are organized so that educators

attain flourishing conditions rather than mere survival. Through responsible innovation and the alignment of evidence-based human supports, educators can increase their career longevity, minimize expensive attrition, and guarantee that years of service are granted to students pursuing education through the experience and motivation of their teachers.

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ORIGINAL PAPER

Bringing History to Life Using Generative AI

Authors: Christina Tschida, Lane Wesson

Abstract: History no longer needs to be a silent record for students to consume; it can be a conversation. Utilizing generative AI, our students have the tools to talk back and engage in new ways with the past. This article shares three structured projects for use in middle grades social studies classrooms that incorporate AI tools, develop critical thinking and media literacy skills, and engage students in building historical literacy. We break each project down into steps and provide example materials that will guide you in developing the project for your classroom topics and needs. Explore how you can bring history to life for your students.

Keywords: generative AI, critical thinking, media literacy, primary sources, inquiry, research

Imagine a middle school classroom where history is no longer a boring collection of dates and dusty portraits, but a living, breathing dialogue. For decades, the "textbook version" of history has inadvertently flattened our most complex figures; icons like Susan B. Anthony are often reduced to a single quote or a lone achievement, stripped of the contextual and oftentimes messy motivations and systemic struggles that defined their lives. Today, generative AI platforms like Google Gemini, OpenAIs ChatGPT, Microsoft Copilot, and others offer a radical shift: the ability to transform passive reading into active, inquiry-based exploration. However, this "digital resurrection" requires more than just a chat box. To truly foster historical literacy, teachers must integrate AI conversations through a rigorous framework of structured prompts, critical analysis safeguards, and firm ethical guidelines. By doing so, we can maximize student engagement without sacrificing the facts and dignity of the historical record.

Three Structured, AI-Enhanced Projects

We offer three structured projects that can be used in middle grades social studies classrooms to incorporate AI tools, develop critical thinking and media literacy skills, and engage students in building historical literacy. In these projects, students will have opportunities to develop research skills, interact with AI personas, think critically as they corroborate AI generated information with primary sources, develop media literacy, and explore the complexities of history.

The Interview Project

This inquiry-based learning project can be done over the course of a week. The learning goals for this project are designed to help students 1) learn to ask deeper, open-ended questions, 2) understand how historical figures may have expressed ideas using language and tone of their time period, 3) compare AI generated dialogue to authentic primary sources, and 4) practice

critical thinking related to perspective and historical accuracy.

In the first stage of this project, students conduct pre-interview research on a chosen or assigned historical figure. Sources may include a textbook excerpt, library database, teacher selected information texts, or teacher approved websites. During this initial research, students learn basic facts about their historical figure and determine what details may be missing or what additional information they would like to know. Students then create a list of 8-10 essential, open-ended questions that they are unable to answer from the text alone. One way to scaffold this step is to provide question stems such as:

- What motivated you to...
- What challenges did you face when...
- How did others react to...
- How did you feel when...
- Why did you choose to...

These question stems will help students to ask open-ended questions and require interpretation or perspective to be taken in a response. Additionally, you might provide a checklist for students to use once the questions are written to ensure they meet your requirements. Students should then narrow their questions to the five strongest for use in their interview.

In the next activity, students utilize AI to "interview" their historical figure. To ensure that students get deep answers that help them learn about their historical figure, it is important that they know how and when to ask follow-up questions. You may need to work with students, prior to the AI interviews, on how to probe someone for additional information. This could be done by modeling a conversation with a student where you demonstrate an initial question and follow-up questions to get a deeper, more complete answer. If your students do not have much experience with using AI tools, you might model a short conversation with an AI persona on the Smart Board, demonstrating how they will engage with their AI personas.

It is important that students begin their conversation by prompting AI to take on the persona of their historical figure. The prompt needs to be direct, such as: "I would like to have a conversation with X. Can you take on the persona of X and answer some questions?" At this point students can begin their interview. While students are interviewing their historical figure, they should take note of any surprising claims, the emotional tone, any bias or perspective they notice, and any statement that may seem too modern or oversimplified. The teacher may provide an Interviewer Notes graphic organizer (see Appendix A) for this step. After students conduct their interview, have them make a copy of the AI chatbot's responses and save it as a word document. Some AI tools allow you to save a transcript of the chat. This will be used during the next step.

The final part of this project asks students to conduct a post-interview analysis. First, they will select 2 to 3 primary sources (i.e., speeches, letters, diary entries, public statements) attributed to their historical figure. Teachers can have these primary sources printed and available, or ask students to locate the sources themselves. Additional time will be needed for students to find their own primary sources, so plan accordingly. Students read through the primary sources and the interview transcript from their AI conversation looking for similarities and differences. Finally, students write a reflection comparing the AI persona's tone and viewpoint to the primary sources. Appendix A contains examples of guiding prompts you might ask students to reflect on during their analysis as well as a comparison chart that could be used to scaffold for all students in preparation for

the reflective writing or as a differentiated assignment.

The "Fact-Check" Challenge

Next, we present a powerful student-centered inquiry project that develops media-literacy skills and is designed to help students see how knowledge is constructed. The learning goals for this activity will help students 1) understand that AI can sound confident but still be wrong (a hallucination), 2) practice checking facts using trustworthy sources, 3) learn how to compare information and explain differences found, and 4) build habits of questioning, verifying, and thinking critically.

The first activity involves developing a prompt in the form of a question about a historical event, person, or situation that is complex, easy to oversimplify, may have multiple interpretations, or has common myths associated with it. Some examples that may work well for middle school are:

- What caused the Salem Witch Trials?
- What was the purpose of the Great Wall of China?
- Why did the Roman Empire fall?
- Did Vikings really wear horned helmets?

You can also scaffold this process by providing students with 8-10 vetted questions related to a topic of study from your curriculum (see Appendix B for examples from a unit on Ancient Egypt). The first time this activity is done, it may be wise to model the questions for students in this way.

Next, students ask the generative AI their selected or created question. You might consider having students explore how voice and perspective can shape information, by choosing a specific persona for the AI to take on while answering the question. For example, students might ask the generative AI to "answer this question as if you are a Roman soldier" or "answer as if you are an early colonist in America." Students should save their chatbot transcript for use in the next step.

Next, students will "fact check" or verify at least two of the claims made by generative AI using traditional and trusted sources. They may use textbook excerpts, library databases (i.e., Britannica School, Gale, etc.) primary sources that you have pre-selected, or teacher-approved websites. You might scaffold this corroborative work by providing a simple graphic organizer such as the one found in Appendix B. During this verification step, students look for factual errors, missing context, overly simple explanations, misleading cause/effect, anachronisms, or statements that sound true but are not supported by any of the traditional sources. This type of analysis helps students see that AI isn't the "authority" on information; history is interpretive, not simply a list of facts; and that information must always be verified.

Using the information and knowledge from these activities, students write a short reflection answering questions that you provide. Questions might include:

- What did AI get correct?
- What did AI get wrong or oversimplify?
- Why do you think AI made that mistake?
- How did checking sources change your understanding?
- What advice might you give someone using AI for research?

If students are exploring a specific historical event or person, you might include additional questions related to their new understanding of the topic. Such analysis and reflection works to develop students' understanding of media literacy.

One way to vary this project is to have students work with a partner or in a group of three. Students use the same question, but they ask AI to respond from two or three different personas. In the fact-checking stage, students compare their graphic organizers to explore how different perspectives impact which details and facts were included in the AI chatbot responses. Another extension activity is to have students return to the AI generated response and "fix" it. They use verified facts, evidence from the traditional sources, and offer more nuanced explanations. This extension asks students to move from a consumer of knowledge to a knowledge creator.

The Historical Debate

Our third inquiry-based project uses AI personas to explore conflicting perspectives in history and synthesize viewpoints of historical figures. This project is designed to help students 1) ask open-ended, inquiry-driven questions, 2) explain differing viewpoints of two historical figures about a key issue, 3) moderate a debate between two AI personas and gather evidence from their responses, 4) compare the AI generated perspectives with primary sources to evaluate accuracy and tone, and 5) synthesize conflicting viewpoints into a clear and balanced explanation. An essential question to guide student work throughout this project is: How do different historical figures understand the same issue in different ways, and what can we learn by putting their ideas into a conversation?

Based on your curriculum and needs of students, you can assign a pair of opposing historical figures or ask them to choose a pair. Some examples of opposing historical figures might include:

- Hamilton vs. Jefferson
- Cleopatra vs. Augustus
- Booker T. Washington vs. W.E.B DuBois
- Elizabeth Cady Stanton vs. Frederick Douglass
- Abigail Adams vs. John Adams
- Bonaparte vs. Washington
- Mao Zedong vs. Chiang Kai-shek (for more advanced groups)

It is important to select pairs that have clear philosophical differences so students can more easily detect the contrast.

Next, students will conduct pre-conversation research. A simple graphic organizer can be designed to help them conduct initial research on their historical figures. The sources for this initial research should be pre-determined by the teacher and may come from a textbook, excerpts from a non-fiction book, or a website. Students begin by researching Historical Figure A. The graphic organizer you design can focus their research and allow them to learn who the person was; when and where they lived; what they believed about government, society, human rights, or other issues; or what major events may have shaped their views. After conducting their research, students determine what questions they still have about that person and write 3-5 open-ended "interest questions" that they cannot answer from the teacher provided source. These interest questions should be specific to the historical figure. Students will repeat this process for Historical Figure B.

Based on what they have learned about their two historical figures and the focus of the inquiry, students will write 3-5 open-ended "debate questions" that they want both historical figures to answer. You might guide the writing of debate questions based on your specific learning objectives or curricular focus. For instance, if you are currently teaching a unit that explores different forms of government, you may ask students to relate their debate questions to issues such as leadership, responsibilities of

a government to its citizens, or characteristics of a strong government. Some examples of both the interest questions and the debate questions are provided in Appendix C.

