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### **Table of Contents**

From the Editors	
Bridging the Divide: Advancing the Science and Art of Teaching Reading in Diverse and Inclusive Classrooms	1–3
Dr. Robert A. Griffin, Dr. Bethany L. Scullin	
Research and Practitioner Articles	
Models of Instruction for Multilingual Learners: Facets of the ESOL Co- Teacher Role	4–14
Dr. Megan DeVoss	
From Motivation to Inspiration: Using Picturebook Biographies to Inspire All Learners, Especially English Language Learners	15–32
Dr. William P. Bintz, Shabnam Moini Chaghervand	
Multimodal Literacies in Elementary Teacher Education: Facilitating Culturally Relevant Pedagogy with Mathematics  Dr. Christine Craddock	33–56
Culturally Sustaining Writer's Workshop for Beginners  Dr. Laura Szech	57–65
Teaching Tips	
Assessing Language and Literacy of Students with Developmental Disabilities and Complex Communication Needs  Heather S. Riddle	66–72
Moving Writing Forward Through Peer-Critique Partners  Dr. Ebony T. Lee	73–80
The Open Mind Portrait: An Innovative Method to Promote Reading Comprehension and Critical Thinking	81–87
Dr. Lina B. Soares	

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## Bridging the Divide: Advancing the Science and Art of Teaching Reading in Diverse and Inclusive Classrooms

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### **ABSTRACT**

The fall 2023 issue of the Georgia Journal of Literacy delves into a crucial intersection: the empirically supported science of reading and the ever-present need for diversity, inclusion, and multi-modal literacies in our classrooms. As the dialogue around literacy shifts toward science-based methods, the articles in this issue pose a pivotal question: How can these scientifically grounded methods be incorporated into diverse and inclusive learning environments? Our contributors approach this conundrum from multiple angles—examining ESOL co-teaching strategies, leveraging picturebook biographies for inspiration, implementing culturally relevant pedagogies, and providing practical teaching tips for diverse classrooms. Through a carefully curated ensemble of articles, we challenge traditional paradigms and advocate for a literacy education that is scientifically rigorous yet deeply sensitive to the rich tapestry of cultural, linguistic, and cognitive diversity in our classrooms. The content serves not just as a timely response to ongoing debates in literacy education but also as a catalyst for future innovations that harmonize the science with the art of teaching reading. This issue aims to inspire a shift—from mere motivation to deeprooted inspiration, from monolingualism to multilingualism, and from traditional to culturally responsive pedagogical practices.

### **KEYWORDS**

science and art of teaching reading; diversity and inclusion; multimodal literacies

a we usher in the fall season, we are reminded that the landscape of literacy education, much like the leaves that are metamorphosing around us, is in a constant state of change. In this evolving ecosystem, diversity—of thought, culture, and practice—emerges as an invaluable resource. Educators and scholars are again embroiled in a nuanced iteration of the age-old reading wars, reframed now through the lens of the science of reading. While consensus grows around the empirical evidence supporting science-based reading instruction, the question persists: How do we integrate these insights within a pluralistic, evolving landscape of learners? This fall's issue of the *Georgia Journal of Literacy* aims to contribute nuanced perspectives to this ongoing debate. With a particular focus on diversity, inclusion, motivation, and multimodal literacies, this issue explores pedagogical models and practices designed to respond adeptly to the multifaceted needs of today's diverse student body.

This collection of articles challenges reductive paradigms by presenting multifaceted approaches that align with scientific research while respecting the diversity that students bring into

the classroom—be it linguistic, cultural, or cognitive. The confluence of these themes serves not merely as a response to the evolving debates in literacy education but also as a catalyst for innovative, evidence-based strategies that privilege both rigor and inclusivity and that bridge the science and art of teaching reading (Griffin, 2023; Such, 2021; Young et al., 2022).

This issue pushes the boundary of what reading science means in the context of diverse classrooms, multiple literacies, and culturally sustaining pedagogies. It serves as an invitation for educators, scholars, and literacy advocates to engage deeply with these complexities, inspiring a shift from motivation to inspiration, from monolingualism to multilingualism, and from traditional pedagogies to culturally relevant practices. We hope this issue will serve as both a resource and a call to action, inviting a concerted effort to redefine literacy education in a manner that is as rigorously scientific as it is profoundly artful and inclusive.

### **Exploring the ESOL Conundrum: Rethinking Co-Teaching**

Dr. Megan DeVoss's comprehensive literature review, "Models of Instruction for Multilingual Learners: Facets of the ESOL Co-Teacher Role," offers a nuanced examination of ESOL models sanctioned by the U.S. Department of Education. Through a critical lens, Dr. DeVoss weighs the merits and drawbacks of these frameworks, spotlighting the burgeoning prominence of co-teaching strategies. This piece acts as a cornerstone for educators and policymakers aiming to incorporate empirically-backed, effective multilingual instructional practices into their repertoire.

### Picturebook Biographies: Beyond Motivation to Inspiration

Advocating a move from motivation to inspiration, Dr. William P. Bintz and Shabnam Moini Chaghervand explore the transformative potential of picturebook biographies in "From Motivation to Inspiration: Using Picturebook Biographies to Inspire All Learners, Especially English Language Learners." The authors argue persuasively for the pedagogical power of these books, which both teach and inspire, catalyzing a deeper level of student engagement and emotional investment in learning.

### Pioneering Multimodal Literacies in Culturally Relevant Pedagogy

Aligning with multimodal literacies, Dr. Christine Craddock's research article, "Multimodal Literacies in Elementary Teacher Education: Facilitating Culturally Relevant Pedagogy with Mathematics," delves into the practical application of multiple modes of expression. Dr. Craddock's work, based on qualitative action research, uncovers how these modes can enrich culturally relevant pedagogical practices, especially in the teaching of mathematics. In a similar vein, Dr. Laura Szech's practitioner-oriented piece "Culturally Sustaining Writer's Workshop for Beginners" offers a detailed framework that encourages students to bring their unique cultural and linguistic experiences into authentic writing exercises.

### A Toolkit for Inclusive Teaching: Diverse Strategies for Diverse Classrooms

Our Teaching Tips section offers a triad of insightful articles catering to the diversity of today's classrooms. Heather S. Riddle examines nuanced methods for evaluating language and literacy skills among students with developmental disabilities in "Assessing Language and Literacy of Students with Developmental Disabilities and Complex Communication Needs." Dr. Ebony T. Lee's "Moving Writing Forward Through Peer-Critique Partners" outlines a step-by-step strategy for fostering constructive peer-to-peer feedback during the writing process. Rounding off this

Griffin & Scullin 3

section, Dr. Lina Soares, former editor of the *Georgia Journal of Reading* (the former name of *GJL*), presents "The Open Mind Portrait: An Innovative Method to Promote Reading Comprehension and Critical Thinking," revealing the underexplored potential of visual art to improve reading comprehension and provoke critical thought.

### **Final Thoughts**

Each article, in its unique way, contributes to a unified vision: transforming the science of reading into an inclusive practice that honors and leverages diversity. From DeVoss's exploration of ESOL co-teaching models to Bintz and Moini Chaghervand's shift from motivation to inspiration, from culturally relevant pedagogies to practical teaching strategies, each contribution engages with the complex tapestry of student diversity as an invaluable asset, rather than a challenge to overcome. In so doing, these articles not only provide a wealth of academic insight but also serve as a collective clarion call to all stakeholders—teachers, administrators, and literacy advocates alike. They urge us to fully embrace the abundant diversity in our classrooms and to integrate scientific rigor with cultural responsiveness.

As we navigate this dynamic and ever-evolving educational terrain, let us do so with both the empirical grounding and the compassionate intentionality that our diverse student populations merit. Our collective commitment to this integrated approach will not only elevate educational practices but also profoundly impact the academic and socio-emotional well-being of generations to come. Thank you for joining us in this endeavor. Your engagement with the *Georgia Journal of Literacy* signifies your role in this critical and timely dialogue, a conversation that, at its core, is both deeply scientific and profoundly inclusive.

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### Models of Instruction for Multilingual Learners: Facets of the ESOL Co-Teacher Role

### **Megan DeVoss**

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### **ABSTRACT**

With nearly five million multilingual learners in U.S. schools, research is warranted for effective instruction that permits equal access to content standards through language diversification. Multilingual learners (MLs), students learning English who benefit from linguistic support to attain academic achievement, are served through models in U.S. schools that vary according to student needs and staffing capability, with English for Speakers of Other Languages (ESOL) as the dominantly implemented format. ESOL is a federally and locally funded program that provides structured academic and linguistic support and accountability for MLs across all grade levels. The purpose of this literature review is to compare the utility and effectiveness of the four program models approved by the U.S. Department of Education to effectively teach content and language to MLs in public schools: (a) structured English immersion, (b) bilingual education, (c) dual language or two-way immersion programs, and (d) English for Speakers of Other Languages (U.S. Department of Education & U.S. Department of Justice, 2015). Furthermore, this article is intended to examine the overarching model of ESOL—the most employed model in the U.S.—and the prominent delivery format of co-teaching. Each of the models mentioned above is discussed in this paper, followed by a delineation of state and federally-approved formats of ESOL: pull-out, push-in, resource labs, sheltered classes, innovative delivery models, and co-teaching. This article concludes with an examination of co-teaching, a subset of ESOL in which a general education educator and an ESOL teacher co-plan, co-instruct, and co-assess an integrated classroom of MLs and non-MLs.

### **KEYWORDS**

multilingual learners; English learners; ESOL models; coteaching

onstituting 10% of students in U.S. classrooms, multilingual learners embody a significant presence of culturally and linguistically diverse students who need appropriate, equitable education (U.S. Department of Education, n.d.). Pertaining to school-aged individuals, an English learner (EL) is an extension of a multilingual learner (ML), a student whose first language is not English and who requires assistance listening, speaking, reading, and/or writing English to achieve equal opportunity for academic success in a classroom with English instruction (Ballantyne et al., 2008; U.S. Department of Education, 2015). The need for language assistance is measured by an initial test, which varies by model of instruction and will be discussed in subsequent sections.

National data released by the U.S. Department of Education (n.d.) indicate that MLs in U.S. schools speak over 400 languages, a statistic that generates inquiry about how to effectively educate students with such a broad spectrum of linguistic and cultural diversity. Addressing this need, Gottlieb (2006) admonishes that students "whose current English language proficiency preclude them from accessing, processing, and acquiring unmodified grade-level material in

DeVoss 5

English without scaffolding and instructional support" require keen attention for holistic success (p. 4). This literature review aims to cross-examine models and formats of instruction for schoolaged multilingual learners. Research, pragmatics, and student needs guide the result of this paper to focus on co-teaching, a format of the popularly employed model of ESOL, as described in the subsequent discussion.

### **Models of Instruction for Multilingual Learners**

The U.S. Department of Education supports four program models to effectively teach content and language to MLs in public schools: (a) structured English immersion, (b) bilingual education, (c) dual language or two-way immersion programs, and (d) English for Speakers of Other Languages (U.S. Department of Education & U.S. Department of Justice, 2015). Each model will be discussed, although this article focuses on a key aspect of the final format, co-teaching within ESOL.

### Structured English Immersion

Structured English Immersion (SEI) programs serve students newly arrived in the United States through adapted courses, the goals of which are to learn English, gain cultural competency of school norms, and develop academic readiness to transition into mainstream classes (Lewis & Gray, 2016; Zacarian, 2011). SEI instructors deliver both English language and adapted content instruction to students all day in an isolated setting, such as a specific wing of a school or a separate building (Honigsfeld & Dove, 2010). At the secondary level, this delivery model is often termed a *newcomer program*, or a program offered only to students in their first or second year in a U.S. school (Short & Boyson, 2004). The primary benefit of SEI is an academic course load that is specifically adapted according to the language and academic needs of MLs. An additional benefit of SEI is the intentional outreach to families who, like the students, are new to the country and need assistance adapting through pragmatic means (Freeman & Freeman, 2002; Short & Boyson, 2004). Since all the students served through SEI are equally in need of transition assistance, less shame or fear impedes school-family relationships compared to other models that serve both newcomers and native English speakers (Short & Boyson, 2004).

Offered to immigrant students newly arrived in the U.S., SEI involves a linguistically diverse student population (or a set of students with many different home languages), which often results in English-only instruction. This English-only format is a direct result of staffing practicality. The practical aspect of staffing an SEI program considers how one English-speaking teacher can teach several students with different home languages through an English-only format. However, attempting a bilingual approach with such diverse languages would necessitate numerous instructors and, consequently, more funding. Nonetheless, SEI welcomes using the students' primary language as practicable (Zacarian, 2011).

The limitations of SEI reside in the isolation of social and cultural interaction from native English-speaking peers, which are encapsulated in Honigsfeld and Dove's (2010) exclamation, "academic gains were reported at the expense of social integration" (p. 9). Social identity development of school-aged children will be discussed in forthcoming sections; however, it is worth noting that students' social and interpersonal facets, particularly adolescents, significantly impact their learning ability (Ullman, 2010). Therefore, the SEI model has both benefits and disadvantages for MLs.