At this point, students are ready to engage with AI and role-play the debate between their historical figures. First, students will prompt AI to take on the persona of Historical Figure A. They ask their prepared interest questions and any follow-ups. Students repeat this process with Historical Figure B. Then students will take on the role of a moderator and ask both personas to respond to the same debate question, such as:

- What is the role of education in society?
- What is the best way to build a strong nation?
- Who should have political power?

As students moderate the debate, their responsibilities are to keep the debate focused on the issue, clarify questions when answers conflict, and take notes on the key arguments being made (see Appendix C for an example graphic organizer for moderator notes). Students should not be passive readers but rather active investigators during the debate. When the debate is concluded, students should save the chat transcript for use during their analysis.

Following the debate, you can assess student learning in a number of ways. Similar to the verification work students did in Project 2 above, you may ask students to verify the information provided by their AI personas by comparing it to primary sources. They would then write a reflection addressing prompts such as:

- Which parts of the AI's portrayal matched the primary sources?
- Which parts felt exaggerated, simplified, or were missing?
- How did each figure's tone or personality come through?
- What did you learn about how historical figures defend their ideas?

A second way to assess student understanding is to have them write a textbook excerpt introducing both historical figures and summarizing their stances on the issues raised in the AI debate. Finally, you might ask students to create a debate summary slideshow in Powerpoint or Canva including the main issues, each figure's stance, a quote from the AI debate, and their own synthesis. These assessments may be differentiated by providing students with sentence stems, an abbreviated written prompt, or a "structured synthesis" where the student adds the missing information based on their learning (see Appendix C for examples of differentiated assessments).

Ethical Safeguards

When considering the various ways to implement AI in the middle school classroom, the teacher must consider ethical and pedagogical safeguards specifically when using crucial conversations with the chatbot. The teacher should begin by discussing historical inaccuracy and bias with the students (Holmes & Miao**,** 2023). Since generative AI models are trained on patterns and language structures, as opposed to curated factual data bases, it has been known to "hallucinate" (Sturgill, 2025). When that happens, the AI creates a fluent, plausible sounding response that is factually incorrect. Therefore, teachers must explicitly teach that AI isn't a historian but a language simulation, which means every claim it makes must be treated like a hypothesis that requires external verification from a trusted source. Any "conversation" students have with AI should be thought of as a springboard inquiry, not truth. As a large language model (LLM), generative AI has inherent bias from the massive databases on which the LLM is trained. This can cause

the AI to reinforce dominant historical narratives. For example, when simulating a historical figure, unknowingly simplify complex individuals into stereotypes, overemphasize trauma, or minimize the contributions of marginalized groups like portraying a female activist as only a mother or an indigenous figure only in relation to conflict. Teachers should guide students to question how the historical figure is being represented and what human complexity might be missing (Paipeti, 2025).

There is also the question of empathy and respect concerning generative AI. Teachers must be explicit in framing any conversational activity with the chatbot as a linguistic role-play and simulation on a historical perspective, not a communication with a deceased historical figure. This is critical for safe-guarding the student's psychological understanding and maintaining respect for the historical memory, particularly for those associated with profound suffering or complex trauma (e.g. victims of 9/11). The teacher should also talk with students about which figures are appropriate for AI role-play and which figures should only be studied through primary sources (Holmes & Miao**,** 2023). In order to maintain focus and dignity, the teacher should implement explicit rules for student prompts. Prohibiting questions/prompts about events, people, or technologies that occurred after the historical figure's death will help keep the inquiry rooted in the figure's authentic time period. Discourage questions regarding the historical figure's fictionalized "what if" scenarios or speculative inquiries that are not supported by primary sources. This ensures that the student remains focused on the figure's documented impact on the world rather than speculation.

Conclusion

Generative AI does not replace the history textbook; instead it can turn the textbook into a launchpad for deeper inquiry. By moving from passive consumption reading monotone texts to "active dialogue" with historical figures, students are forced to confront the complexities, contradictions, and humanity of the figures who shaped our world. However, the "magic" of a conversation with Abraham Lincoln or Rosa Parks is only as effective as the teacher's pedagogical framework surrounding it. Without explicit guardrails against misdating and a rigorous commitment to fact-checking, these simulations risk becoming mere historical fiction themselves. When teachers act as the architects of these generative AI interactions by enforcing ethical boundaries and prioritizing primary source verification they do more than teach history; they equip students with the media literacy and critical empathy necessary to navigate an increasingly complex information landscape. The past is no longer a silent record; it is a conversation, and for the first time, our students have the tools to talk back.

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Appendix A: Materials for The Interview Project

During the interview of their historical figure, students should take notes about the AI response to their questions. The following graphic organizer may help students organize their observations.

Graphic Organizer: *Interviewer Notes*

Question Asked	Summary of AI Response	Follow-up Question(s)	Notes on Tone/Perspective

Here is a list of guided prompts that may be used to help students during the final analysis stage while they are writing their reflection:

- How did the AI's tone compare to the tone of the primary sources?
- What did the primary sources emphasize that the AI may have softened or ignored?
- What did the AI emphasize that the primary source did not?
- Did the AI introduce any anachronisms or modern ideas?
- How did the interview change your understanding of your historical figure?

The following comparison chart could be used as a scaffold for all students before writing their reflection or as a differentiated assignment for multilingual students (ML).

Feature	AI Persona	Primary Source	My Notes
Tone			
Bias/Perspective			
Key Events			
Values/Beliefs			
Missing Context			
Other			

Appendix B: Materials for The Fact-Check Challenge

These materials are from a sixth grade unit focused on Ancient Egypt. The following are pre-vetted questions that students could choose from:

1. Why were pyramids built and who built them?
2. How did Egyptian pharaohs maintain power?
3. What was the real purpose of mummification?
4. How did the Nile River shape daily life in Ancient Egypt?
5. What did Ancient Egyptian farmers do during flood season?
6. What rights did women have in Ancient Egypt compared to other ancient societies?
7. How did Egyptian religion influence government decisions?
8. What was the role of scribes, and why were they so important?
9. How did trade connect Egypt to other ancient civilizations?
10. What caused the decline of Ancient Egypt?

This is an example of a student-completed graphic organizer used during the verification step:

AI Claim	Verification Source	Confirmed? Yes/No	Evidence	Notes
"Pyramids were built as tombs for pharaohs."	Britannica School article on Pyramids	Yes	Britannica says pyramids were "monumental tombs" designed to protect the pharaoh's body and possessions for the afterlife.	AI got this part right.
"Thousands of slaves built the pyramids."	Gale In Context: Ancient Egypt	No	Gale states that most workers were **paid laborers**, not enslaved people. Archaeologists found workers' villages showing they had housing, food, and medical care.	This is a common myth. AI repeated it.
"Workers were forced to work day and night."	Textbook chapter on Egyptian society	No	Textbook explains workers were organized into rotating crews and worked in shifts, not nonstop.	AI exaggerated the working conditions.
"Pyramids helped pharaohs rise into the heavens."	Britannica School: Egyptian Religion	Partially	Egyptians believed the pyramid shape symbolized the sun's rays and helped the pharaoh ascend to the afterlife.	AI is close, but oversimplified the religious symbolism.

Appendix C: Materials for The Historical Debate

Example open-ended questions that students might use or model their own questions after for this project.

Interest Questions	Debate Questions
● What was your childhood like? ● How did your childhood (or education) shape your political beliefs? ● What was your greatest achievement? ● What is something you regret? ● Who do you look up to and why? ● Why do you distrust a strong central government? or Why is a strong central government important?	● What do you fear will happen if your ideas are ignored? ● Do you think that dissent can ever be patriotic? ● What makes a nation strong? or What makes a nation stable? ● What are the most important traits of a strong leader? Why? ● What makes authority legitimate? ● Do you believe women should have full political equality (the right to vote or hold office)? Why or why not?

Graphic Organizer: *Moderator Notes*

Key arguments	
Tone and personality	
Evidence or reasoning used	
Surprising claims	
Additional Notes	

Examples of Differentiated Assessments

A Structured Synthesis

Although both historical figures cared about _____, they disagreed about _____. _____ (name of Figure A) believed _____ because _____. However, _____ (name of Figure B) argued _____ because _____.

Abbreviated Writing Prompt

Explain one of the major disagreements between your two historical figures and why each held their position.

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COLUMN: ADMIN CORNER

Cleveland County Schools: Cultivating Systems of Excellence in the Middle Grades

Authors: Melissa Lawter, Chris Bennett

Cleveland County Schools, located in the foothills of North Carolina, has made rapid and measurable strides in middle-level education—transforming all four middle schools from low-performing status to models of growth through focused leadership, collaboration, and innovation. Serving more than 3,000 students across four middle schools, the district's approach is grounded in clarity, collaboration, and consistency. Each initiative, from instructional frameworks to professional learning systems, reflects a shared belief that every student deserves a guaranteed, viable curriculum and equitable access to high-quality instruction.

A Framework for Continuous Improvement

The district's middle schools operate within a cohesive improvement framework aligned with the North Carolina State Board of Education's goals. School Improvement Plans are intentionally designed to reflect state priorities while addressing local needs in academics, attendance, and behavior.

At the heart of this work is the High Reliability Schools (HRS) framework, which offers a research-based pathway for sustained growth. Cleveland County's middle schools have (and continue to) work through Levels 1 (Safe, Supportive, and Collaborative Culture) and 2 (Effective Teaching in Every Classroom) and are now focused on Level 3, ensuring a guaranteed and viable curriculum. The emphasis on evidence-based systems, collective commitments, and measurable results ensures that each school's progress is both intentional and sustainable.

Consistency and Collaboration in Instruction

A defining feature of the district's success is its unified Instructional Framework, which outlines expectations for lesson design, delivery, and student engagement. Teachers work in collaborative teams, Professional Learning Teams (PLTs), to unpack standards, design lessons, and respond to assessment data. The school is considered the Professional Learning Community (PLC). This consistent structure allows educators to focus on learning rather than teaching, ensuring that instructional practices directly impact student outcomes.

Every middle school follows a common bell schedule, providing equitable instructional time and embedded opportunities for teacher collaboration. These shared planning periods extend beyond individual schools; district-wide virtual sessions and semester-based best-practice showcases allow teachers across all campuses to learn from one another.

Instructional Innovation and Targeted Support

Cleveland County's instructional priorities are grounded in balanced assessment and

student-centered practices. Teachers use diagnostic, formative, and common formative assessments to monitor progress and adjust core instruction in real time.

The district has also adopted a comprehensive core curriculum—Ready Math, Savvas English Language Arts, and Ready Reading—ensuring a consistent scope and sequence across all schools. This adoption provides students with a guaranteed and viable curriculum, while teachers benefit from aligned pacing and shared professional learning.

A hallmark of the district's instructional innovation is its implementation of the Strategic Instruction Model (SIM) from the University of Kansas Center for Research on Learning. SIM strategies—such as LINCS Vocabulary Routines, Word Mapping—are embedded across all core classes, supporting literacy development in every subject. Fundamentals of Sentence Writing is taught in English Language Arts classes to strengthen students' writing skills and enhance their reading comprehension. Ongoing literacy coaching and co-teaching models strengthen instructional delivery, ensuring that every student can access and master rigorous content.

Building Leadership and Capacity

Cleveland County's middle schools thrive because of their deliberate focus on capacity building. Instructional coaches, trained in Dr. Jim Knight's Impact Cycle, provide job-embedded coaching and feedback to teachers. Literacy and math facilitators lead PLTs weekly, helping teams refine lessons, analyze data, and improve instructional practices.

Structured instructional rounds, based on the work of Vicki Wilson, within and across schools, foster collective efficacy among leaders and teachers. These rounds, coupled with a district-built classroom walkthrough instrument and dashboard, allow administrators to analyze trends, identify needs, and celebrate strengths across grade levels, content areas, and the whole school.

District-level teams, including the Adolescent Literacy Leadership Team and the Co-Teaching Team, guide professional learning, ensuring that improvements are systemic rather than isolated. The Adolescent Literacy Leadership Team members represent classroom teachers, administrators, instructional coaches, English Learner support, and Exceptional Children's teachers and facilitators. They discuss and address the resources needed to support classroom instruction and students' literacy skill acquisition, and provide feedback on current district literacy initiatives. The Co-Teaching team is represented by Exceptional Children's teachers, Exceptional Children's Program Facilitators, and Regular Education teachers who provide co-teaching. This team discusses the different models of co-teaching, how to implement these models, and addresses any barriers to providing the models in the classroom. Through these teams, Cleveland County Schools cultivates leadership at every level, creating a culture of shared accountability and collective growth.

Supporting the Whole Child

Cleveland County recognizes that success in the middle grades extends beyond academics. The district's approach integrates systems for attendance, behavior, and social-emotional learning (SEL) to ensure that every student feels connected and supported. Schools implement proactive strategies that strengthen relationships and reinforce positive behavior, aligning with the district's belief that relationships are the

foundation for achievement. By administering behavior and social-emotional benchmark assessments, schools can proactively screen students and determine the need for additional support to promote their success in school.

Sustaining Success Through Professional Learning

Professional learning in Cleveland County Schools is purposeful, ongoing, and aligned to district priorities. Training and coaching are embedded throughout the school year to meet evolving needs. Teacher leaders are intentionally developed to sustain district initiatives, reducing dependency on external support and ensuring long-term impact.

Looking ahead, the district remains focused on refining MTSS alignment within the HRS framework, strengthening collaborative team processes, and embedding literacy strategies across all content areas. By maintaining these priorities, Cleveland County Schools ensures that its middle-level programs remain responsive, rigorous, and reflective of best practice.

Cultivating A Culture of Excellence

The story of Cleveland County Schools' middle grades is one of intentional design and collective dedication. From classroom instruction to leadership development, the district's systems reflect a deep commitment to ensuring that every student learns at high levels. By aligning vision with practice, Cleveland County Schools continues to model what it means to cultivate a culture of excellence, one rooted in collaboration, consistency, and care.

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COLUMN: BETWEEN TEACHERS

Rooted in the Marigold Effect: Lessons in Growth, Community, and Purpose

Author: Madison Liddle

Back in 2023, I had the privilege of being interviewed for the *10/10 Teacher Spotlight* in the NCMLE Journal. At the time, I was still finding my footing, learning how to balance passion with perseverance, and figuring out what kind of educator I wanted to become. I shared what helped me survive those early years, the lessons I was learning in real time, and the incredible educators who stood beside me when I needed guidance most.

Now, just three years later, I realize that while my roles and responsibilities have grown, my core values have remained the same, only deeper and more intentional. At the center of everything I do is the Marigold Effect. It's the reminder I come back to often: *who you surround yourself with matters*. The people in your circle influence how you see yourself, how you show up for students, and how you continue to grow.

This idea has become my root. When days feel heavy or decisions feel hard, I think about the educators who protect, encourage, and challenge growth, just like marigolds do in a garden. They've shown me that thriving in this work isn't about doing it alone, but about being intentional with the community you build and the values you hold close.

The reflections that follow are five values shaped by that belief. They are lessons I've learned through experience, growth, and grace, values I carry with me daily and ones I hope every educator can plant in their own garden as they continue their journey.

Plant Yourself Near the Marigolds

Success lesson: Who you surround yourself with matters.

I have learned that thriving as an educator isn't just about teaching ability; it's about proximity. Proximity to people who are hopeful, student-centered, and solution-oriented. These are the people who keep me grounded when the work feels heavy and growing when the work feels uncertain.

Marigolds do not just survive, they protect and strengthen what is planted around them. In the same way, I've learned to be intentional about the people I surround myself with. I seek out colleagues who uplift, challenge my thinking, and remind me, especially on the hard days, why this work matters most.

Pull the Weeds Early

Success Lesson: Address negativity and barriers before they take root.

The Marigold Effect has taught me that poisonous walnuts- negativity, burnout, and resistance to change- can quietly remove the joy and purpose from this work. I value identifying barriers and areas to problem-solve early, refusing to let unproductive mindsets take over my classroom space, my leadership, or my joy, and setting clear boundaries around what I allow to influence my energy.

I have learned how important it is to protect my work, to intentionally block out what drains me so I can stay present, hopeful, and focused on what truly matters.

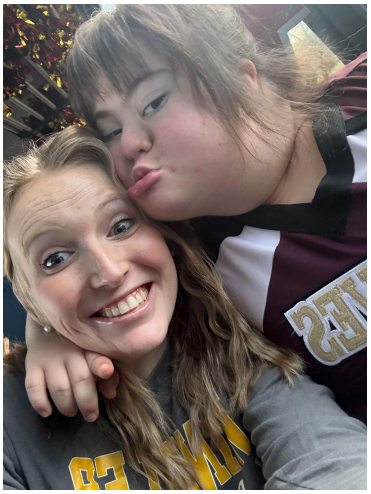
Tend the Soil before Addressing Growth

Success lesson: Relationships come before results.

I have learned to prioritize relationships first; relationships with students, colleagues, and families. No flower grows in poor soil. In the same way, students, educators, and families need trust, safety, and connection before any meaningful change can truly happen.

I was reminded of this when I advocated for a student in a separate setting classroom to be a part of my cheerleading team, something that had previously gone against the norm. This opportunity mattered deeply to her and her family, and I only understood the weight of that because of the relationship I had built with them. Because there was trust, there was honesty. Because there was connection, there was courage to advocate.

Taking time to understand stories, strengths, and needs is not extra work; it *is* the work. When the soil is nurtured with care and intention, growth follows naturally, and sometimes that growth looks like opening doors that were once closed.



Bloom Where You're Planted

Success lesson: Stay grounded while continuing to grow.

I have learned to honor my current role, my students, and my responsibilities while continuing to learn, reflect, and push forward. I've come to understand that I can be present and effective right where I am while still striving to be better.

I try to take advantage of every opportunity to grow; professional development, observing others, serving on committees, coaching, etc. I've learned to say *yes* to experiences that stretch me, knowing that we owe it to ourselves and our students to invest fully in the work we are doing. Growth, after all, doesn't happen in isolation.

I also take seriously the responsibility to support those around me, within my department and throughout my school. Every educator grows when they feel supported, and I want to be someone who contributes to that sense of encouragement and possibility. I hope to have an impact on others that they remember, value, and carry with them as they continue to grow.

Leave the Garden Better Than You Found It

Success lesson: The work is bigger than one classroom or one year.

Ultimately, the Marigold Effect has taught me that success in education is measured by impact, not recognition. Every decision I make should contribute to a more inclusive environment- one that supports students and colleagues while fostering a love for learning and growth.

Advocating for my classroom, my students, and my school is at the heart of my role, and it is what makes this work bigger than what I do each day. I strive to protect, encourage, and advocate in all that I do. If I can say I am doing that, then I know I am doing this work the right way.

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serves as a cheerleading coach, mentor teacher, leadership team member, and leads the schools culture committee. She values strong relationships and inclusivity and works to create a supportive environment where all students can thrive daily.

COLUMN: COMMUNITY CONNECTIONS

Access Without Lowering Expectations: A Structured Reading Routine for Secondary Classrooms

Author: Kim Lynch

Safety training manuals are often written above an eighth-grade reading level, and insurance policies and legal documents in most states must be written no higher than a ninth-grade reading level. Outside of school, text complexity is nonnegotiable.

However, in many middle-grade classrooms, teachers regularly encounter students reading below grade level and respond by lowering text complexity to support comprehension and maintain pacing. The intention is access. The unintended consequence is reduced opportunity.

Standardized assessments will not reduce complexity for struggling readers. Nor will workplace documents, technical manuals, or civic texts. Students must learn to make meaning from the texts they are given—not simplified versions of them.