### **Bilingual Education**

Bilingual education programs provide classroom instruction in two target languages—English and a non-English language—to students with a homogeneous native language and with the goals of biliteracy and bilingualism (Lewis & Gray, 2016). The goals are achieved by tapering the amount of instruction in each language through either a 90/10 or a 50/50 format (Honigsfeld & Dove, 2010). In the 90/10 format, students initially receive instruction in their first language for 90% of the day and instruction in English for 10% of the day; with a gradual increase of English instruction time each year, the anticipated goal is 50% instruction in the first language and 50% in English during the third year of the bilingual program (Zacarian, 2011). In the 50/50 model, instruction is provided for equal durations throughout each year in the bilingual program. For clarification, the percentages of time are quantified by how many courses are instructed in that language. For example, in the 90/10 model, one of the six content courses may be initially instructed in English, and by the third year, three classes are taught in English. This gradual increase in English instruction during the school day is intended to match students' readiness for additional development in the language (Honigsfeld & Dove, 2010).

Large-scale, longitudinal research by Collier and Thomas (2017) in 36 school districts over 32 years supports outcomes of bilingual education more than all other formats of language instruction to close the achievement gap for MLs, insofar as the students remain in the program for at least 5–6 years. Earlier research by Collier and Thomas (2002) revealed over half of the student participants in a bilingual program met or exceeded state benchmarks in reading on standardized tests in English, exceeding the outcomes of participants of any other English instructional format. While research confirms the effectiveness of bilingual education, a prominent restraint of this model rests in the feasibility of staffing sufficient bilingual educators to maintain such programs sustainably. Furthermore, the student body in bilingual programs must be homogenous, all speaking the same native language. In school districts with a diverse plethora of spoken languages, such as those in some U.S. urban centricities, the bilingual model is not realistic to serve all students equally.

### **Dual Language Immersion**

The dual language (or two-way immersion) design is a branch of bilingual education. In the dual language model, which exists in more than 70 Georgia public schools, the student body contains students who are native English speakers as well as English learners; this linguistically heterogeneous student population aims to achieve bilingualism and biliteracy (Georgia Department of Education, n.d., 2023; Lewis & Gray, 2016). The student population is the sole differentiating factor of dual language immersion from the abovementioned bilingual education format. Ideally, the student body will contain a balance of homogeneous MLs (students who share a native language that is not English) and students who are native English speakers (seeking to learn the home language of the MLS). For example, all MLs in a dual language immersion program may speak Spanish as their native language. The native Spanish-speaking MLs aim to become bilingual in Spanish and English; meanwhile, native English speakers in the program also seek bilingualism in English and Spanish.

Common to the bilingual model, this instructional format faces the hindrance of feasibly staffing and sustaining dual language practices, especially as public schools are mandated to instruct students who speak many native languages. Additionally, similar to bilingual education, the dual language immersion model requires a long-term commitment of 5–6 years from the students and families because the stable presence of language learners in the classroom benefits

DeVoss 7

the model's dynamic of language progression (Collier & Thomas, 2017; Zacarian, 2011). Data discussed by Collier and Thomas (2002, 2007, 2017) indicate that the dual language immersion model is less effective for closing achievement gaps than bilingual education. However, it yielded better results than students participating in English-only models.

### English for Speakers of Other Languages

The model most prevalent in U.S. public schools, and the model examined in this paper, is English for Speakers of Other Languages (ESOL). ESOL is a state-funded instructional program for eligible English learners in grades K–12 (Georgia School Law Code 1981, § 20-2-156, enacted in 1985). The ESOL program is a standards-based curriculum emphasizing academic and social language development (Georgia Department of Education, 2018a). ESOL programming constitutes a variety of formats of implementation, including pull-out, push-in, sheltered instruction, co-taught classes, resource centers, and innovative delivery models (Georgia Department of Education, 2020). ESOL is most suitable for the majority of U.S. schools, as it utilizes one language—English—to instruct a linguistically diverse student population (Honigsfeld & Dove, 2010; Zacarian, 2011). Representing the most popularly employed model for serving MLs in the U.S., this article focuses on formats of ESOL, which the ensuing discussion will further examine.

### Formats of ESOL in U.S. Schools

According to the U.S. Department of Education, 68% of high schools serving MLs in the 2015– 16 school year employed formats of the ESOL model (Lewis & Gray, 2016). ESOL is a federally and locally funded program that serves qualifying students through linguistic and academic instruction by English language and content teachers for an entire or partial school day (Honigsfeld & Dove, 2010). Thirty-nine states, including Georgia, are members of the WIDA Consortium, a corporation that sets forth the English Language Development (ELD) standards, the qualification assessment (WIDA screener), the annual progress assessment (ACCESS for ELLs test), teacher training, and a wealth of resources and tools for the classroom (Georgia Department of Education, 2018a; WIDA, 2023). Unlike bilingual models, ESOL focuses on instruction in English only, thus qualifying as the most adaptable model for a linguistically diverse student and staff population. Although English is the dominant language of instruction, it is worth noting here the Georgia Department of Education's (2018a) statement: "It is appropriate, when practicable, to use the English learner's home language as a means of facilitating instruction" (para. 1). Thus, students' home languages may be utilized when "practicable," not as prominent vehicles of instruction. When districts and schools consider how to serve MLs within their student bodies, a wealth of factors come under consideration, including student characteristics and needs, students' level of English proficiency, teacher capacity, state policies, number of MLs in the school, least restrictive environments, research, and decision maker attitudes and goals (Georgia Department of Education, 2020; Sugarman, 2018). With significant linguistic diversity, including over 400 languages spoken in U.S. schools, most districts have greater capacity for meeting student needs through an Englishonly format such as ESOL than through bilingual models (U.S. Department of Education, n.d.).

ESOL offers a plethora of formats, including pull-out and push-in instruction, sheltered (or self-contained) classrooms, resource centers and labs, innovative delivery models, and co-teaching (Georgia Department of Education, 2020; Honigsfeld & Dove, 2010). The pull-out model is frequently practiced at the elementary level and requires that MLs are pulled out of a content class into a small group setting to focus on English language acquisition (Sugarman, 2018). While the

pull-out lessons may be centered around linguistic elements of the classroom content, sometimes this model causes students to miss classroom content to receive language instruction. The push-in design is also prominently employed at the elementary level. A depiction of the push-in model would be students remaining in their core content classes (to not miss instruction); an ESOL teacher comes into the classroom to provide language instruction during content lessons (Georgia Department of Education, 2020). The sheltered classroom is an English language course or a content course constituted solely of ESOL students. The sheltered format is frequently employed at the middle and high school levels. It effectively serves MLs with lower English language proficiencies, such as students in their first or second year in U.S. schools (U.S. Department of Education & U.S. Department of Justice, 2015). A depiction of a sheltered high school class would be a Geometry course containing 10 MLs with beginning levels of English proficiency, in which the instructor simultaneously teaches content and language. Resource centers and labs serve a dynamic group of MLs (who may vary in their level of English proficiency) through multimedia materials (computer software, books, teacher interaction, etc.); such labs are fitting for itinerant ESOL teachers serving students from various schools and grade levels. Innovative delivery models (IDM) allow schools and districts to construct an effective means of serving MLs with local staffing and funding availability. For example, the author of the article at hand is certified in secondary mathematics and ESOL; therefore, she currently teaches an IDM Algebra II class that consists of 9 MLs and 14 non-MLs in a manner that advances students' academic and linguistic progress without a co-teacher. Finally, the co-teaching model is a format of ESOL commonly employed in the middle and high school settings in which an ESOL and a content teacher co-teach a content area course, such as English language arts, math, science, or social studies, to an integrated classroom of ESOL students and non-ESOL students (August & Shanahan, 2008; Lucas et al., 2008; Sugarman, 2018). The term "push-in" is utilized in legal documents to refer to both the delineated (predominantly elementary) form of push-in outlined above as well as co-teaching, although the latter terminology (co-teaching) is more prominent among educational practitioners (Georgia Department of Education, 2018b, 2020).

### Co-Teaching

Co-taught models emerged in popularity in response to national regulations promoting equitable education for students with exceptionalities. When the No Child Left Behind Act (2001) pushed for students with disabilities to be served in public schools through the least restrictive environment, co-teaching became a prominent means of instruction in special education departments. Serving English learners has followed a similar approach, whereby MLs with higher English proficiency receive content instruction and language assistance in co-taught classrooms. Thus, while students learning English are not mentally deficient or considered to be students with disabilities, the dynamics in which this student population is served through federally funded public school operations share a similar framework to that of students receiving special education services (Bauler & Kang, 2020). The depiction of co-teaching involves two teachers (one specializing in content and the other specializing in student sub-group needs, such as ESOL or special education) collaboratively teaching a core content class (Sugarman, 2018). Furthermore, a greater expanse of research has been conducted to date on the effectiveness of special education delivery models than has yet to be investigated for the formats of ESOL instruction. Ergo, the literature surrounding co-teaching in the special education classroom is an applicable platform for building this examination for serving MLs through the co-teaching model.

DeVoss 9

Co-teaching involves two professionals collaboratively planning and delivering instruction to a group of students in the same classroom (Bauler & Kang, 2020; Cook & Friend, 1995; Friend et al., 2010). Hang and Rabren (2009) expound on the definition of co-teaching to include:

(a) two certified educators, usually one general education teacher and one special education teacher; (b) instruction delivery by both teachers; (c) a heterogeneous group of students (i.e., students with disabilities are taught with their peers without disabilities); and (d) a single classroom where students with disabilities are taught with their peers without disabilities. (p. 259)

Furthermore, the above-mentioned co-taught classroom may employ a variety of collaborative instructional models, including the six models presented in Friend and Cook's (1992) seminal text on collaborative classrooms: one teaches, one observes (in which one observes the other teaching and gathers necessary data); one teaches, one assists (in which one teacher primarily teaches the content while the other circulates the room to assist struggling individuals); parallel teaching (in which each teacher presents the same content to one of two students groups); station teaching (in which students rotate through stations to receive instruction and practice the material); alternative teaching (in which one teacher works with a large group to provide instruction while the other teacher works with a select small group); and team teaching (or co-teaching, in which both teachers simultaneously practice equal roles in delivering instruction). All these formats may be employed in the same co-taught classroom setting throughout a school year, as content and student needs may necessitate changing instruction formats. While instructional formats may vary within a classroom, research supports that the qualities of effective co-teaching are consistent.

In their book on collaboration and co-teaching, Dove and Honigsfeld (2018) delineate the significance of intentional and effective co-planning, co-teaching, and co-assessing in a team-taught classroom. Working together on all facets of instruction requires time and effort, and the quality of collaboration correlates with student achievement (Bell & Baecher, 2012; Ronfeldt et al., 2015). In addition, the research of Peercy et al. (2015) illuminates the effectiveness of co-teaching not only on student success but also on teacher development. Teachers working collaboratively to share expertise enhances both teachers' skill sets. An integral element of effective collaboration is the negotiation of roles and responsibilities (Hersi et al., 2016). Co-teachers must discuss and decide what is expected of each educator in the partner classroom experience. The role of the ESOL teacher is significant in contributing to the success of English learners in the content classroom.

### Role of the ESOL Co-Teacher

An ESOL collaborating teacher is certified in teaching English for Speakers of Other Languages (ESOL) but is often not certified in the content area. Consequently, the role of the ESOL co-teacher is to promote language acquisition throughout the class and ensure course materials and assessments are linguistically and culturally appropriate for MLs (Ballantyne et al., 2008). Beyond ensuring student accommodations are met (such as small group testing, use of bilingual glossaries on assessments, extended time, etc.) and instructional strategies are incorporated that promote language learning through content material, ESOL teachers are advocates for their students. ESOL teachers advocate for MLs by seeking to close barriers caused by socio-cultural, socioeconomic, linguistic, and academic background differences that affect equitable opportunity for academic achievement (Evans, 2004; Honigsfeld & Dove, 2010; Lachat, 2004; Staehr Fenner, 2014).

Language Acquisition. Multilingual learners in the U.S. must acquire social and academic English to access and master content standards appropriately. Hence, the ESOL teacher incorporates opportunities to develop social and academic language throughout each co-taught course. Echevarría et al. (2013) recognize that "the foundation of school success is academic language and literacy in English. Age-appropriate knowledge of the English language is a prerequisite for attaining content standards. We learn primarily through language, and use language to express our understanding" (p. 10). To address this need, the ESOL teacher creates language objectives to accompany each content objective, provides timely feedback for both language and content production, generates opportunities for student-student interaction that promotes academic discussion (and subsequently language development), pre-teaches and reviews academic vocabulary necessary for success in the content classroom (Echevarría et al., 2018; Fairbairn & Jones-Vo, 2010; Staehr Fenner, 2014).

The ESOL teacher aims to ensure that course content and assessments incorporate comprehensible input. Second language acquisition theorist Stephen Krashen (1977) spearheaded research on the significance of providing understandable language to promote deeper language acquisition. In this way, language used in the classroom must be within or just beyond a student's linguistic comfort zone, as Krashen (1977) terms i + 1, where i signifies currently mastered language and +1 represents target language one step beyond that is yet to be acquired. If academic content and assessments are conveyed within a student's range of comprehensible input, then the student can understand, learn, and master the material.

Classroom Strategies. The widely acclaimed Sheltered Instruction Observation Protocol (SIOP) model encompasses strategies for teachers of MLs to employ to make content comprehensible for multilingual learners (Echevarría et al., 2018). These strategies, viewable in Table 1, promote content learning through accessible and appropriate language and classroom constructs. Furthermore, the implementation of strategies to assist MLs has been found to benefit non-MLs as well (Meltzer & Hamann, 2005).

Table 1: SIOP Strategies to Promote Comprehensible Input

Design language and content objectives for lesson plans	Emphasize key vocabulary	Give appropriate, consistent feedback on language and content production
Provide adapted materials for content and language proficiencies	Build cultural background knowledge for students to access the material	Ensure directions, materials, and assessments are comprehensible, allowing sufficient wait time
Promote peer interaction through intentional groupings and class discussions	Use manipulatives to promote deeper understanding of concepts	Administer context-rich formative and summative assessments

Note. From Making Content Comprehensible for Secondary English Learners: The SIOP Model (3<sup>rd</sup> edition) by J. Echevarría, M. Vogt, & D. J. Short. Copyright 2018 by Pearson.

**Cultural Adaptation.** For multilingual learners, the learning experience is often compounded by the anxiety accompanying new environments (Gabryś, 2013). Anxiety for MLs may arise from socio-cultural, socioeconomic, or academic background differences and affect learning (Dove & Honigsfeld, 2018). The ESOL and content co-teachers share responsibility for

DeVoss 11

attentively diminishing MLs' "affective filter," or a mental barrier caused by anxiety (Krashen, 1982). According to Freeman and Freeman (2014), the effort put forth by teachers to provide comprehensible input and appropriate materials may be negated if a student's affective filter causes them not to learn. Efforts to diminish anxiety may include assisting students through the process of acculturation by providing an outlet for expression, support, and affirmation; welcoming students' home cultures into the classroom activities and content discourse; offering multiple alternative pathways for success in the class for students who work to contribute to the family income and thus struggle to complete homework after school; providing information to students and families regarding community resources for healthcare, educational materials, translation assistance, and discount clothes or food (Evans, 2004; Honigsfeld & Dove, 2010; Lachat, 2004; Staehr Fenner, 2014). Addressing students' socio-cultural and economic needs dismantles the effects of significant barriers to student achievement (Freeman & Freeman, 2014; Gass & Selinker, 2008). A welcoming classroom dynamic with continually appropriate material and instruction can generate a sense of comfort and acceptance that will diminish students' apprehension and thus permit readiness for effective learning.

### **Conclusions and Recommendations**

While research demonstrates the effectiveness of linguistic models incorporating one's home language, such as (a) structured English immersion, (b) bilingual education, and (c) dual language or two-way immersion programs, the practicality of each is not well suited for the majority of urban and suburban public schools. With over 400 spoken languages in U.S. schools, the English-only format of ESOL is most employed nationwide (Lewis & Gray, 2016). This article explains why human resources (limited bilingual educators) and student needs (diverse home languages invite an English-only format) make ESOL the most prominently executed model for serving multilingual learners in U.S. public schools. Furthermore, the role of an ESOL co-teacher within the latter model extends beyond the classroom content to develop the multilingual learner's sociocultural identity. The ESOL teacher aims to diminish the anxiety experienced by MLs in the classroom and serves to advocate for their equity in education.

Educators of MLs may grapple with the plethora of responsibilities in addressing student needs—linguistic instruction, content differentiation, acculturation, and others detailed within the scope of this discussion. Exploring the constructs of effective co-teaching and research-based collaboration may contribute to one's sustainable practice of effectively serving MLs. Districts and building-level administrators may invest funds in professional development opportunities to empower co-teaching relationships and effectiveness. In such professional development, teachers may choose to examine the list of strategies outlined in Table 1 to build a shared repertoire of tools to meet the needs of MLs in their classroom(s). Additional research is warranted on the efficacy of the co-teaching model and the outcomes it yields on student achievement academically and linguistically for MLs.

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DeVoss 13

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## From Motivation to Inspiration: Using Picturebook Biographies to Inspire All Learners, Especially English Language Learners

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### **ABSTRACT**

This article begins with a vignette that involved a response by an eighth-grade English Language Arts (ELA) teacher to the question: "Why do you assign a grade for every student assignment?" She stated: "Because grades drive my students! It's so much a part of their lives that if I don't give them points toward a good grade, they ask themselves, 'Then, why am I doing this?'" For us, this response generated several inquiry questions about the role of motivation in student learning. One question was: Is motivation alone enough for student success? Our initial answer was probably not. We hypothesized that motivation is helpful but insufficient for student learning. Inspiration is also important. This hypothesis inspired this article. It describes fundamental principles underlying research on motivation, identifying important differences between motivation and inspiration. Next, it provides an overview of different definitions of the term picturebook. It then describes the power of picturebook biographies to inspire all learners, especially ELL learners. It shares an extensive list of high-quality, award-winning, multicultural picturebook biographies of historical figures from around the world and across four major categories: Trailblazers and Daredevils, Sports Figures, Heroes Conquering Disabilities, and Historical Figures from Around the World. It ends with final thoughts and an invitation for teachers to hear new voices and start new conversations about the importance of using picturebook biographies to inspire all learners.

### **KEYWORDS**

picturebook biographies; English language learners; reading motivation; inspiration

The value of learning about people who have achieved something extraordinary is immeasurable. Children need to find heroes and role models who can inspire and motivate them.

(Morgan & Collett, 2018, p. 14)

ecently, I (Shabnam) conducted a picturebook study to support student inquiry in an 8th grade ELA classroom. During the study, I asked the classroom teacher: "Why do you assign a grade for every student assignment? She stated:

I assign grades for each assignment because grades drive my students! It's so much a part of their lives that if I don't give them points toward a good grade, they always ask themselves, "Then, why am I doing this in the first place?"

Afterward, I spent time thinking about this comment, specifically the rationale for this teaching practice. At the end of the study, I realized that a few students did not submit the last assignment. I contacted the classroom teacher and asked her to remind these students about the last assignment. She emailed and reminded them that they would lose points if they did not complete and submit the assignment. Ultimately, the students did not submit the assignment and received no credit.

I did not understand why these students chose not to submit the assignment, especially knowing there would be negative consequences. I shared this experience with my co-author (Dr. Bintz). We became curious. Why did these students not complete the last assignment and receive no credit? Why was teacher motivation, expressed as a reminder and warning of losing points, unsuccessful for students to complete the assignment? Why didn't the teacher's reminder email motivate these students to complete the project? We used these questions to generate a broader inquiry question: *Is motivation alone enough for student success?* Our preliminary answer was probably not. Our current hypothesis is that motivation is helpful but insufficient for student learning. Inspiration is also important. This hypothesis inspired this article.

We begin by describing fundamental principles underlying research on motivation, followed by a description of inspiration and how picturebooks are tools that can inspire students. Next, we define a picturebook and describe the power and potential of picturebook biographies to inspire all learners, especially ELL learners. We end by sharing high-quality, award-winning, multicultural picturebook biographies, and some final thoughts.

### **Research on Motivation**

Research has identified three fundamental principles of motivation. One principle is that motivation is based on a behavioristic view of teaching and learning, driven by stimulus and response. A stimulus is a change in the external or internal environment that is provided to a recipient, human or nonhuman, to produce a desired response. For example, a reward is provided to a person (or animal, etc.) to create or change a desired behavior. A second principle is that there are two significant types of motivation: intrinsic and extrinsic. The Center on Education Policy (2012) states:

Intrinsic motivation is the desire to do or achieve something because one truly wants to and takes pleasure or sees value in doing so. Extrinsic motivation is the desire to do or achieve something not so much for the enjoyment of the activity itself, but because it will produce a certain result. (p. 2)

In school, the "certain result" can be characterized as a teacher-student exchange. Teachers assign schoolwork and offer rewards or incentives to students in exchange for completing it (completing worksheets, projects, and homework; meeting reading goals; performing successfully on standardized tests, etc.). Students complete assigned schoolwork in exchange for the reward (receiving extra credit and higher grades). Much research indicates that reward incentives and programs show mixed results (Fryer, 2011; Raymond, 2008).

A third principle is that teacher and student motivation is viewed primarily as an instructional issue. Teachers plan schoolwork and use motivational strategies to increase students'

likelihood of completing the work. Teachers use encouragement, rewards, reminders, and even threats of penalties to motivate students. However, like the vignette shared earlier, motivational strategies do not always work. We hypothesize that motivation is, at times, helpful but insufficient for successful student learning. Inspiration is also important.

### From Motivation to Inspiration

In general, inspiration is a feeling of enthusiasm a person gets from someone or something. *Hank Finds Inspiration* (Frazier, 2008) is a picturebook that beautifully illustrates this notion of inspiration.

Stanley, a man, and Hank, a snake, are friends. Both are desperate for inspiration. Separately, they go to the city to look for inspiration. Hank asks different people where he could get inspiration, but they all have different answers. Finally, in an art gallery, inspiration finds Hank when he falls in love with a sculpture, only to learn it has already been sold. Hank returns home only to find a pleasant surprise and learns that friends can be a good source of inspiration.

This picturebook highlights the notion that inspiration can be found in someone, whether that is someone already known, like Stanley, or someone little known or unknown, and something, like a beautiful sculpture. This picturebook is one of many high-quality picturebooks about inspiration and inspirational people. In Tables 1 through 4 at the end of the manuscript, we share picturebooks of inspirational people across four categories: Trailblazers and Daredevils (Table 1), Sports Figures (Table 2), Heroes Conquering Disabilities (Table 3), and Historical Figures Around the World (Table 4).

### **Definition of Picturebooks**

Over time, a picturebook has been defined in different ways. Almost fifty years ago, Sutherland and Hearn (1977) defined a picturebook as "one in which the pictures either dominate the text or are as important" (p. 158). Similarly, Marantz (1977) stated that "a picturebook, unlike an illustrated book, is properly conceived of as a unit, a totality that integrates all the designated parts in a sequence in which the relationships among them: the cover, endpapers, typography, picturesare crucial to understanding the book" (p. 3). Since then, definitions have continued to change but still emphasize that "a picturebook is the inextricable connection of words and pictures and the unique qualities of the form, always rejecting the notion that a picturebook is not simply a book that happens to have pictures" (Wolfenbarger & Sipe, 2007, p. 273). From a semiotic perspective, a picturebook is an aesthetic object that involves three sign systems (language, illustration, design), and each system has meaning potentials by itself and with each other (Sipe, 2002). Here, we use the most cited definition (Bader, 1976):

A picturebook is text, illustrations, total design; an item of manufacture and a commercial product; a social, cultural, historic document; and foremost, an experience for a [reader]. As an art form, it hinges on the interdependence of pictures and words, on the simultaneous display of two facing pages, and on the drama of the turning page. (p. 1)

Picturebooks have much power and potential. Among other things, they 1) are compact in length yet abundant in significance (Culham, 2004), 2) contain intriguing, artful illustrations that are pleasurable and informative to view and reflect different artistic styles, 3) contain carefully chosen words that build vocabulary, 4) are reader-friendly and enjoyable and support reading comprehension (Murphy, 2009), and 5) help students understand and appreciate perspectives other than their own (Morgan, 2009).

### Picturebooks for All Learners, Especially English Language Learners

Picturebooks benefit all learners but are particularly important for English Language Learners (ELL). For some time now, there have been significant increases in the number of non-native English speakers entering public and private schools in the United States. Like native speakers of English, ELL students, regardless of their age and language proficiency, benefit from reading materials that are personally meaningful, linguistically authentic, visually engaging, and culturally relevant. The picturebook is one such reading material with much power and potential for English Language Learners (Carr et al., 2001).

There are several significant reasons picturebooks are valuable for English Language Learners. Perhaps most importantly, they are authentic pieces of literature. The International Literacy Association (2023) defines authentic texts as those used in everyday life, not just for teaching purposes. They include novels, children's literature, hobbyist magazines, and newspapers. However, texts that have been altered to shorten sentences are not considered authentic. Mourao (2016) states:

Picturebooks are very special books, for they are authentic in every way—the words (if they exist, for some picturebooks are wordless) have not been abridged or altered for language learning purposes and the illustrations are created by illustrators who use their art creatively with neither a care for, nor an interest in, the confines of language learning. (p. 2)

Another reason is that picturebooks are an example of multicultural literature. The International Literacy Association (2023) explains that multicultural literature is comprised of books, poetry, and various written works crafted by or centered around underrepresented or minority groups. Many English Language Learners are students who are members of one or both groups. Picturebooks are valuable because they can be used by teachers with students from diverse backgrounds.