Middle grades educators sit at a pivotal moment in students' literacy development. Rather than lowering text demands, teachers can implement structured, research-aligned reading routines that support students in accessing grade-level texts with increasing independence. High-quality instructional routines are "consistent, research-based, and repeatable classroom procedures designed to improve student engagement, academic, and behavioral outcomes" (Colorado Department of Education, n.d.).

When embedded intentionally, reading routines lower barriers without lowering expectations. They build engagement, provide equitable access to complex texts, and prepare students for the literacy demands of high school, college, careers, and civic life.

The Science of Reading Movement

While the scientific study of reading dates back more than a century (Huey, 1908), the term *'Science of Reading'* gained prominence during the reading wars of the 1990s, as researchers challenged whole-language instruction with evidence from cognitive science and literacy research (Stanovich, 2000; The Reading League, 2022). The Reading League defines the Science of Reading as "a vast, interdisciplinary body of scientifically based research about reading and issues related to reading and writing" (The Reading League, 2022).

The modern movement toward evidence-based reading instruction gained significant momentum beginning in 2020, prompting many states to pass legislation mandating research-aligned literacy practices (Schwartz, 2022; The Reading League, 2022).

Emerging data suggest that the implementation of these practices is positively impacting upper-grade reading outcomes. In states such as Mississippi, Tennessee, and Louisiana, eighth-grade reading rankings have improved even as national reading scores have declined (NCES, 2022; Schwartz, 2023; Vaites, 2025). For example, Louisiana's eighth-grade reading ranking increased by

ten places nationally during this period (Vaites, 2025).

As states adopt legislation supporting evidence-based reading instruction, middle grades teachers are working to implement these practices in classrooms that include students reading below grade level. This reality presents ongoing instructional challenges.

Middle-grade educators play a critical role in preparing students for success in high school. Early adolescence does not end at eighth grade; ninth grade—and often much of tenth—remains part of this developmental continuum. The literacy demands students encounter in high school require sustained analytical thinking, development of academic vocabulary, and the ability to navigate complex texts independently. The work of building those capacities begins in middle school.

In North Carolina, this work is especially urgent. Newly revised English Language Arts standards, approved by the North Carolina State Board of Education and set to be implemented in the 2027–2028 school year, emphasize knowledge building, academic vocabulary development, and analysis of complex texts. These updated standards require students to engage meaningfully with grade-level materials. In this context, lowering text complexity to address reading gaps may inadvertently widen them.

In my work as a secondary literacy leader and curriculum designer, I have partnered with middle and high school teachers to align instructional practice with the Science of Reading while maintaining rigorous grade-level expectations. Through this collaboration, I developed *The Reading Routine* as a repeatable instructional structure that supports comprehension, vocabulary development, and analytical thinking—without lowering text complexity. Designed for secondary classrooms, this framework offers middle-grade educators a practical way to strengthen access while preserving rigor at a pivotal stage of students' literacy development.

As North Carolina prepares to implement newly revised English Language Arts standards, middle grades teachers are being called to strengthen alignment between instructional practice and grade-level expectations. The updated standards emphasize knowledge building, academic vocabulary development, and analysis of complex texts—demands that require students to engage meaningfully with grade-level materials. In this context, lowering text complexity to address reading gaps may inadvertently widen them.

The Reading Routine

Rather than reducing expectations, middle grades educators can respond with structured, research-aligned routines that support access while preserving rigor. Instructional routines structure interactions among teachers, students, and content in ways that maintain high expectations for learning while remaining responsive to classroom interactions (Colorado Department of Education, n.d.).

The Reading Routine described in this article is a practitioner-developed instructional framework, informed by evidence-based literacy research and refined through classroom implementation in Gaston County Schools. When implemented consistently, the routine establishes predictable structures for how students approach new texts, building habits of comprehension, vocabulary development, and analysis.

The routine includes three components used each time a new text is introduced. Students complete each component to apply reading skills—such as

identifying a central idea and analyzing its development—through engagement with grade-level texts aligned to CCSS.ELA-Literacy RI 8.2: "Determine a central idea of a text and analyze its development over the course of the text, including its relationship to supporting ideas; provide an objective summary of the text."

Step One: The First Read

English language arts teachers routinely employ a wide range of reading strategies, including literature circles, book clubs, anticipation guides, Know, Want to Know, and Learned charts, think-alouds, and stop-and-jot activities. One essential, and sometimes overlooked, component of reading instruction is ensuring that students have sufficient opportunities to read and comprehend the text itself before engaging in analysis. Too often, students are expected to read independently, apply strategies, and demonstrate mastery of grade-level standards without first developing a clear understanding of what the text is about.

In *The Reading Routine*, the first instructional priority is comprehension—providing students with a structured first read to ensure they understand the text at a basic level. The first-read strategy is used by fluent readers who report re-reading a complex text to strengthen their comprehension. The purpose of the first read is not analysis but comprehension—ensuring students can identify what the text is about before being asked to think critically about how it works. Analysis cannot be successful if students are unable to summarize the text or identify the who, what, when, and where. This raises an important instructional question: if students are not yet reading on grade level, how can teachers structure instruction so that students can access complex texts without lowering expectations?

For students who struggle with fluency, an initial read-aloud with teacher think-alouds provides critical access to the text while modeling proficient reading behaviors. This read-aloud is intentionally planned, with stopping points aligned to subsequent steps in the routine. Students follow along with the text and actively annotate, ensuring listening remains an engaged, purposeful task rather than a passive activity. I developed the initial steps in *The Reading Routine* to incorporate research-based components that align with the science of reading: Fluency, vocabulary and oral language, and text comprehension. I then used that base to develop reading practices that help students build comprehension immediately. This is especially important since instructional time was one of the factors teachers often reported as a problem with using grade-level texts to support standards-aligned instruction.

During the first read:

1. Students are provided with a copy of the text to mark up.
2. Students are provided with concept vocabulary before the first read. The teacher has pre-selected 10-15 words and phrases (or a number appropriate for the length of the text) for students to identify in the text during the first read. These should be grade-level words that students will go back to apply word analysis strategies or words you know they need support with, to assist their comprehension of the text. During the first read, the students will simply circle these words and go back to them after the text has been read.

3. Students annotate the text, which must include marking and labeling the who (key people), what (key events or ideas), where, and when details from the text. You may also teach students additional annotation symbols to use during the first read, but marking and labeling are the most important, and you do not want to overwhelm them with too many tasks while they are trying to make meaning. When you first introduce this routine, model the annotations so students can see what you are doing to the text and hear what you are thinking as you annotate.
4. Students also need to circle and add a question mark next to any additional words they do not know and want to ask about, after the first read. Sometimes they do not know words until they hear them pronounced, so students need to know what words you want them to mark for this step.
5. After the first read, students need to engage in discourse with other students about the text. What is the text about? What did they annotate? What additional words did they mark?
6. After the first read, students also need to work to determine the meaning of the unknown words they marked; these are additional words from the ones you assigned in step 2. Students need to work together first when discussing the text to support one another in defining these words. Students may need support with words they marked on their own if their group or partner cannot help. This support should be provided during the first read.
7. After participating in the discussion, students need to write a summary of the text. This can be done using any summarizing strategy you like to use with students (i.e. GIST, Somebody, Wanted, But, So, Then, $2 summary, etc.). The summary provides you a formative assessment opportunity to see who got it and who still needs additional support or scaffolds to access this text before moving on to applying reading skills and analyzing the text.

Once students have established a clear understanding of the text, instruction can shift toward deeper vocabulary analysis and application.

Step Two: Determining the Meaning of Unknown Words

The next component in my suggested Reading Routine supports students' comprehension by helping them determine the meaning of unknown words. Research on vocabulary instruction demonstrates that explicit teaching of word meanings and word-learning strategies significantly improves students' ability to comprehend complex texts (Beck et al., 2013). During step one, the first read, students are given a list of concept vocabulary words to locate in the text. These words are central to understanding the information presented. In this component, students apply previously taught strategies—such as using context clues, analyzing word parts, and examining word relationships—to determine meaning within the text.

In this part of the routine, students begin by locating the word or phrase in the text (a step that starts during the first read). They underline the full sentence in which the word appears so they can clearly see how it is being used. From there, students use strategies they have already learned to write a definition in their own words that matches the way the word is used in the passage. This helps students make sense of multiple-meaning words and avoids reliance on dictionary definitions that may not fit the context. Finally, students explain the textual evidence that helped them determine the

word's meaning. Taking time for students to share their reasoning allows teachers to identify misconceptions and provide targeted support when needed. The teacher should evaluate whether the students have provided the correct definitions and provide support in understanding them before students move on to analyzing the text.

Following the first two components of the routine, teachers can use formative assessment to better understand students' levels of comprehension and vocabulary development. These assessments may include questions that invite students to explain their thinking, demonstrate their understanding of the text, and apply key concept vocabulary in context. Rather than focusing on memorization of isolated facts or definitions, assessment within *The Reading Routine* emphasizes students' ability to analyze, interpret, and make meaning from what they have read. This approach helps teachers identify areas of strength, clarify misconceptions, and provide additional support as needed while maintaining grade-level expectations.

Step Three: The Close Read

The final component of *The Reading Routine* involves students applying the explicit reading skills taught to analyze the text based on the standard they are being asked to master. In many classrooms, instruction is designed to have students practice the skills embedded in a standard.

However, teachers are not ignoring the standards; rather, instructional tasks sometimes reduce them to their component parts. Students may complete a plot diagram or an indirect characterization chart to successfully identify characters, settings, or key events. Yet these tasks focus on describing elements in isolation rather than analyzing how those elements interact—an expectation embedded in standards such as the Common Core Standard for Reading Literature "CCS.ELA-Literacy RL. 7.3: Analyze how particular elements of a story or drama interact (e.g., how setting shapes the characters or plot)." When students are not guided to examine how setting shapes character, how events influence motivation, or how ideas build upon one another, they complete the activity but fall short of the analytical thinking the standard requires. This gap between skill practice and standard-level analysis is what the Close Read component of *The Reading Routine* addresses.