Still, another reason deals with language and language development. One characteristic is that authentic texts use real-life language; that is, the language sounds like the natural language people use in everyday life. Picturebooks invite students to actively engage in meaningful conversations and learning experiences using natural language (Harste & Short, 1988). They include rich vocabulary, descriptive illustrations, and innovative designs.

Picturebooks are powerful because they have the "potential to act as a magnifying glass that enlarges and enhances the reader's personal interactions with a subject" (Vacca & Vacca, 2005, p. 161). They enable students to learn to read and read to learn simultaneously, not sequentially. Moreover, personally meaningful and culturally relevant picturebooks enable ELLs to develop important literacy skills. The "visual-verbal connection," or the act of associating pictures with text, supports second language learners' literacy needs and builds confidence and positive dispositions about reading (Henry & Simpson, 2001, p. 1).

Lastly, picturebooks are important because they can be used as mentor texts to improve second language learners' writing skills. Mentor texts are examples of excellent writing. Thompson and Reed (2019) state that mentor texts are:

written pieces that serve as an example of good writing for student writers. The texts are read for the purpose of studying the *author's craft*, or the way the author uses words and structures the writing. The goal is to provide students a model they could emulate in crafting their own piece. (p. 28)

Mentor texts allow students to see what good writing looks like and encourage them to use the same structure and style for their own writing. Picture books are short text, typically 32-pages, and thus allow students to reread a text to explore and imitate a good writing structure. By frequently exposing ELLs to high-quality picture books and using them as mentor texts, they will be able to see quality writing and eventually use their observation to improve their own writing (Dorfman & Capelli, 2009). For these, and many other reasons, picturebooks are excellent resources for teachers to use with English Language Learners.

### Picturebook Biographies

Picturebooks are valuable for English Language Learners as picturebook biographies are particularly important. One teacher learned this lesson from her third-grade students.

We were beginning the day with math. We were learning about picture graphs and I needed to conduct a survey on my students' favorite type of book. My lesson presented four book options: animals, arts and crafts, sports and fantasy. Students looked at the books, and one stated: "But where are the biographies?"

Fortunately, this teacher learned what many students, boys and girls, ELL and non-ELL, already know, namely, they have reading preferences. Farris et al. (2009) identified nine student preferences, one of which is biography. This is not a new revelation. Almost seventy-five years ago, Heriot (1948) noted that people, including young children, enjoy biography because people "have a normal interest in other people" (p. 98).

**Definition.** Biography is a "genre that tells the life story of a significant historical figure" (Coffin, 2006, p. 53). This genre has a rich literary history. Life stories about outstanding persons are popular in children's literature (Bjorlo, 2021). Michael Benton (2011), a prominent theorist of the biography genre, claims that biography is "a hybrid genre that is grounded in history but shares many of the characteristics of fiction" (p. 68). Picturebook biographies are important because the hybridity of the genre may also include interactions between the written text and various visual elements (Bjorlo, 2021). Fortunately, over the years, increasing numbers of picturebook biographies for children have been published (von Merveldt, 2018).

Qualities & Benefits. Picturebook biographies encompass a wealth of captivating qualities, echoing the sentiments highlighted by Heriot (1948) as she observed that they narrate true stories about people, imbuing them with inspirational ideals. These literary works have garnered favor among students, largely due to their embodiment of these attributes, coupled with the inclusion of thought-provoking illustrations that seamlessly intertwine with the narrative.

Moreover, the advantages of engaging with picturebook biographies span across readers of all age groups. For instance, these biographies:

- Illuminate significant and inspiring individuals hailing from diverse socio-cultural backgrounds, effectively fostering an appreciation for multicultural perspectives.
- Contribute to the portrayal and endorsement of positive representations of femininity and masculinity, promoting a well-rounded understanding of gender roles.
- Nourish students' cognitive growth by nurturing multiple interpretations and viewpoints (Morgan, 2009).
- Facilitate an immersive journey into the past, contextualized within authentic, meaningful, and engrossing textual narratives (Ellenmeyer & Chick, 2003).
- Deepen understanding about an individual's life experiences, the communities that shaped them, and the innate qualities that defined their character (Bruner, 2004).
- Uncover the profound impact of personal struggles, family origins, and character traits, transforming historical figures from mere timeline placeholders into threedimensional personas (Meyers et al., 2009).
- Serve as inspirational models for life choices, allowing students to grasp the interconnectedness of actions and outcomes.
- Portray the transformative journey from modest beginnings to triumphant outcomes, showcasing the potential within adversity (Temple et al., 2018).
- Extend an invaluable opportunity for students to identify with a diverse array of individuals, fostering a sense of inclusion and shared human experience.
- Enrich learning experiences by introducing novel information that diverges from traditional textbooks, offering a broader and more inclusive perspective (Lesesne, 2002).

In summary, the allure and benefits of picturebook biographies extend a compelling invitation to English Language Learners and readers of all backgrounds.

### **Selecting Picturebook Biographies**

We (William and Shabnam) are teacher educators teaching reading theory and practice with picturebook biographies. Typically, our own students often ask: There are so many picturebook biographies out there. How can I select the best ones to use with my students? This is a good question, one that we constantly ask ourselves. Table 5 illustrates some guidelines, in the form of questions, that we use to select picturebook biographies and picturebooks that reflect each guideline (Floyd & Hebert, 2010). We hope these guidelines will help teachers select excellent picturebook biographies to use with their own students.

Table 5: Guidelines for Selecting Picturebook Biographies

Guidelines	Example
Does the biography tell a good story? Does it have a "storyteller's flair"?	The Storytellers (Lewin, 1998).
Does the biography use dynamic language?	Mighty Jackie: The Strike-Out Queen (Moss, 2004)
Is the biography culturally authentic?	Planting Stories: The Life of Librarian and Storyteller Pura Belpre (Denise, 2019)
Is the biography culturally diverse?	The Junkyard Wonders (Polacco, 2010)
Is the biography respectful of cultural differences?	Tea With Milk (Say, 1999)
Is the biography factually accurate?	Dancing Hands: How Teresa Carreno Played the Piano for President Lincoln (Engle, 2019)
Is the biography unbiased and not stereotypical?	Drum Dream Girl: How One Girl's Courage Changed Music (Engle, 2015)
Is the biography told over some years and includes personal and professional information?	The Boy Who Dreamed of Infinity: A Tale of the Genius Ramanujan (Alznauer, 2020)
Is the biography realistic?	The Librarian of Basra: A True Story from Iraq (Winter, 2019)
Does the biography include illustrations that capture the life story and historical events accurately?	The Girl Who Thought in Pictures (Mosca, 2017)
Am I selecting male and female biographies?	Of Numbers and Stars: The Story of Hypatia (Love, 2006)
Am I selecting familiar and unfamiliar biographies?	Tiger of the Snows: Tenzing Norgay (Burleigh, 2006)

### **Final Thoughts**

This article was inspired by a simple story about a few students who were not motivated, despite teacher motivation, to complete an assignment, electing instead to accept a lower grade. Although simple, this story offers important lessons about the nature of learning. One lesson is that motivation may be helpful but, by itself, is insufficient. Inspiration is vital for learning. Another lesson is that inspiration provides intrinsic motivation for students to take charge of their own learning, pursue their own questions, develop their own voices, and outgrow what they currently know about themselves and others. Still, another lesson is that picturebook biographies can help. They are tools and toys for children to read about historically important people who look like them and do not look like them, talk like them and do not talk like them, dress like them and do not dress like them, etc. In the process, students learn more about themselves as well as about others who are not like themselves. Ultimately, we hope this article will start some new conversations about the power and potential of picturebook biographies to inspire all learners, especially English Language Learners.

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Mosca, J. F. (2017). The girl who thought in pictures: The amazing story of Dr. Temple Grandin. The Innovation Press.

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Say, A. (2009). Tea with milk. Clarion Books.

Thundercloud, R. (2022). Finding my dance. Penguin.

Winter, J. (2019). The librarian of Basra: A true story from Iraq. Clarion Books.

Table 1: Trailblazers and Daredevils

Title	Reference
	Trailblazers
The Boy Who Dreamed of Infinity: A Tale of the Genius Ramanujan	Alznauer, A. (2020). The boy who dreamed of infinity: A tale of the genius Ramanujan. Candlewick.
Never Give Up: Dr. Kati Karikó and the Race for the Future of Vaccines	Dadey, D. (2023). Never give up: Dr. Kati Kariko and the race for the future of vaccines. Dreamscape Media.
Planting Stories: The Life of Librarian and Storyteller Pura Belpre	Denise, A. A. (2019). <i>Planting Stories: The life of librarian and storyteller Pura Belpre</i> . HarperCollins.
The Marvelous Thing That Came from Spring: The Accidental Invention of the Toy That Swept the Nation	Ford, G. (2016). The marvelous thing that came from a spring: The accidental invention of the toy that swept the nation. Atheneum.
The Discovery of Longitude	Galat, J.M. (2012). <i>The discovery of longitude</i> . Pelican Publishing Company.
Talkin about Bessie: The Story of Aviator Elizabeth Coleman.	Grimes, N. (2002). <i>Talkin about Bessie: The story of aviator Elizabeth Coleman.</i> Scholastic.
A Lady Has the Floor: Belva Lockwood Speaks Out for Women's Rights.	Hannigan, K. (2018). A lady has the floor: Belva Lockwood speaks out for women's rights. Calkins Creek.
The Boy Who Loved Math: The Improbable Life of Paul Erdos.	Helligman, D. 2013). <i>The boy who loved math: The improbable life of Paul Erdos</i> . Roaring Book Press.
The Unbreakable Code	Hunter, S.H. (1996). The unbreakable code. Rising Moon.
Levi Strauss Gets a Bright Idea: A Fairly Educated Story of a Pair of Pants	Johnston, T. (2011). Levi Strauss gets a bright idea: A fairly educated story of a pair of pants. Harcourt.
Rough, Tough Charley.	Kay, V. (2007). Rough, tough Charley. Tricycle Press.
The Boy Who Invented TV: The Story of Philo Farnsworth	Krull, K. (2014). The Boy who invented TV: The story of Philo Farnsworth. Dragonfly Books.
Of Numbers and Stars: The Story of Hypatia	Love, D. A. 2006). <i>Of numbers and stars: The story of Hypatia</i> Holiday House.
Earmuffs for Everyone: How Chester Greenwood Became Known as the Inventor of Earmuffs.	McCarthy, M. (2015). Earmuffs for everyone: How Chester Greenwood became known as the inventor of earmuffs. Simon & Schuster.
Maryam's Magic: The Story of Mathematician Maryam Mirzakhani	Reid, N. (2021). <i>Maryam's magic: The story of mathematician Maryam Mirzakhani</i> . Balzer and Bray.
Queen of Physics: How Wu Chien Shiung Helped Unlock the Secrets of the Atom	Robeson, T. (2020). Queen of physics: How Wu Chein Shiung helped unlock the secrets of the am Sterling Children's Books
When Marian Sang: The True Recital of Marian Anderson	Ryan, P.M. (2002). When Marian sang: The true recital of Marian Anderson. Scholastic.
Lighter Than Air: Sophie Blanchard, the First Woman Pilot.	Smith, M. C. (2019). Lighter than air: Sophie Blanchard, the first woman pilot. Candlewick.
Ada Lovelace, Poet of Science: The First Computer Programmer.	Stanley, D. (2016). Ada Lovelace, poet of science: The first computer programmer. Simon & Schuster.
Brave Girl: Clara and the Shirtwaist Makers' Strike of 1909	Sweet, M. (2013). Brave girl: Clara and the shirtwaist makers' strike of 1909. HarperCollins.
Ada Byron Lovelace and the Thinking Machine	Wallmark, L. (2015). Ada Byron Lovelace and the thinking machine. Creston Books.
The Boy Who Thought Outside the Box: The Story of Video Game Inventor Ralph Baer	Wessels, M. (2020). The boy who thought outside the box: The story of video game inventor Ralph Baer. Sterling Children's Books. HarperCollins.

One Wish: Fatima al-Fihri and the World's Oldest University	Yuksel, M. O. (2022). One wish: Fatima al-Fihri and the worlds's oldest university.
	Daredevils
Ruth Law Thrills a Nation	Brown, D. (1993). Ruth Law thrills a nation. Ticknor & Fields.
Fearless Mary: Mary Fields, American Stagecoach Driver	Charles, T. (2019). Fearless Mary: Mary Fields, American stagecoach driver. Albert Whitman & Company.
Flying Solo: How Ruth Elder Soared into America's Heart	Cummins, J. (2013). Flying solo: How Ruth Elder soared into America's Heart. Roaring Brook Press.
Sam Patch: Daredevil Jumper	Cummings, J. (2009). Sam Patch: Daredevil jumper. Holiday House.
Fearless Flyer: Ruth Law and Her Flying Machine	Lang, H. (2016). Fearless flyer: Ruth Law and her flying machine. Calkins Creek.
Daredevil: The Daring Life of Betty Skelton	McCarthy, M. (2013). Daredevil: The daring life of Betty Skelton. Simon & Schuster.
Brave Harriet: The First Woman to Fly the English Channel	Moss, M. (2001). Brave Harriet: The first woman to fly the English Channel. Silver Whistle.
Chico	O'Connor, S.D. (2005). Chico. Dutton Juvenile.

Table 2: Sports Figures

Title	Reference
Shoeless Joe and Black Betsy	Bildner, P. (2002). Shoeless Joe and black Betsy. Simon & Schuster.
Players in Pigtails	Corey, S. (2010). Players in pigtails. National Geographic.
Girl Wonder: A Baseball Story in Nine Innings	Hopkinson, D. (2003). Girl wonder: A baseball story in nine innings. Aladdin.
Catching the Moon: The Story of a Young Girl's Baseball Dream.	Hubbard, C. (2005). Catching the moon: The story of a young girl's baseball dream. Lee & Low Books.
The Boy in Number Four	Kootstra, K. (2014). The boy in number four. Dial Books.
Roller Derby Rivals	Macy, S. (2014). Roller derby rivals. Holiday House.
Basketball Belles: How Two Teams and One Scrappy Player Put Women's Hoops on the Map	Macy, S. (2011). Basketball belles: How two teams and one scrappy player put women's hoops on the map. Holiday House.
Miss Mary Reporting: The True Story of Sportswriter Mary Garber	Macy, S. (2016). Miss Mary reporting: The true story of sportswriter Mary Garber. Simon & Schuster.
Baseball Saved Us	Mochizuki, K. (1993). Baseball saved us. Lee & Low Books.
Mighty Jackie: The Strike-out Queen	Moss, M. (2004). <i>Mighty Jackie: The strike-out queen</i> . Simon & Schuster.
Dirt on Their Skirts: The Story of the Young Women Who Won the World Championship	Rappaport, D. (2000). Dirt on their skirts: The story of the young women who won the world championship. Dial Books.
Dust Bowl Girls: The Inspiring Story of the Team that Barnstormed its Way to Basketball Glory	Reeder, L. (2017). Dust bowl girls: The inspiring story of the team that barnstormed its way to basketball glory. Algonquin Books.
Leagues Apart: The Men and Times of the Negro Baseball Leagues	Ritter, L.S. (1995). Leagues apart: The men and times of the negro baseball leagues. Morrow Junior Books.
Yogi: The Life, Loves, and Language of Baseball Legend Yogi Berra	Rosenstock, B. (2019). Yogi: The life, loves, and language of baseball legend Yogi Berra. Calkins Creek.

Streak: How Joe Dimaggio Became America's	Rosenstock, B. (2014). Streak: How Joe Dimaggio became
Hero	America's hero. Calkins Creek.
The Kid from Diamond Street: The Extraordinary Story of Baseball Legend Edith Houghton	Vernick, 2016). The kid from diamond street: The extraordinary story of baseball legend Edith Houghton. Clarion Books.
She Loved Baseball: The Effa Manley	Vermick, A. (2010). She loved baseball: The Effa Manley story. Clarion Books.
All Star! Honus Wagner and the Most Famous Baseball Card Ever	Yolen, J. (2010). All Star! Honus Wagner and the most famous baseball card ever. Philomel.

**Table 3: Heroes Conquering Disabilities** 

Title	Reference
The William Hoy Story: How a Deaf Baseball Player Changed the Game	Churin, N. (2016). The William Hoy story: How a deaf baseball player changed the game. Albert Whitman & Company.
My Heart Glow: Alice Cogswell, Thomas Gallaudet, and the Birth of the American Sign Language	McCully, E.A. (2008). My heart glow: Alice Cogswell, Thomas Gallaudet, and the birth of the American sign language. Hyperion.
The Girl Who Thought in Pictures	Mosca, J.F. (2017). The girl who thought in pictures. Scholastic.
The Junkyard Wonders	Polacco, P. (2010). The junkyard wonders. Scholastic.
A Boy and a Jaguar	Rabinowitz, A. (2014). A boy and a jaguar. Clarion Books.
I Talk Like a River	Scott, J. (2020). I talk like a river. Neal Porter Books.

Table 4: Historical Figures from Countries, Regions, and Cultures Around the World

Title	Reference	
COUNTRY		
Afghanistan		
The Sky of Afghanistan	Eulate, A. (2012). The sky of Afghanistan. Cuento de Luz.	
I See the Sun in Afghanistan	King, D. (2011). <i>I see the sun in Afghanistan</i> . Satya House Publications.	
Fly, Girl, Fly!: Shaesta Waiz Soars Around the World	Pimm, N.R. (2020). Fly, girl, flyl: Shaesta Waiz soars around the world. Beaming Books.	
The Library Bus	Rahman, B. (2020). The library bus. Pajama Press.	
Brave with Beauty: A Story of Afghanistan	Schur, M.R. (2019). <i>Brave with beauty: A story of Afghanistan</i> . Yali Publishing.	
Razia's Ray of Hope: One Girl's Dream of an Education	Sunby, E. (2020). Razia's ray of hope: One girl's dream of an education. Kids Can Press.	
Four Feet, Two Sandals	Williams, K. L. (2007). Four feet, two sandals. Eerdmans.	
Argentina		
Who Was Che Guevara?	Labrecque, E. (2019). Who was Che Guevara? Penguin Workshop.	
Evita: Opposites	Rodruquez, P. (2018). Evita: Opposites. Lil' Libros.	
Bangladesh		
Yasmin's Hammer	Malaspina, A. (2015). <i>Yasmin's hammer</i> . Lee & Low Books.	

The Unexpected Friend: A Rohingya Children's Story	Rahman, R. R. (2020). <i>The unexpected friend: A Rohingya children's story</i> . Guba Publishing.
Iqbal and His Ingenious Idea: How a Science Project Helps One Family and the Planet	Suneby, E. (2018). <i>Iqbal and his ingenious idea: How a science project helps one family and the planet.</i> Kids Can Press.
Twenty-two Cents: Muhammad Yunus and the Village Bank	Yoo, P. (2018). Twenty-two cents: Muhammad Yunus and the village bank. Lee & Low Books.
	Canada
Gaawin Gindaaswin Ndaawsii/I Am Not a Number	Dupuis, J. K. (2019). Gaawin Gindaaswin Ndaawsii/I am not a number. Second Story Press.
When I Was Eight	Jordan-Fenton, C. (2013). When I was eight. Annick Press.
When We Were Alone	Robertson, D. A. (2016). When we were alone. Press.
Phyllis's Orange Shirt	Webstad, P. (2019). <i>Phyllis's orange shirt</i> . Medicine Wheel Education.
Pablo Neruda: Poet of the People	Brown, M. (2011). <i>Pablo Neruda: Poet of the people.</i> Henry Holt and Co.
My Name is Gabriela	Brown, M. (2005). <i>My name is Gabriela</i> . Cooper Square Publishing.
	Cuba
Drum Dream Girl: How One Girl's Courage Changed Music	Engle, M. (2015). <i>Drum dream girl: How one girl's courage changed music.</i> HMH Books for Young Readers.
The Wildest Race Ever: The Story of the 1904 Olympic Marathon	McCarthy, M. (2016). The wildest race ever: The story of the 1904 Olympic marathon. Simon & Schuster.
Marti's Song for Freedom	Otheguy, E. (2017). <i>Marti's song for freedom.</i> Lee & Low Books.
Domi	inican Republic
Islandborn	Diaz, J. (2018). <i>Islandborn.</i> Dial Books.
If Dominican Were a Color	Recio, S. (2020). <i>If Dominican were a color.</i> Denene Millner Books.
Growing Up Pedro: How the Martinez Brothers Made it from the Dominican Republic All the Way to the Major Leagues.	Tavaras, M. (2017). Growing up Pedro: How the Martinez brothers made it from the Dominican Republic all the way to the major leagues. Candlewick.
	Egypt
Nefertiti	Parker, K. (2020). Nefertiti. Scholastic.
Hands Around the Library: Protecting Egypt's Treasured Books	Roth, S.L., & Abouraya, K.L. (2012). Hands around the library: Protecting Egypt's treasured books. Dial Books.
	France
Seeker of Knowledge: The Man Who Deciphered Egyptian Hieroglyphs	Rumford, J. (2000). Seeker of knowledge: The man who deciphered Egyptian hieroglyphs. Houghton Mifflin.
Henri's Scissors	Winter, J. (2013). Henri's scissors. Beach Lane Books.
	Germany
Just Like Rube Goldberg: The Incredible True Story of the Man Behind the Machines	Aronson, S. (2019). Just like Rube Goldberg: The incredible true story of the man behind the machines. Beach Lane Books.
Rube Goldberg's Simple Normal Humdrum School Day	George, J. (2017). Rube Goldberg's simple normal humdrum school day. Abrams Books.

Nadia's Good Geed: A Story About Haiti	Harris, R. (2014). <i>Nadia's good deed: A story about Haiti.</i> John Fielder Publishing.
Selavi, that is Life: A Haitian Story of Hope	Landowne, Y. (2004). Selavi, that is life: A Haitian story of hope. Cinco Puntos Press.
Toussaint L'ouverture: The Fight for Haiti's Freedom	Myers, W.D. (1996). <i>Toussaint L'ouverture: The fight for Haiti's freedom.</i> Simon & Schuster.
Hoops for Haiti	Siumilien, c. (2021). <i>Hoops for Haiti.</i> Independently Published.
Radiant Child: The Story of Young Artist Jean- Michel Basquiat	Steptoe, J. (2016). Radiant child: The story of young artist Jean-Michel Basquiat. Little Brown Books.
Jean-Michel Basquiat	Vegara, M.I.S. (2020). <i>Jean-Michel Basquiat</i> . Frances Lincoln Children's books.
	Holland
Van Gogh and the Sunflowers	Anholt, L. (2007). Van Gogh and the sunflowers. B.E.S
The Story of Anne Frank: A Biography Book for New Readers	Berne, E. C. (2021). The story of Anne Frank: A biography book for new readers. Rockridge Press.
Anna and Johanna: A Children's Book Inspired by Jan Vermeer	Elschner, G. (2018). Anna and Johanna: A children's book inspired by Jan Vermeer. Prestel Junior.
Anne Frank	Genius, I. I. (2021). Anne Frank. IIG Publication.
Vincent van Gogh: He Saw the World in Vibrant Colors	Guglielmo, a. (2021). Vincent van Gogh: He saw the world in vibrant colors. DK Children.
I Am Anne Frank	Meltzer, B. (2020). I am Anne Frank. Dial Books.
Vincent Can't Sleep: Van Gogh Paints the Night Sky	Rosenstock, B. (2017). Vincent can't sleep: Van Gogh paints the night sky. Knopf Books.
-	Honduras
Berta saves the River	Llewellyn S. (2021). <i>Berta saves the river</i> . Share Foundation.
The Good Garden: How One Family Went from Hunger to Having Enough	Milway, K.S. (2020). The good garden: How one family were from hunger to having enough. Kids Can Press.
Rosalia: The Honduran American.	Osoria, C. (2020). <i>Rosalia: The Honduran American</i> Osoria Independent Publishing.
	India
The Boy Who Grew a Forest	Gholz, S. (2019). <i>The boy who grew a forest.</i> Sleeping Bea Press.
Grandfather Gandhi	Gandhi, A. (2014). Grandfather Gandhi. Atheneum
The Story of Gandhi: A Biography Book for New Readers	Katz, S.B. (2020). <i>The story of Gandhi: A biography book for new readers</i> . Rockridge Press.
She Sang for India: How M.S. Subbulakshmi Used Her Voice for Change	Subramamiam, S. (2022). She sang for India: How M. S. Subbulakshmi used her voice for change. Farrar, Status and Giroux.
	Iran
A Refugee's Journey from Iran	Hudak, H.C. (2018). A refugee's journey from Iran. Crabtree Publishing Company.
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Maryam's Magic: The Story of Mathematician Maryam Mirzakhani	Reid, M. (2021). Maryam's magic: The story of mathematician Maryam Mirzakhani. Balzer & Bray.
Maryam's Magic: The Story of Mathematician	Reid, M. (2021). Maryam's magic: The story of