The Close Read component also allows teachers to use the same text for different purposes. Because students have already spent time comprehending the text, they are ready to move into analysis. Using a new text each time students practice analysis can interfere with the interpretation and repeated practice they need to master a standard; students often spend the available time simply trying to understand the new passage.

To reduce barriers—especially for students reading below grade level—teachers should provide the specific excerpt students will analyze. While locating evidence is an important skill, the purpose of this close read is to assess students' ability to apply the standard's analytical demand (for example, analyzing how elements interact), not their ability to search for an appropriate section of the text.

Before students complete close read analysis tasks, three instructional steps are essential:

- **Explicitly teach and model the standard through a structured mini-lesson, then apply it to the grade-level text.** Students first examine the language of the standard and identify the key academic vocabulary and analytical verbs it contains. Together, the class translates the standard into student-friendly language, so students clearly understand what they are being asked to do. The teacher then models the cognitive process required by the standard using short, low-stakes examples that isolate the skill (for example, analyzing how elements interact or determining word meaning using specific strategies). Students practice the skill in controlled examples, identify the strategy they used, and articulate their reasoning before transferring that work to the grade-level text. Anchor charts capture the steps of the thinking process so students can reference them during independent practice.
- **Select excerpts intentionally** so each section of text aligns to a specific analytical purpose (as standardized assessments often do when they reference a paragraph number).
- **Design tightly aligned tasks** that may include a scaffolded first step (e.g., identifying elements) before students answer an analysis question such as, "How does the setting shape the plot?"

Using one text for multiple analytical purposes increases student engagement and access. Students who struggle with comprehension are more likely to participate in discourse when they are familiar with the text and can discuss key people, events, and ideas with peers—rather than disengaging when they encounter a new passage independently.

During the Close Read, students engage in structured analytical work aligned to the verb and demand of the standard. Rather than simply answering comprehension questions, students are required to make the interaction between elements visible.

Students use their annotated text from the first read and their vocabulary notes to support deeper analysis. Depending on the standard, students may:

- Trace how a character transforms across sections of a text, citing specific dialogue, actions, and structural shifts.
- Identify an author's central claim and evaluate whether the supporting evidence is relevant, sufficient, and convincing.
- Analyze how specific sections of a text contribute to the development of the author's overall argument or purpose.
- Examine how the structure of a drama or informational text shapes meaning and supports the central idea.

Students typically begin by organizing their thinking in a graphic organizer or structured chart that isolates the analytical elements named in the standard. They then use textual evidence to explain how those elements interact. Discussion precedes writing, allowing students to articulate reasoning with peers before constructing written responses aligned to the standard's language. This progression—from identifying elements, to examining interaction, to explaining impact—ensures that students are not merely completing tasks, but are meeting the cognitive demand of the standard.

Using one text for multiple analytical purposes strengthens students' mastery of standards while also increasing engagement and confidence. When students revisit a familiar text with a clearly defined analytical

purpose, they can participate more fully in discourse and explain their thinking using evidence from the text. Students who may struggle with comprehension are not overwhelmed by starting over with a new passage; instead, they can focus their cognitive energy on the analytical demands of the standard. Over time, this repeated cycle of comprehension, vocabulary development, and purposeful close reading builds both skill and independence. Students learn that meeting a standard requires more than completing a task—it requires explaining how ideas, elements, and structures interact to develop meaning.

As districts both across North Carolina and the country work to align instruction with the Science of Reading and state mandates for evidence-based literacy practices, secondary educators face the challenge of maintaining grade-level rigor while supporting students who read below grade level. Lowering text complexity may temporarily ease frustration, but it does not prepare students for the demands of standardized assessments or the complex texts they will encounter beyond the classroom. Teachers need structured, repeatable routines that provide access without reducing expectations.

Through this work, I developed *The Reading Routine* as a repeatable instructional structure that supports comprehension, vocabulary development, and analytical thinking without lowering text complexity. Grounded in evidence-based practices and refined through classroom implementation, the routine offers teachers a practical framework for planning instruction that aligns with standards, strengthens student discourse, and builds independence over time. When implemented consistently, *the Reading Routine* creates a classroom environment in which students are expected to think deeply, explain their reasoning with evidence, and engage in rigorous analysis of grade-level texts. Rather than practicing isolated skills, students learn to meet the full cognitive demand of the standard. In doing so, teachers can honor both the intent of the Science of Reading and the reality of secondary classrooms—ensuring that all students have access to meaningful, standards-aligned literacy instruction.

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Kim Lynch, MA, NBCT, is the founder of LP Educational Consulting and a secondary literacy leader with experience supporting middle and high school teachers in implementing evidence-based reading practices. She has partnered with districts to align instruction with the Science of Reading and state literacy mandates while maintaining rigorous grade-level expectations. Her work focuses on developing structured instructional routines that strengthen comprehension, vocabulary development, and analytical thinking in secondary classrooms.

COLUMN: RESEARCH TO PRACTICE

Strand by Strand: Making the Science of Reading Work in Middle Grades Classrooms

Author: Kendra Cameron-Jarvis

Middle school classrooms are filled with students who can read the words on the page but cannot yet read the world in front of them. Too many adolescents move toward high school and adult life without the literacy skills needed to navigate workplace policies, medical forms, contracts, or complex digital content. Their futures narrow not because they lack potential, but because they lack access.

The Science of Middle Level Literacy

Across North Carolina, middle grades teachers share a common concern: their students are trying, but many are not yet equipped to meet the increasing demands of complex texts. To understand why, we must look to the Simple View of Reading. This research-validated model defines reading comprehension as the product of word recognition and language comprehension (Gough & Tunmer, 1986).

As the Senior Literacy Specialist at the North Carolina Center for the Advancement of Teaching (NCCAT), I design the Science of Reading for Secondary Classrooms Badging Program. Through this work, it has become clear that middle grades reading challenges are rarely about effort. Instead, they are often strand issues—gaps in vocabulary, sentence structure, and background knowledge that persist long after the elementary years. In the middle grades, language comprehension becomes the primary driver of reading success. When we shift our perspective, we see that the Science of Reading is not an elementary intervention or a remediation plan, but a developmentally responsive framework for adolescent learners.

Making the Disconnect Visible: Scarborough's Reading Rope

Scarborough's Reading Rope provides a useful framework for this work (Scarborough, 2001), illustrating how foundational strands must become increasingly automatic and strategic to result in skilled reading. While often associated with early childhood, the Rope remains just as critical in grades six through eight for helping educators identify where instruction can make the greatest difference.

Montgomery County Schools instructional facilitator Kim Simpson describes this shift: "Many secondary students can read words accurately but struggle to construct meaning. Applying the Reading Rope at the secondary level makes this disconnect visible and provides teachers with a shared framework for addressing it intentionally" (K. Simpson, personal communication).

What Middle Grades Students Need Most

As students move into middle school, texts become increasingly complex. Sentences grow longer, and vocabulary becomes more technical. This is why morphology plays a

critical role. Morphological instruction offers an efficient way for older students to break complex words into their parts and build vocabulary through meaning rather than memorization. By providing students with these structural tools, educators can reduce cognitive load, allowing students to shift their mental energy from word-level struggle to deep conceptual understanding. Morphology serves as a bridge between vocabulary instruction and background knowledge, supporting students' language comprehension as they engage with complex texts.

Dr. Joanna Perkins, director of K–12 curriculum support in Montgomery County Schools, notes that while explicit vocabulary and morphology instruction has long been important, knowledge-building curricula have made this work more systematic by exposing students to a wider range of topics and intentionally strengthening background knowledge (J. Perkins, personal communication).

Five Micro-Routines That Strengthen the Rope

Teachers are not expected to address every strand at once. The most important step is recognizing that older readers need support across multiple parts of the Rope. These brief routines fit naturally into lesson openings, transitions, or closures.

- **Student-friendly definitions** ask students to explain academic vocabulary using accessible language.
- **Word study routines** teach students to break words into prefixes, roots, and suffixes.
- **Echo or choral reading** builds fluency and reduces cognitive load, particularly in dense informational text.
- **Sentence combining and de-combining** help students understand how ideas work together within complex sentences.
- **GIST statements** require students to summarize a paragraph in ten to twenty words, focusing on essential meaning.

In classrooms where these routines are used consistently, teachers are already seeing shifts in student confidence and engagement. Sarah Mundhenk-Tager of Valley Springs Middle School has seen the impact of these practices firsthand: “Students have become more confident and engaged with vocabulary, often using new words in conversation and writing” (S. Mundhenk-Tager, personal communication).

Literacy as a Tool for Every Discipline

A common misconception in middle school is that literacy belongs solely to the English department. As students move through their day, however, they must navigate the distinct language and text structures of each discipline. In the middle grades, the Science of Reading shows up as disciplinary literacy.

A science teacher is not teaching reading in the traditional sense, but teaching students how to read like a scientist by analyzing lab reports, deconstructing technical Greek and Latin roots, and navigating dense informational text. When teachers across content areas use shared micro-routines, they create predictable and supportive learning environments. This consistency reduces cognitive load, allowing students to focus less on decoding text and more on mastering content.

District Partnership Snapshot: Buncombe and Lincoln County Schools

Buncombe and Lincoln County Schools have partnered with the North Carolina Center for the Advancement of Teaching to bring the Science of Reading for Secondary Classrooms Professional Learning Series to their educators.

In Buncombe County, this work was prompted by Phil Justen, English Language Arts and Social Studies curriculum specialist. District data challenged the long-held assumption that students arrive in middle school already knowing how to read, revealing instead that many still struggle with foundational skills needed to access grade-level texts. Under his leadership, middle school teacher leaders were intentionally selected to participate in the NCCAT series and serve as literacy leaders within their schools. The goal is to sustain this momentum by having two to three Science of Reading-trained teachers in every middle school.