Silent Music: A Story of Baghdad	Rumford, J. (2008). <i>Silent music: A story of Baghdad.</i> Roaring Brook Press.
Alia's Mission	Stamaty, M.A. (2010). Alia's mission. Dragonfly Books.
The Librarian of Basra: A True Story from Iraq	Winter, J. (2019). <i>The librarian of Basra: A true story from Iraq.</i> Clarion.
	Israel
Young Captain on a Broken Boat	Adler, I. (2021). Young captain on a broken boat. Zaccmedia.
Golda Meir: A Strong, Determined Leader	Adler, D. A. (2015). Golda Meir: A strong, determined leader. Puffin Books.
A Queen to the Rescue: The Story of Henrietta Szold, Founder of Hadassah	Churnin, N. (2021). A queen to the rescue: The story of Henrietta Szold, founder of Hadassah. Creston Books.
Little Judah in America	Dauid, H. (2017). <i>Little Judah in America</i> . The Awakening Remnant Koalition.
Goldie Takes a Stand: Golda Meir's first crusade.	Krasner, B. (2014). <i>Goldie takes a stand: Golda Meir's first crusade</i> . Kar-Ben Publishing.
The Language of Angels: A Story about the Reinvention of Hebrew	Michelson, R. (2017). The language of angels: A story about the reinvention of Hebrew. Charlesbridge.
Osnat and Her Dove: The True Story of the World's First Female Rabbi	Samuel, S. (2021). Osnat and her dove: The true story of the world's first female Rabbi. Querido Independent Publishing
	Italy
I, Galileo	Christensen, B. (2012). <i>I, Galileo</i> . Knopf Books.
Leonardo da Vinci: Extraordinary Machines	Hawcock, D. (2019). Leonardo da Vinci: Extraordinary machines. Dover Publications.
Bartali's Bicycle: The True Story of Gino Bartali, Italy's Secret Hero.	Hoyt, M. (2021). Bartali's bicycle: The true story of Gino Bartali, Italy's secret hero. Quill Tree Books.
The Story of Leonardo da Vinci: A Biography Book for New Readers	O'Neal, C. (2021). The story of Leonardo da Vinci: A biography book for new readers. Rockridge Press.
Starry Messenger: A Book Depicting the Famous Scientist, Mathematician, Astronomer, Philosopher, and Physicist: Galileo Galilei	Sis, P. (2000). Starry messenger: A book depicting the of a famous scientist, mathematician, astronomer, philosopher, and physicist: Galileo Galilei. San Val.
	Morocco
Naseem's Journey	Farmay, A. (2019). <i>Naseem's journey</i> . CreateSpace Independent Publishing.
The Storytellers	Lewin, T. (1998). <i>The storytellers</i> . Lothrop, Lee & Shepard Books.
	Nepal
Tiger of the Snows: Tenzing Norgay-the <b>B</b> oy Whose Dream Was Everest	Burleigh, R. (2010). Tiger of the snows: Tenzing Norgay-the boy whose dream was Everest. Atheneum.
Chandra's Magic Light: A Story in Nepal	Heine, T. (2014). Chandra's magic light: A story in Nepal. Barefoot Books.
Everest: The Remarkable Story of Edmund Hillary and Tenzing Norgay	Stewart, A. (2020). Everest: The remarkable story of Edmund Hillary and Tenzing Norgay. Bloomsbury Children's Books.
	Pakistan
Basket of Bangles	Howard, G. (2002). Basket of bangles. Millbrook Press.

Listen to the Wind	Mortenson, G., & Roth, S.L. (2009). <i>Listen to the wind.</i> Dial Books.
Four Feet, Two Sandals	Williams, K.L., & Mohammed, K. (2007). Four feet, two sandals. Eerdmans.
Iqbal: A Brave Boy from Pakistan.	Winter, J. (2014). <i>Iqbal: A brave boy from Pakistan</i> . Beach Lane Books.
Malala: A Brave Girl from Pakistan	Winter, J. (2014). <i>Malala: A brave girl from Pakistan.</i> Beach Lane Books.
	Peru
Sharuko: Peruvian Archaeologist Julio C. Tello	Brown, M. (2020). Sharuko: Peruvian archaeologist Julio C. Tello. Lee & Low Books.
Kusikiy: A Child from Taquile, Peru	DCecilia, M. (2011). <i>Kusikiy: A child from Taquile, Peru.</i> Keeper of Wisdom and Peace Books.
Martin de Porres: The Rose in the Desert	Schmidt, G.D. (2012). Martin de Porres: The rose in the desert. Clarion.
The Pied Piper of Peru	Tompert, A. (2002). <i>The pied piper of Peru.</i> Boyds Mill Press.
	Romania
Nadia: The Girl Who Couldn't Sit Still	Gray, K. (2016). <i>Nadia: The girl who couldn't sit still.</i> Clarion Books.
	Russia
Anastasia's Album: The Last Tsar's Youngest Daughter Tells Her Own Story	Brewster, H. (1996). Anastasia's album: The last Tsar's youngest daughter tells her own story. Hyperion.
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S	outh Africa
Nelson Mandela	Nelson, K. (2019). <i>Nelson Mandela</i> . Katherine Tegen books.
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Pablo Picasso	Venezia, M. (2014). Pablo Picasso. Children's Press.
	Syria
Yusra Swims	Abery, J. (2020). Yusra swims. Creative Editions.
My Name is Bana	Alabed, B. (2021). <i>My name is Bana</i> . Salaam Reads.

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Thailand	
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The Floating Field: How a Group of Thai Boys Built Their Own Soccer Field	Riley, S. (2021). The floating field: How a group of Thai boys built their own soccer field. Millbrook Press.
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### Multimodal Literacies in Elementary Teacher Education: Facilitating Culturally Relevant Pedagogy with Mathematics

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### **ABSTRACT**

This study presents qualitative action research conducted in elementary teacher education coursework. Teacher candidates were introduced to multimodal literacies in mathematics by representing and communicating content through multiple modes such as signs, symbols, images, text, gestures, manipulatives, music, videos, and more. Teacher candidates used multimodal literacies to implement and understand culturally relevant pedagogy in their assignments as students, in lesson plans, and in-field experience exercises during a semester course. Three focal participants are outlined to highlight similarities and differences across cases through the ways teacher candidates navigated coursework with multimodal literacies and mathematics while enacting culturally relevant pedagogy. Multiple assignments from each participant were collected and analyzed, culminating with a post-term semistructured interview. Findings illuminate intricate interactions within teacher candidates' multiple identities through their cultural awareness with others and in disciplinary connections. Their learning and teaching development illustrates a dynamic interplay of literacy, multimodality, and mathematics with the implementation of culturally relevant pedagogy, ultimately suggesting the need for teacher educators to consider how these connections can be best facilitated.

### **KEYWORDS**

multimodal literacies; disciplinary literacies; culturally relevant pedagogy; teacher education

Researchers, educators, and students often differ in their perspectives toward effective mathematics instruction and elementary pedagogy. Frequently, descriptions of mathematics "best practices" vary, which can leave teacher candidates (TCs) and their own possible students confused, frustrated, and ill-prepared (Greenberg & Walsh, 2008; Lee & Ginsburg, 2009). This article reports on the investigation of elementary TCs as they navigated multiple identities in an elementary mathematics methods course. Participating TCs were future or current teachers undergoing the certification process, while also engaging as students of mathematics, literacy, and mathematics pedagogy.

The research took place in multiple cycles and semesters of instruction for the same required course at a university in the Southeastern United States. The study was designed to explore teacher education with multimodal literacies (Kress, 2010) and culturally relevant pedagogy (CRP; Ladson-Billings, 1995) for undergraduate and Master of Arts in Teaching (MAT) candidates as they participated in elementary mathematics coursework. As the TCs' professor in the course, I sought to answer the following research question and sub-questions:

• How do teacher candidates utilize multimodal literacies to represent, understand, and enact CRP in elementary mathematics?

- o In what ways do teacher candidates' experiences with multimodal literacies facilitate changes over time in their understanding of CRP in elementary mathematics?
- What do teacher candidates' choices when utilizing multimodal literacies reveal about their understanding of CRP in elementary mathematics?

In exploring these questions, I aim to contribute to the developing literature surrounding CRP and mathematics instruction. Interestingly, though studies have intentionally investigated TCs and CRP, including some that specifically focus on mathematics teaching, very few explicitly also recognize their important intersections with literacy practices (Leonard et al., 2014). In turn, the findings of this study proffer the use of multiple literacies to further understand and frame these possibilities.

#### Literature

It is essential for elementary TCs to be effectively prepared in mathematics pedagogy as they develop in coursework. Significant attention has been given to mathematics anxiety common in TCs and how to help them grow in confidence and self-efficacy in teacher preparation programs (Isiksal et al., 2009; Tassell et al., 2020). To this end, related research has supported utilizing many facets of reflection throughout elementary TCs mathematics coursework and field placements (Saylor & Johnson, 2014; Wickstrom et al., 2018). These and other studies affirm the need to tactfully consider, value, and acknowledge the multiple identities of TCs while they learn conceptual elementary mathematics alongside elementary mathematics pedagogy (Lutovac, 2020; Lutovac & Kaasila, 2014).

Further, research in elementary mathematics teacher education problematizes how teachers frequently instruct mathematics the same way they were taught (Blanco et al., 2013), and how mathematics instruction generally involves decontextualized and procedural methods lacking a sociocultural lens (Taylor, 2018). Relatedly, studies demonstrate that students and teachers can often resist notions of incorporating or validating culture in mathematics and dismiss possibilities for relevant associations and connections of culture with mathematics content. Nevertheless, disciplinary experts and proponents of CRP argue that CRP with mathematics topics and instruction is not only a possible consideration but a vital one (Brown, 2020; Dominguez et al., 2014; Enyedy et al., 2011). Students of multiple ages can be provided opportunities to engage with mathematics concepts in agentic, engaging, and empowering ways that promote social justice, critical thinking, and problem-solving. However, implementing this instruction within certain paradigms requires an intentional, invested, and persistent shift in perspectives on pedagogy and mathematics, thus illuminating the complexities of effectively incorporating CRP into mathematics classrooms at various levels (Maloney & Matthews, 2020; Wiggan et al., 2020).

Studies that consider the challenges of apprenticing TCs into CRP with their students and contexts frequently involve coursework that incorporates assignments with community engagement, reflective work, and critical conversations (Aguirre et al., 2012; Kelly, 2020; Turner & Drake, 2016). Moreover, they often use iterative implementations of a study design through multiple semesters where teacher educators (TEs) refine their courses and investigate TCs' experiences (Leonard et al., 2014; Mark & Id-Deen, 2020). Since applying CRP to mathematics instruction can be seen by TCs as difficult or improbable, researchers in these areas illustrate the continuing call to facilitate and redirect possibly resistant perspectives of TCs toward embracing

culturally relevant innovations and options in mathematics instruction (Averill et al., 2009; Brown et al., 2019).

Accordingly, research suggests content literacy instruction and children's literature as effective approaches for integrating CRP into elementary mathematics instruction and TC preparation (Hintz & Smith, 2013; Leonard et al., 2014; Sheppard, 2011). These combined considerations demonstrate a need for investigating ways elementary mathematics instruction and teacher education can reflect and incorporate multiple literacies with CRP. Specifically, research recommendations often allude to or utilize what are known as multimodal literacies without explicitly identifying or explaining their role in instruction.

Stein (2008) describes multimodality as the combinations of different modes individuals use to represent and communicate meaning like speech, writing, image, gesture, and sound. Thus, mathematics instruction is inherently multimodal (Arzarello & Robutti, 2010; Daher, 2014; Freeman et al., 2016). Nonetheless, not all educators recognize the value and/or nature of multimodal literacies and how influential they may be in cultivating CRP in STEM subjects (Hsu et al., 2013; Taylor, 2018; Youngjoo & Jayoung, 2015). There is a significant dearth in research around multimodal literacies in higher education, specifically with teacher preparation (Cardoso, 2017). Consequently, teacher education must evolve in its instructional pedagogies with multimodal literacies (Craddock, 2022; Serafini, 2015).

Studying and blending views of multimodal literacies and CRP in mathematics requires a framework that joins disciplinary and social literacy perspectives. While the discipline of mathematics uses specific literacies germane to its content and context, its discourse also involves sociocultural perspectives (Shanahan & Shanahan, 2017). In other words, mathematics discourse and literacy practices are more than isolated multimodal representations; rather, they encompass individuals' identities and social ways of "doing" mathematics in particular contexts (Gee, 2014). The multimodal register of mathematics cannot be separated from social and cultural ways it is communicated and represented. Finally, while disciplinary literacy is often emphasized in secondary and higher education fields, it is increasingly recognized as a valid, relevant consideration for elementary contexts, which merits more investigation and attention in application (Shanahan & Shanahan, 2014).

#### **Theoretical Framework**

Though CRP is a widely accepted framework in the educational field, this research's combined perspective on multimodal literacies in mathematics as being both discipline-specific and social engenders a more focused lens grounded in sociocultural literacy perspectives and the three tenets of CRP including academic success, cultural competence, and critical consciousness (Ladson-Billings, 1995). Through previous iterations of action research that took place in my own classroom, I developed a framework with key aspects to approach instruction and research when utilizing multimodal literacies in content areas known as ICARe: Identity engagement, Critical engagement, Authentic engagement, and Relevant engagement (Craddock, 2022). Accordingly, I detail and support with salient literature individual aspects of the framework.