Lincoln County Schools entered the partnership after Heather Myers, director of readiness and academic support, identified a need for greater coherence across grade levels. Recognizing the success of the Science of Reading in elementary classrooms, Myers sought to provide secondary English Language Arts teachers with similar explicit instruction in foundational literacy skills. Under her guidance, teacher leaders are redesigning middle school morphology and vocabulary instruction to align with North Carolina's revised English Language Arts standards.

Secondary Literacy as a Matter of Equity

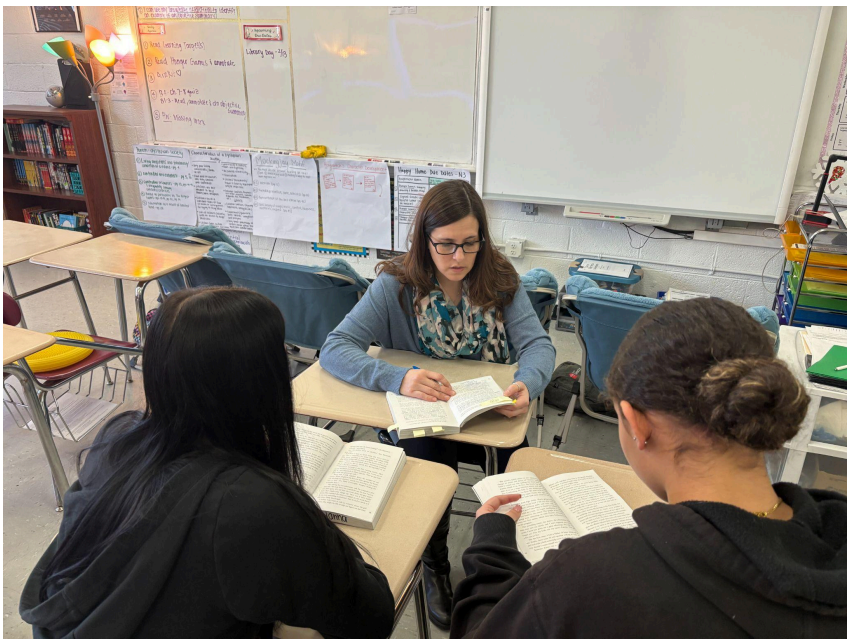
Middle grades literacy instruction matters because this is the point at which access often begins to narrow. Literacy inequity is magnified as students move from the protected structures of elementary classrooms to middle grades settings that demand greater independence and rely more heavily on whole-group instruction. Too often, students are expected to read complex texts independently before they have the tools to do so, a gap that reflects a lack of teacher training in evidence-based reading frameworks rather than a lack of student effort. When educators are not prepared to use models such as Scarborough's Reading Rope diagnostically, reading challenges are more likely to be framed as student deficits rather than as instructional needs. A diagnostic lens shifts the question from "What is wrong with the student?" to identifying which strands need strengthening to move students toward independence with complex texts and deeper comprehension. Interrupting this pattern requires districts to invest in sustained, evidence-based secondary literacy professional learning for all teachers. When districts make this commitment, they honor literacy as a right by ensuring instruction is consistent, diagnostic, and accessible for all students.

A Hopeful Path Forward

Text must remain at the center of instruction. Vocabulary, grammar, and fluency instruction should grow directly from the texts students are reading rather than isolated lists. As Sarah Mundhenk-Tager emphasizes, these routines are accessible to teachers across subjects because they integrate seamlessly into the existing curriculum (S. Mundhenk-Tager, personal communication).

For educators doing this work daily, the impact on their practice is as significant as the growth they see in their students. Reflecting on this shift, Tiffany Wooten, an educator at North Buncombe Middle School, shared, "It is very worth the time, and it has made me a better teacher" (T. Wooten, personal communication).

When these practices become standard classroom habits, instruction moves beyond teaching a single text to strengthening the strands of literacy. In doing so, we give students the confidence and skills they need to navigate complex texts and the world beyond the classroom.



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Resource Set: Step-by-Step Micro-Routines for Middle Grades

Student-Friendly Definitions
Define: Create a short explanation using a phrase such as "something that…" or "someone who…."
Connect: Add a simple example connected to the text or to students' lives.
Use: Have students write a sentence that shows understanding.
Example: "Someone who is reluctant does not really want to do something and is dragging their feet a little."

Word Surgery
Underline the prefix.
Circle the root.
Box the suffix.
Explain the meaning of each part.
Combine the meanings to determine the meaning of the whole word.

Echo Reading
Model the sentence or short paragraph aloud.
Have students track the text with a pencil.
Students echo the reading.
Check understanding with a quick question.

Sentence De-Combining
Break a long sentence into shorter sentences from the text.
Label each idea, such as cause, effect, detail, result, or time.
Discuss how the ideas connect.

Sentence Combining
Provide two or three short sentences from the text.
Have students merge them into one clear academic sentence.
Compare student versions with the author's sentence.

GIST Statements
Read one paragraph.
Shrink the meaning to ten to twenty words.
Share and compare responses for accuracy and clarity.

Questions for District Leaders to Consider

The following questions are offered as reflection points for district leaders.

- Do we have a shared, evidence-based framework guiding literacy instruction in the middle grades, or does support vary by school or classroom?
- How are we helping middle grades teachers use literacy frameworks diagnostically to identify instructional needs rather than relying on assumptions or labels?
- Is our secondary literacy professional learning sustained and coherent over time, or driven by short-term initiatives?

Kendra Cameron-Jarvis is the Senior Literacy Specialist at the North Carolina Center for the Advancement of Teaching (NCCAT) with over 20 years of experience in education. A National Board-Certified Teacher, her career includes service as a middle and high school ELA educator, a secondary literacy specialist, and an instructional technologist. She has also served as an adjunct professor at the University of North Carolina at Asheville (UNCA).

Kendra's research focuses on the intersection of literacy and technology, examining how digital integration transforms student learning. Her work has been published in ASCD, Edutopia, and MiddleWeb. She holds a BA in English and Professional Writing from Western Carolina University and an MA in Online Learning and Professional Development from Appalachian State University.

COLUMN: STUDENT SHOWCASE

From Social Experiment to Structured Support: The High School Readiness Program

Author: Charles Martin III

Middle School, as we all know, is a critical period for child development. After six years of elementary school with the same exact routine, teachers, and schedules, it's time to adjust to a new environment. Middle school students face some of the most challenging and complicated times as they mature both physically and academically due to having multiple teachers, going to different classrooms daily, and interacting with a whole new body of students.

During these three pivotal years of development, students are told a cycle of these seemingly contradictory statements:

- ➔ *You are too old to be acting like a kid*
- ➔ *You are too young to act like an adult*
- ➔ *You need to be more independent*
- ➔ *Don't make big decisions without asking an adult*

Further, middle school 6th-grade teachers constantly remind students throughout the year, *You are no longer in elementary school.* Then, just two short years later, 8th-grade teachers are reminding students that *you are about to be in High School, act like it!*

Just when things seem the bleakest, there is a light of hope. Middle school teachers try their hardest to help middle school students figure out many things that impact their lives. For example, they help students to understand where and who they are, what they have control over, what academic path they want to pursue. Overall, they try to help students prepare for the outside world as best as they can.

Ironically, we take these students that only have three years to figure all that out, and we throw them all at once into a larger school where your grades increasingly matter, social mistakes start following you, your mental health really impacts your life, discipline is more permanent, and teachers are providing students with more independence than they were used to used to. A recurring problem is that an estimate of half of high school students do not even know what GPA stands for or why it matters. Yet they are now trying to figure out what their long term image or goals are. Doesn't that all sound fast? Within a brief span of four years, students have transitioned several times. First, from elementary to middle school and then middle school to high school. Considering the ages involved and the number of transitions, it all feels like one big social experiment. Students are not failing the transition to high school, the transition is failing our students.

I am so grateful for being able to attend school with the same people my whole life. Union County Public Schools have schools in clusters. Essentially most schools are named the same through elementary, middle, and high school. For example, in Union County, there is a Porter Ridge Elementary, Porter Ridge Middle, and Porter Ridge High School. Also, most middle and high schools are on the same road and located within walking distance to each other.

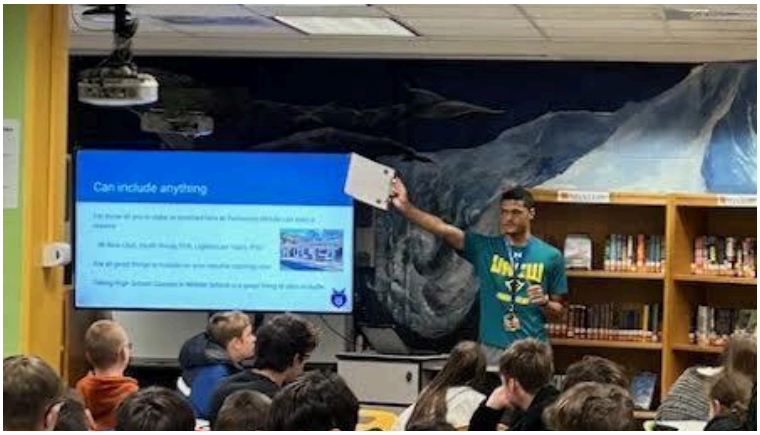
I am currently attending Parkwood High School and have spent my academic career in the parkwood school cluster. Many of my classmates/friends have been in my classes since I was five years old. Once I transitioned to high school, I began tutoring students at Parkwood Middle School. My goal in tutoring is that I want to help younger students and see my former teachers on a regular basis.

However in my time tutoring, I have seen the same cycle continuing to happen: Students who had attended school together their whole lives still figuring out who they are and, at the end of middle school, switch gears and directions for freshman year of high school. I feel I have a deeper calling. I want to be more than a resource for 8th grade students who just have questions about high school as, half the time, I was just figuring it out too. This seemingly simple challenge was actually pretty complex, and I felt the call to respond to it and take initiative for the better of the next generations.

Some of my achievements by the end of my sophomore year included putting together a slide show about basic rule changes when entering high school, such as:

- phone use policies during classes,
- attendance and tardy changes,
- bathroom pass system, and
- the difference between Honors and College Prep.

Further, I would show these changes to small groups of 8th graders in the last few weeks of school. I did not have the opportunity to present to the entire grade level but I am confident that I helped students with these transitions. However, while attending the 8th grade graduation ceremony my sophomore year, I realized that many 8th graders still had no idea what was awaiting them across the road at the high school. I knew more had to be done. There is more we could be doing in our schools to help this social experiment turn into a smooth comfortable process.



Starting the High School Readiness Program

At the start of this school year 2025-2026, and a Junior in high school, I knew I had a passion for the education field and education. I knew I liked the feeling that comes from making a positive impact upon others. Some of my service activities have included:

- Assisting my former 8th Grade teachers with open house.
- Helping parents set up new school apps

- Answering questions for parents and students
- Distributing chromebooks.

Then, one of my former 8th grade teachers became the media coordinator and she allowed me to claim my own office in the media center. With the help of the principal, curriculum facilitator, media center coordinator, the 8th Grade team, and some other experts and professors in the education field, I have been able to develop and deliver *The High School Readiness Program*.

Central to *The High School Readiness Program* is a curriculum I created that includes every detail that is involved with the transition to high school and everything a student should be prepared for. The 11 modules cover a host of different topics from those that are more sensitive in nature to basic daily school operations. Within each module are, on average, 5-6 lessons. Each lesson is broken down into specific parts that include time for activities and discussion.

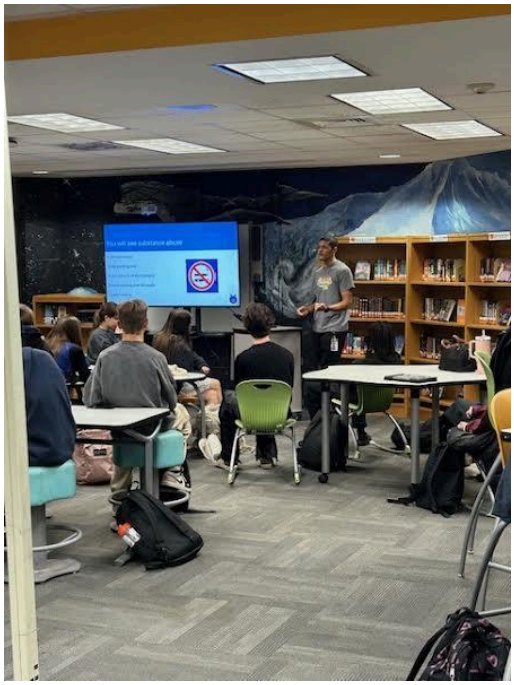
I present every other morning in the middle school media center in front of the entire 8th grade before walking across the street to get to my own class on time. We cover the following topics:

- Academics / Extracurriculars
- Social Media and how to use it
- Bullying prevention
- Drug, alcohol and vape prevention
- Mental Health
- Scheduling classes
- Resumes
- High School Life
- Social Norms/Changes
- College, Trades, After High School

My favorite module currently is Social Media. Social Media is a topic whose effects are far reaching. When I transitioned to high school, I experienced the vast ways people use social media, from connecting with peers and finding a community of friends, to the less positive instances of advertising "crazy" parties, or selling vapes. I explained to my 8th graders that social media can actually HELP you get into a great university or get a great scholarship for any sports, as long as you post about those achievements and highlights or share what you do in your community.

It is something that is so simple but middle school students seem conditioned to think social media is bad and should not be on it. To further explore this idea, I included a sticky note question and asked students to write which app they use the most and what they see on it. We then talked about how to use it positively. In the *Social Media and How to Use It* module, there are six lessons. One focuses on how to be safe on social media and the dangers of it, and another reinforces how important it is to not overshare information. Others include dealing with strangers/identifying strangers, building a positive digital citizen profile, Union County Public School's consequences of misusage of social media where students take turns reading each sentence of the school board policy and we do a deep analyzation. This is a frequent activity translating a board policy to where students understand it on their own levels. And another lesson on how to advertise yourself for jobs, schools, and any other opportunities.

There is a lot of ground to cover within these topics as there are many concepts to understand. The curriculum is designed to be year round, and I occasionally add to or take away lessons as I go on to teach basing this upon my audiences needs. In addition, I incorporate interactive activities to be used for an entire grade level. For example, I use a smart board to show presentations and examples of the material that is covered and discussed. Sticky notes, index cards, and small groups are used to track data.



The Importance of a Peer Lead Program

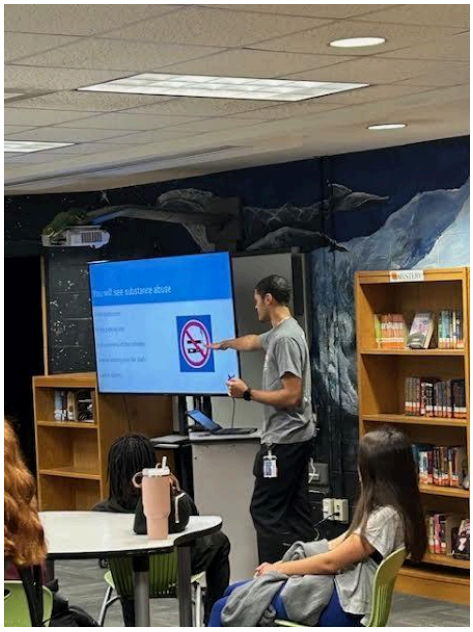
Leading this "peer-led" program is very important to not only me but to the students I am working with. A strength I have is that the students are only a few years younger than me. I have the ability to relate them in much easier ways than any other staff member in the building can. It was natural as they gave me their full attention and cared about what I was sharing and they would ask questions frequently with no hesitation. One concern I would have is that if this was not a peer-led program, students might not engage or relate to the speaker or subjects as much. A further advantage is that the students understand that once I am done teaching the daily lesson, I go back to being a student across the street. I get to share high school stories as they happen and give so much perspective.

Developing a curriculum for this program and navigating how to teach 170+ students at one time was challenging. I started emailing and contacting professors and education leaders for advice and just sharing what I was doing. I wanted to ensure what I was teaching was connected with research-based principles. For example, I was able to contact a professor from UNC Chapel Hill's School of Education where she teaches Human Development. I shared my scope for this program and we met on a zoom call. I shared that I wanted to teach a lesson about social changes in high school. She shared with me a lesson she teaches at the University level about Social Development in Adolescence. We talked about ways I could use this research-based university level lesson and translate it at the middle school level while I can continue to share first-hand modern scenarios I have encountered. Then, I followed up with a curriculum specialist about the lesson I created with the professor to come up with activities and discussions to implement and how to deliver it.

Getting support from university levels, support locally and at the state level, and further, the support from classroom

teachers and my middle school team and administration has been invaluable and immeasurable. I am excited about the future, and my goal for the 2026-2027 school year is to expand this program to at least one other middle school in Union County Public Schools. Being that I am a junior this year, I really want to see this program in other schools. With each lesson I teach, I know it is making that transition to high school less of a social experiment. Other schools in North Carolina should look into facilitating a similar program to have a high school student discuss the details in-depth with 8th grade students, sharing the various aspects that are impacted by the transition to high school.

I plan on coordinating at the district level about being a facilitator for this program and curriculum while communicating to other high school administrators and students about what I am doing and so that they can teach the same material. Fortunately, Union County Public Schools have plenty of elementary, middle, and high schools on the same campuses, and there definitely is an advantage to work as a cluster! For any readers who would be interested in implementing something similar to this program please reach out to me. I would love to share my curriculum and data with you! Same goes for any researchers or professors!



Comments from the Community

"I've personally witnessed C.M. leading his Ambassador program for eighth graders, and it's clear how much effort he has put into making these sessions meaningful. He speaks from experience and provides guidance on areas that truly matter—academic planning, resume building, safety, and life balance with school. Seeing him take the initiative to revive and improve a program that once helped him is a powerful example of paying it forward. The students benefit greatly from his dedication."
Michael Boyes, M.Ed.
Systems Engineer

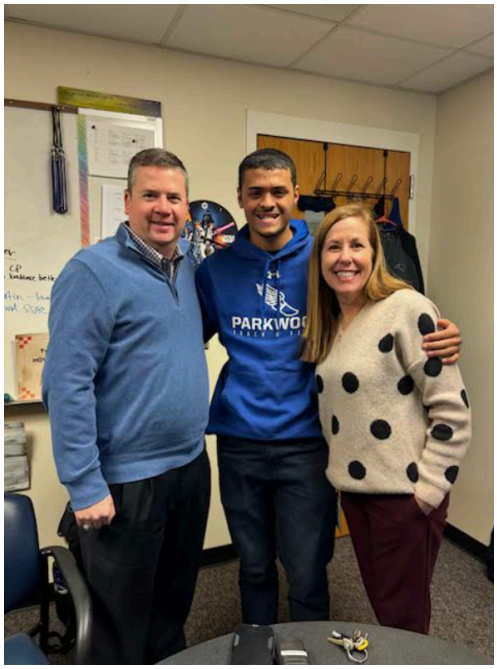
Union County Public Schools

“When you first meet Charles, you realize there's something special about him. He's smart, he's witty, he's charismatic, and most of all, he wholeheartedly wants these students to enter high school more prepared than he felt when he was their age. The success of this program comes down to the fact that he's invested. He's been exactly where these students are: eighth graders, high school just within their reach but not quite real yet. The implications of a four-year plan, GPA, extracurriculars, resume, and so on are all either completely foreign or feel far off. Charles, having been there, knows it really isn't. That starting strong and having a good freshman year makes a difference. That getting involved early sets you up for potential leadership positions. That those leadership positions can teach you as much as the classes they're sitting in. This program is successful because these words are coming from Charles's mouth. It's not from a parent, teacher, or counselor, who could share this exact same information, but eighth graders are used to tuning those voices out. Charles makes it real and relevant and dare I say it... cool to think about resumes, electives, and even proper social media etiquette.”
Kristina Passi, M.Ed.
Curriculum Facilitator
Union County Public Schools