# **Identity Engagement**

McCarthey and Moje (2002) propose a reciprocal, influential relationship exists between identities and literacy practices, that student identity, literacy, and learning are intricately connected. Additionally, Gee's (2014) previously cited theory on Discourses grounds identity as a social literacy construction that draws upon multiple modes. Discourses are identity kits including how

to dress, act, talk, and often write. Therefore, disciplinary literacies are examples of Discourses; educators must apprentice students into the practices of different disciplines to participate meaningfully.

# Critical Engagement

Critical literacy practices, like constructing and critiquing arguments during instruction, are evident in multiple content areas, though they vary across disciplines. Individuals who engage in critical literacies can be empowered to problem-solve, challenge structures, and develop agency in learning (Freire & Macedo, 1987; Janks, 2013). Critical literacy engagement is often articulated through multimodal literacies since proving, justifying, and explaining can require multiple modes in different contents (Brown et al., 2019).

While critical and social connections can be seen as more difficult to make in mathematics, especially at the elementary level, I encourage educators to adopt a dynamic, innovative lens for content applications of critical literacy engagement. That while pertinent practices involved in justification and explanation differ depending on content and age, developing creative connections is not only a plausible consideration in mathematics, but by very nature, a powerful one. For example, mathematical standards can naturally facilitate critical concepts of equity, fairness, sharing, and justice when educators are inspired to imagine and cultivate these possibilities through literacy practices.

# Authentic Engagement

Authentic literacy practices are described as combining language, literacy, and learning to make instruction functional, accessible, and socially constructed through problem-posing and problem-solving (Dominguez et al., 2014; Goodman & Goodman, 2011). This authenticity is also characterized by literacy experiences purposefully connected to students' lives (Behizadeh, 2015; Wargo, 2020). Specifically, authentic disciplinary literacies include critiquing and sharing work with students and communicating to real audiences. In elementary mathematics, these practices innately engage multiple modes like pictures, signs, symbols, videos, manipulatives, tables, graphics, and food (to name a few).

# Relevant Engagement

Individuals engage with content they identify as relevant to their lives, desiring connections between disciplinary literacies and typical, familiar practices (Wynter-Hoyte et al., 2019). Burns (2008) posits relevant literacy practices often involve multimodal text rather than print-only instruction, which can be irrelevant and disengaging. Consequently, multimodal literacies are one possible means of making relevant connections to the disciplinary literacies of elementary mathematics through games, art, music, crafts, tactile puzzles, emojis, comics, and storybooks. To clarify, I differentiate authentic engagement as "functional" and relevant engagement as "familiar." Thus, authentic and relevant engagement are indicated separately in the framework; though, they are not necessarily mutually exclusive and can often evoke similar applications.

The elements of ICARe emphasize how multimodal literacy practices can cohesively facilitate student engagement that would promote the academic success, cultural competence, and critical consciousness central to CRP in ways that often overlap and are not always distinct; Table 1 aims to clarify potential connections in the frameworks.

Table 1: Framework Correspondence

ICARe components	CRP domains
Identity engagement	Cultural competence
(validates and incorporates individuals)	Critical consciousness
Critical/Civic Engagement	Cultural competence
(promotes possible critical/civic applications)	Critical consciousness
Authentic engagement	Academic success
(illuminates real purposes/audiences)	Critical consciousness
Relevant engagement	Academic success
(facilitates and relates familiar practices)	Cultural competence

I taught TCs about ICARe and multimodal literacies during coursework and discussed with them how I intentionally incorporated aspects of ICARe into our assignments. I likewise encouraged them to consider leveraging multimodal literacies in tasks and lesson plans for their own students to mirror these same goals. I follow with my approach to the study's design through this instruction.

# Methodology

I engaged in practitioner inquiry positioning myself, as teacher-researcher, and TCs enrolled in elementary mathematics methods as central to identifying and improving the problem of practice (Glesne, 2016; McCutcheon & Jung, 1990). This action research design of "inquiry as stance" emphasizes researcher reflexivity, critical inquiry, and multiple sources to ensure trustworthiness (Cochran-Smith & Lytle, 2009).

# Design

I used purposive sampling of multiple participants as qualitative case studies to gain a natural, holistic perspective of social context in practice (Creswell, 2014; Glesne, 2016). Participants were recruited and consented to participate by my colleague at the institution in the beginning of each semester. TCs' development and perceptions of CRP in elementary mathematics pedagogy were facilitated through instruction with, and their uses of, multimodal literacies including written reflections, lesson plans, online class forums, online Zoom sessions, creative writing assignments, children's literature selections, games, tactile and virtual manipulatives, mathematics exercises and assessments, and presentations (such as PowerPoints, Prezis, storybooks, songs, or videos). Some of the most popular digital presentation modalities I suggested to TCs included Flipgrid and a site called Canva which allows the user to choose from many different graphics, templates, and images to make a variety of visual displays that can include music, comics, infographics, slides, and posters. Through consenting, TCs allowed their assignments to become a part of research and could opt into an opportunity for a focus group or individual interview after the semester ended.

# **Participants**

From the courses, 27 participants' work samples were collected and six TCs agreed to some form of interview opportunity. Because each participant illuminated different multimodal experiences and interpretations that are best understood through thorough description, this article will detail only three focal participants from the courses (pseudonyms provided). While one course was for

undergraduates and delivered face-to-face, the other was a fully online graduate course with asynchronous and synchronous components. Though the majority of the assignments for the courses were the same, I will distinguish which participants took certain courses because the study reveals a relationship between course delivery on TCs' uses and interpretations of different modalities related to the research questions.

Britney was an elementary education TC in her final block of coursework just before student teaching. She is a white female and a local mom who was born and raised near our university while taking full-time face-to-face coursework for her undergraduate degree. Jackie was a TC in our elementary MAT program completing her final semester of courses before student teaching. She also is a white, female mom who formerly had a career background in business/accounting (her undergraduate degree field). She was working part time assisting in a school near her home. Kyla was employed as a teacher and concurrently enrolled in our elementary MAT program to gain certification. She had a background in music and music education, teaching it at multiple levels including college music courses. Interestingly, she, too, is a female mom and was working full time as a first-grade teacher of record in a school near her home. More than once in class sessions she self-identified as a Pacific Islander and commented on this as a notable aspect of her identity.

#### **Data Sources**

Each of the three participants engaged with me after their terms in a semi-structured interview lasting approximately 30–60 minutes on Zoom to discuss coursework, key takeaways, and assignments. These interviews were transcribed for accuracy. To reinforce trustworthiness and validity, I conducted member checks with participants after drafting a final manuscript.

Multiple assignments were collected from participants, but only 12 for each participant were included in analysis based on the assignments that had a paired match between courses. This included two formal lesson plans taught during field experience assignments accompanied by reflections. Additionally, participants completed pre-assessment and post-assessment reflection papers which detailed their feelings and perceptions toward mathematics as both teachers and students. Other noteworthy assignments included presentations of a culturally relevant "lesson seed" based around a children's literature book of their choice and a reflection paper detailing disciplinary literacies observed during their field experience hours.

Specifically, Britney also created a multimodal presentation on Canva in response to a place-based multimodal literacy "field trip" we took in our face-to-face class. This trip involved visiting a local, downtown art museum along with walking to and through a sculpture memorial garden celebrating southern American and Black history in our university's city. Although Jackie and Kyla's class did not go on this trip because online candidates enroll in our program from various locations, they completed a corresponding online module and discussion about empirical research articles involving children's literature, multimodal literacies, and CRP in mathematics.

Finally, video recordings of online instructional sessions were collected to capture the complex multimodal interactions which field notes and observations could not afford, especially given I was the researcher and instructor. These videos bolstered trustworthiness with the opportunity to revisit participants' strategies and conversations while collaborating, manners and gestures in presenting, class dynamics and structure, and interactions among TCs during discussions when multimodal literacies were utilized.

# Data Analysis

I analyzed data through a social semiotic multimodal framework according to social context (Kress, 2010). I incorporated multimodal analysis suggested by Kim and Kim (2016) who utilized Halliday and Hasan's (1989) analysis of language according to field, tenor, and mode. Field describes the topic of the language involved, tenor describes relationships between participants in the language interaction, and mode describes the role of the language in context. With field, tenor, and mode as a frame, I coded class videos and TCs assignments. Through this approach, I analyzed participants' gestures, images, videos, dialogue, and text throughout their work, class interactions, and discussions. I utilized CAQDAS software, NVivo, to directly code selected portions of each of the data sources including video recordings (Paulus et al., 2014). Codes were generated with an inductive approach using initial coding, leading to a second cycle of focused coding (Saldaña, 2009).

field-student connectio.. field-TC understanding disciplin... field-teacher role field-math activity field-practical ... field-field ... field-TC growth field-teacher cultural awa... field-TC ideo... field-math is more ... field-math enga field-TC reflection field-student creativity field-st. field-math disco... field-student belonging field-math literac. field-community field-multimodal problem solving field-language fie.. field-art is story field-math is multimoda field-local his. field-childrens li... field-expres... field-cultu. field-multimodal.

Figure 1: Hierarchy Chart of Codes to Suggest Emerging Themes

True to the heart of the study and design, I utilized NVivo's multimodal functions for cross-case visual comparisons within participants to recognize growth, changes, and commonalities of codes between pre- and post-reflection assignments. I also used a similar hierarchy chart function, which takes qualitative text codes and displays them in a multimodal, mathematical model grouped by percentage, frequency, and subcategories. One example I used to ultimately indicate pervasive themes is depicted in Figure 1. Lastly, an analysis of language in social context through coding of field, tenor, and mode is illustrated by a specific example from one of Kyla's multimodal video presentations. Figure 2 presents the coding stripes that correspond to the subsequent video slides and timestamps depicted below them.



Figure 2: Coding Stripes of Data Analysis for Kyla's Video Presentation

### **Findings**

The findings can be grouped by key themes present in the data analysis. Each clarifies ways in which TCs utilized multimodal literacies to make culturally relevant connections during coursework. These connections will be further clarified in sections that include intrapersonal and interpersonal connections along with interdisciplinary and intercultural connections.

# **Negotiating Intrapersonal Connections**

Multimodal literacies are shown to be valuable resources for integrating student identity with learning in diverse contexts (Kelly, 2012; Taylor, 2018). This study confirms multimodal literacies were a vehicle to negotiate connections between TCs own mathematics learning experiences and CRP in mathematics instruction. The findings illuminate a multifaceted perspective of TCs identities as both students and teachers. Interestingly, even the ways they articulated their own identities as students and teachers were not singular.

TCs were given options in responding to classroom exercises through multiple modes (though more frequently in the online course) which included video recordings using Flipgrid, multimodal presentations, and more traditionally written discussion forums and essays. Through these choices, participants utilized multimodal literacies to acknowledge multiple intrapersonal student identities and consider themselves as college students of mathematics and college students

in an education program. They also contemplated their past student identities before college both in mathematics and more generally. Jackie articulated recognition of her own learning through her intentional multimodal choices in our coursework:

The way my brain works is, my initial thought is kind of like a picture... So if that picture ended up being like a Circle Arrow Circle Arrow process (while gesturing with hands on video), then I would do a Canva. Or if my brain went to like, oh, here's all my thoughts, then I would write a response. But one [time] I did a video because I couldn't get my thoughts out fast enough. I did a video that helped me say everything I was trying to say in like word vomit kind of all of my thoughts. And so that . . . was my thought process of the way I saw my response in my head. It gave me opportunities to express in different ways.

Jackie's multimodal descriptions using modes of gestures, text, signs, symbols, and images involved multiple relationships, or tenor, reflecting her communication within herself and then me. These interactions are vividly represented through various fields of her mathematics responses, thoughts, and lesson planning (Figure 3).

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Figure 3: Examples of Jackie's Multimodal Planning

She would voluntarily (and excitedly) share these planning pieces alongside final products of a presentation, warm-ups, and exit tickets she turned in as evidence of her thinking and journey:

And I learned about myself in kind of studying just on a personal expedition, that I notice things with a picture, and some people notice things audibly, and some people will notice things or think thoughts . . . like letters and sentences in words. But mine is pictorial.

Jackie expresses freedom and comfort in these opportunities for relevant expression through multimodal literacies. This ownership to engage in CRP as a student through her own mathematics learning processes then became an essential component to integrate into her teacher identity and planning.

Participants' intrapersonal teacher identities also included multiple parts reflecting as: TCs, acting teachers (during field experience or if currently employed), and contemplative future teachers. Kyla's description of her uses of multimodal literacies indicates her considerations as a TC that eventually blended into her current teaching:

It was really fun . . . And, we're using them for my first-grade classroom. Those standards are perfect for a classroom, and they're visual for the kids, and it was great to see that. But the multimodal [text] where you're using all the images, I really started to migrate towards that [when] I have a lot of thoughts I want to share. And I felt the multimodal [text] got my emotions and my feelings about it . . . And so all my visuals I created were colorful, and I don't know—they were bubbly. So I liked that opportunity. But it was very much a choice every time for me . . . I've always been artsy. I've always loved images and to create posters. I would take an idea of an opera and create an entire program and posters and advertisements, and I loved that . . . But I never thought about doing it in the academic side, especially with math.