“I think this program is valuable, especially because you created this program out of a critical need you've experienced first hand. I imagine when you are presenting each lesson to your middle school audience you share first-hand stories, cautionary tales and that sort of thing. This is what will make your program a success for your students, because you are giving them a very necessary preview of what they need to know to survive and thrive in high school. Reaching out to perfect strangers who are in the field of education for coaching and support speaks volumes about your work ethic. I wish more educators, especially early career educators, would reach out for coaching and support because being a classroom teacher is hard work and there usually isn't much mentoring or coaching available.”
Dr. Nadine O'Garro
Curriculum & Instruction Specialist
Instructional Transformation Coach

"Charles’ program reflects an impressive combination of insight, creativity, and responsiveness to the real challenges adolescents face as they transition from middle to high school. The curriculum thoughtfully integrates content on biological, social, and academic transitions in accessible and engaging ways that help ensure teens are well prepared for the demands of high school. I am especially excited about how Charles’ work could inform my own efforts to develop digital tools that support teens as they navigate adolescence, as his close engagement with middle school students provides invaluable real-world insight into what matters most to today’s youth and how information can be shared in ways that capture their interests. I see tremendous promise in Charles’ future as a professional dedicated to supporting youth, and I look forward to our continued collaboration."
Casey D. Calhoun, PhD
Assistant Professor - School Psychology
UNC Chapel Hill School of Education

“Charles has identified a key ingredient missing in many public schools: authentic supports for students as they transition to ninth grade. No one understands the worries and fears of an eighth grader like a high school student, and Charles's sessions get right to the heart of these young adults' concerns, allowing them to learn from a trusted peer.”
Catherine Truitt
Former North Carolina Superintendent of Public Instruction



Charles Martin III photographed with Dr. Andrew Houlihan, Superintendent of Union County Public Schools and Dr. Tracy Strickland, Principal of Parkwood High School.

About the Author: As a junior in high school, I continue to run Track and Field holding conference and regional titles for both indoor and outdoor as well as going to states every season! I have a 4.1+ GPA, having been enrolled in all the AP classes my school has to offer while being dually enrolled with South Piedmont Community College pursuing my associates in arts. I have been a president in a couple clubs, and hold president/officers positions in all the other clubs that are offered. Clubs like National Honors Society, BETA, Key, FBLA, DECA, S.A.V.E, and Student council. I also tutor 6th and 8th grade students, which requires coordinating with 6th grade teachers and calling parents! I love what I do and have no intention of doing any less. All with having perfect attendance. I am so grateful for the life I live being an only child raised by 2 loving single parents. Words can not express how grateful I am for my parents and the adults who have supported me with this program.

COLUMN: TOPICS, TECH, AND TRENDS

How Long Have You Been Using Artificial Intelligence? The History of AI

Author: Lane Wesson

This installment marks the first of a three-part series exploring the evolution of artificial intelligence, the ethics surrounding its use, and its potential to enhance student learning. Look for the next feature in the NCMLE Journal, where we will dive deeper into the ethical considerations of AI.

Have you ever wondered how your phone knew when you were driving near a certain grocery store or restaurant? How does Netflix know exactly the type of movies/shows that you like to watch? Or how Amazon identifies and makes suggestions for you that are actually pretty relevant? Do you remember life before having a map on your cell phone that tells you how to get from point A to point B? What seems like a magical world of Artificial Intelligence (AI), isn't really magic at all. It is the culmination of many historical events dating back to the mid 1950s. Let's take a walk through decades of ambition, innovation, and a few major setbacks to learn how we got to where we are today; surrounded by AI.

In order for us to open our minds to the world of AI, I think it is imperative that we first take a look back at a sampling of revolutionary products that were labeled as bad ideas. In the 1920s the world famous silent film star, Sir Charlie Chaplin, incorrectly predicted the failure of the "talkies" (movies with sound) when he told a reporter that he would "give the talkies three years, that's all" until audiences would become disillusioned with the spectacle (Brody, 2014). Joseph Schenk, President of United Artists (now MGM), boldly stated "talking doesn't belong in pictures" arguing that he felt that dialogue was overrated (The New York Times, 1928). On February 26, 1995, Newsweek published an article titled "Why the web won't be Nirvana". In the article, the author wrote that teenagers were using it less than adults and the opportunities for online shopping were very limited stating that the "local mall does more business in an afternoon than the entire Internet handles in a month" (Stoll, 1995). Tell that to Amazon! Lastly, in 2007, then CEO of Microsoft, Steve Ballmer, said "there is no chance that the iPhone is going to get any significant market share" (Yarow, 2012). Today, the iPhone holds 61% of US market share and many of us carry one with us everywhere we go. So, as you see, innovation isn't always accepted with open arms; however, that doesn't mean it can't be useful in society (StatCounter Global Stats, 2026).

The visual in Image 1 shows the cumulative timeline of AI beginning with what is considered to be the birth of AI in the 1950s. In 1950, the British mathematician Alan Turing published a paper proposing the Turing Test which would be a way to gauge a machine's ability to exhibit intelligent behavior equivalent to that of a human (Turing, 1950). The test consists of a human interrogator chatting electronically with both another human and

a machine. The interrogator then tries to determine which one is human. This was the first mention of human-like intelligence in machines and the first test developed to detect it.

Image 1 *Generated with assistance from Google Gemini*

AI wasn't a named field until the Dartmouth Workshop in 1956. This was the establishment of AI research when four scientists met in the summer of 1956 at the Dartmouth Summer Research Project led by mathematics professor John McCarthy. There, they keyed the term Artificial Intelligence. While no major discoveries happened during the workshop, it is celebrated for bringing together the founders of the field of AI and setting ambitious goals for the technology moving forward. McCarthy was considered to be the organizer of the workshop and originator of the term artificial intelligence. Marvin Minsky was a co-organizer and went on to win the Turing Award. Methaniel Rochester was co-organizer and went on to become the designer of IBM's first computer. Claude Shannon was also considered a co-organizer and became the founder of information theory. The Dartmouth Workshop served as a catalyst for future research by creating the defined field of study, inspiring the development of early AI programming languages, and spurring the establishment of major AI research labs at universities like MIT, Stanford, and Carnegie Mellon (SK hynix Newsroom, 2025).

Pause: I just got a notification that there is a sale on tech at my local Walmart! No, the pause really is due to what is coined as the first AI Winter. This inadvertent pause in AI development was primarily due to limited computing power, theoretical challenges, and a cut in funding from the mid 1974 to 1980 (History of Data Science, 2021). With those road blocks came less interest and excitement in the field of AI. After a brief revival of interest in the early 1980s driven by the development of expert systems used in the medical, business, and

scientific fields, the second AI Winter fell upon us from the mid 1980s to the early 1990s (History of Data Science, 2021). During this time the fields that were primarily using expert systems found those to be highly expensive to maintain and less dependable than desired. Hardware limitations and funding reductions also caused lower usage of and interest in AI (Carvão, 2025).

After the second AI winter, the industry recovered and developments focussed on practical applications and machine learning algorithms that were capable of learning from data. This period from the 1990s to around 2010 is often called the age of machine learning, and is marked by exponential growth in processing by companies such as IBM and Apple. In 1997 IBM's Deep Blue supercomputer defeated the reigning world chess champion which was a major milestone in AI's capabilities. The development of these powerful computers and graphic processing units (GPUs) rocketed computer power leading to even more advancements in AI. At this time, AI was used regularly in fields like healthcare, finance, manufacturing, and transportation. Remember that supercomputer made by IBM? In 2011 IBMs AI named "Watson" flexed its non-existent brain by competing with and defeating human champions on Jeopardy (Kulp, 2023). This was just the beginning of our understanding of the power of natural language processing (ie. AI).

Beginning in the 2010s, came the deep learning revolution. Now, if you're old like me, you can probably remember a time when AI wasn't embedded into our daily lives. If I was traveling somewhere I went to Mapquest, typed in where I was leaving from and where I was going; then, printed those directions and took them with me. Remember that? Now we just tell Siri to map us to where we want to go or open the navigation application of choice on our smartphone and it tells us exactly where to turn to get to our location. Believe it or not, maps weren't part of smartphone technology until around 2010 with widespread adoption from 2010 to 2015 (Gibbs, 2015). Between that time we had the GPS navigation that we had to hope didn't fall off of our dash as we were taking a turn. Then came the Tesla! Self-driving cars became a reality with AI powered cars that felt like something out of the next century.

However, none of the various forms of AI really amazed yet also terrified us as much as generative AI. These models such as Google Gemini, ChatGPT, DALL-E, and Microsoft CoPilot are capable of creating new and original content. These models can write lesson plans, create recipes, and analyze data all in about 60 seconds. Now that is scary! I am of the mindset though, that if taught properly and used ethically, these forms of generative AI can be life changing. I will discuss the various ways generative AI can be used in the next article in this series.

The history of Artificial Intelligence is less a steady march of progress and more a chaotic, funding-dependent rollercoaster. It all kicked off with the optimistic founders of the Dartmouth Workshop in 1956, where scientists basically gave a computer a very hard homework assignment. Then came the infamous AI Winters, periods of intellectual frost where government and corporate funding evaporated faster than a spilled cup of coffee in a server room. But we kept plugging away, leading to glorious moments like a computer finally beating a human chess champion, proving machines are great at board games, and then the arrival of Deep Learning. Now, with generative models crafting entire essays and Siri still trying to figure out what song you're humming, the next chapter of AI won't just be about building smarter technology, but about

responsibly shaping the future, and hopefully, not letting the machines critique our fashion choices while they do it.

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