Kyla reveals her own interests in music and how multimodal literacies gave her the agency to make relevant connections in mathematics with a new lens. This self-reflection and awareness demonstrate an interaction of identity in cultivating a deeper understanding of multimodality and CRP as a TC, to eventually be applied to her instruction.

WHAT DID I LEARN? I enjoyed looking at the paintings and reading the description beside it. I liked reading the stories behind the art and about the artist. The history of Baptist Church This is one of my favorite pieces I learned that Baptist is the oldest African American church in the country. I have Still Life Artist: Emma Cheves Wilkins lived in all my life and never knew the 1870-1956 significance of the church or sculpture. She was from Savannah, GA After reading about the artist the flowers made me thing of

Figure 4: Consecutive Slides from Britney's Multimodal Field Trip Presentation

For Britney, she made authentic and relevant connections to her identity through the art she enjoyed and through new knowledge of history in her local community (Figure 4). She used multiple modes of aesthetic slides, geometric shapes, images, and text, through tenor that included relationships between her, her past and future self, me, and her peers (since it was posted to a discussion forum). She described our class trip, depicting a multimodal learning experience for her as a growing, lifelong student about art and local history that could also influence her as a future teacher.

Thus, the dynamic interplay between learning and planning with multimodal literacies was unique and necessary for TCs' intrapersonal development, as they integrated prior mathematics experiences with new pedagogical ones, while simultaneously beginning to analyze how they

might facilitate this process and CRP for their own students. Markedly, this interaction dually raises the question of TCs' identities and their interpersonal relationships with their professor, their peers as classmates/colleagues, and their students.

# **Navigating Interpersonal Connections**

Data indicate the clear role of a TE in facilitating classroom and coursework experiences to demonstrate possibilities with multimodal literacies and CRP in teaching elementary mathematics. For instance, both Jackie and Kyla noted how even though they were graduate students getting their first and second Master's degrees, respectively, they had not been given chances to explore and understand applications of multimodality until our course. Notably, they had each already taken the two required conceptual elementary mathematics courses for their degrees. Jackie shared in her interview:

Most of the time you don't get options to be able to be creative with responses. You have to be tailored. The way I've always been in school is basically just reactive. I mean, you can't be creative so much when you're in school. At least when I was in school for my bachelor's program, I felt, which I was in the finance/accounting world. So, most of it was just like, are you following the rules? Yes, or no? Because accounting is just black and white—for the most part, anyways.

Here Jackie recognizes even in a degree and career background based in mathematics, the new opportunities I gave her to reason mathematically with multimodal literacies fostered creativity that empowered her to be proactive rather than reactive. Likewise, Kyla commented on how assignments I created facilitated this process for her:

I think one of the reasons why it was difficult for me to do the multimodal [text] is I haven't been given that opportunity, or even been given the opportunity to think that way . . . But I felt it actually combined . . . it helped me understand the concepts. It helped me remember everything, and it's so effective.

These revelations suggest if TCs often teach mathematics as they were taught, how they are taught mathematics pedagogy must also be modeled with similar regard in a way that honors identity and culture in authentic ways. Correspondingly, Jackie articulated how what I modeled through multimodal literacies and interpersonal relationships in our coursework would translate into her teaching identity and philosophy with future students:

You kind of just slowly let us step up on the stairs with 'Here's how you can kind of allow multimodal[ity] to help you in your classroom, connect with the kids, and have the kids connect with the material.' And at the same time, you've got this sincere—care—for lack a better term, for how the kids feel, and how they learn and how they interact in the classroom in their learning environment. So, I can see that you care as a teacher for your kids . . . and so I built kind of my teacher person on that. And so that's the culturally responsive part I'm talking about, is to actually care about how they're growing as a person in who they want to be, and not necessarily who the [State Math] standards want them to be.

When I assigned mathematics exercises, reflections, or planning assignments, I let students know I provided multimodal options, open-ended interpretations, and flexibility as a pedagogical choice. I indicated to them my purpose in this was to supportively enable what we know in

mathematics as productive struggle—or discovery, problem-solving, and critical thinking. Kyla expressed similar adaptations she was already taking from instruction into her teaching practices with her students. She allowed them the agency through exploration, options, and choice in multimodal tools they used to explore concepts based on their individual identities and interests:

And so, I think you expanded my idea of what I can use, and . . . not limiting my students and what they can do. And while I'll admit your lack of telling me exactly what you wanted, and the vagueness . . . I knew it was purposeful, and I knew it was helpful . . . And I think my students, I'm hoping by the end of this year they'll struggle less with that. Because I try to be vague with them, taking a page out of your book and letting them discover and create their own learning . . . I mean it's first grade. So, they're so imaginative. And I have, I call it a manipulative bar. And it's like their candy [stores] and they just pick which manipulatives they want, and all of them love it. And they all do better than when I decide 'Okay—we're all doing cubes. We're all doing counters. We're all doing bears.'

Specifically, Kyla recalled how through providing multimodal choices, one student was empowered to make culturally relevant connections:

I had one [student] pick out books the other day as their manipulatives, and so while it wasn't necessarily on the table, it worked. And he's my perfectionist. He loves books, and he created how to do these addition and subtraction problems with pages. Something I would never have chosen. But he would find that page, and then click back or scroll back to the page that it was supposed to be on. It was an interesting thing I hadn't thought of, but it works for him because everything for him is in a book that he can put pages on.

Through this, Kyla shows true attention to interpersonal relationships and her students' academic success by creating opportunities for mathematics to relate to their culture through multimodal representations.

Britney articulated a comparable sentiment in her final reflection paper as she referenced a hands-on classroom experience where she made interpersonal connections with me, her peers, and her future students at the same time:

As a student I struggled with math anxiety. Even now, I get frustrated and feel alone if I do not understand a concept as easily as my peers. I now know that I am not the only student who feels this way. I enjoyed the sharing activities we did in class. My favorite was when we held up the emoji signs to describe how we felt about mathematics. That activity helped ease my math anxiety. It made me realize I am not the only person who feels this way. I want to include this activity and many others in my future classroom to create a positive learning environment.

Here Britney describes a task during class discussion when TCs were given multiple die-cut emojis and asked to display their feelings in response to presented tasks, quotes, and excerpts from our math exercises and readings. She felt this type of activity did, and would, acknowledge student culture and identity through relevant literacies. Using modes of text, emojis, speech, and gesture, through the tenor of professor to TC, we discussed fields of mathematics anxiety with problem-solving and created an interpersonal community where individual voices were welcome, and mathematics discussion could be an open, safe space.

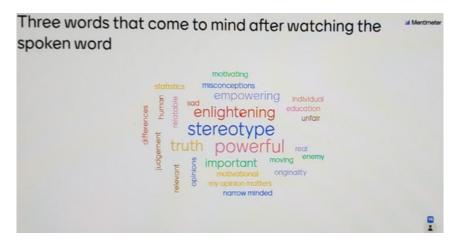
In sum, TCs often referenced and utilized instruction and examples from class lectures, assignments, and activities that served as instances when they were explicitly taught or directed how multimodal literacies were facilitating CRP in their understandings of mathematics content and pedagogy. In making these connections, the TCs' multiple identities were evolving in and through interpersonal relationships with their professor, their fellow TCs, and their considerations for students.

# Developing Interdisciplinary and Intercultural Connections

TCs gained nuanced views for recognizing mathematics instruction, literacy instruction, and CRP as integrated, blended practices that inform, engage, and support one another as if in braided strands rather than mutually exclusive contents, lessons, or considerations. They learned that through multimodal literacies, mathematics instruction could be a space for connecting disciplines and cultures without being forced. The multimodal literacies provided opportunities for authentic, relevant engagement that facilitated meaning and connections in novel ways.

During face-to-face instruction, I endeavored to model interdisciplinary and intercultural connections in course sessions through multimodal formative assessments that included technology polls, manipulatives, drawings, sticky note responses, gallery walks, group stations, and a collaborative discussion strategy involving music and passing die-cut animals (to name some). We also watched multiple clips, one of which included a spoken word about cultural misconceptions. The modes of text, color, and image depict Britney's whole class response to the spoken word as they thought about how to make cultural considerations in mathematics instruction. In the word cloud, the most common word submissions are calculated mathematically and displayed multimodally as the largest and most central (Figure 5).

Figure 5: Word Cloud of TCs' Reactions to Spoken Word Video in Class



Britney's class also thought about how to define culture in their own words and capture commonalities between each other's definitions to articulate ways it could be incorporated into mathematics lessons. TCs used modes of colorful puzzle pieces to collaboratively arrange and then create a larger visual text display of their takeaways for our class to compare with one another (Figure 6).

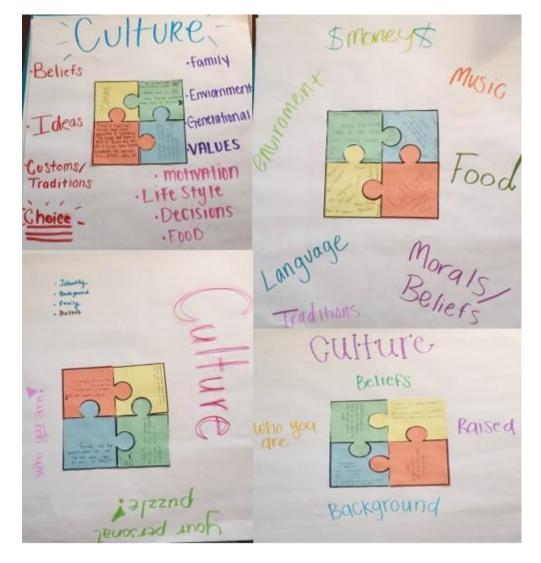


Figure 6: Multimodal Definitions of "Culture" in Elementary Mathematics

TCs also routinely discussed how these multimodal formative assessments could be adaptable to their own classrooms with mathematical concepts and problem-solving strategies. Through these activities and others, I intended to demonstrate how multimodal literacies cohesively facilitate mathematics instruction as a viable space for engaging with critical and civic concepts authentically and reciprocally.

We also talked about incorporating multimodal children's books to motivate, encourage, and promote literacy along with cultural and critical conversations through mathematical concepts. A specific example I provided in coursework highlighted the concept of division that can be taught and introduced through various stories or books about sharing and equality, alongside multimodal manipulatives (especially food or something desirable) to be distributed, divided, and shared in a classroom community. This instruction could then be related to current events or local history with videos, images, or multimodal websites that bring to light questions of fairness and equity through discussion or writing. TCs then made similar interdisciplinary and intercultural connections by incorporating children's literature into lesson plans and presentations. As previously shown in

slides from Figure 2, Kyla and her partner used combined modes of images, text, audio, and shapes while considering the tenor between themselves, me, their future students, and their peers when presenting. They chose a book on Jewish traditions to introduce multi-day lessons about geometry and holiday traditions, centered around values of generosity and kindness from the book:

I always thought this when it came to teaching—all subjects can relate to each other. But math was the one that was harder for me to figure out, even though yes, I can say word problems. And in music, yes, obviously there is a huge connection to math. But to me multimodal[ity] expanded my ability to connect everything. And even in our last presentation, where we were taking a book that has not necessarily anything with math. We wanted to pick a book that I would just read and find different ways to add the mathematical concepts, and then have them use different modes of expressing this book and these terms, and these processes, and these standards that we're trying to learn across different subjects.

She described the reasoning behind their multimodal and cultural choices and related them to her prior learning and teaching in the discipline of music:

And I think multimodal[ity] is the key to all of them and it's been interesting because my teaching has always focused around cultural relativism in music. I mean, how do you even get people to care about opera that listen to rap? You have to make some kind of connection, and if I had utilized a multimodal way of going back to images of 'Draw what rap feels, draw what you think of with rap, draw images, or pull images, create a rap poster,' I think multimodal[ity] could have expanded my teaching.

In this, Kyla demonstrates her new recognition for the potential role multimodal literacies can play in facilitating interdisciplinary and intercultural connections.

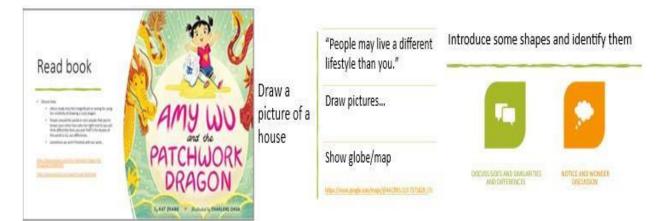


Figure 7: Slides from Jackie's CRP "Lesson Seed" Presentation

Jackie also planned a lesson centered around children's literature. She engaged through the tenor of presenting to me and classmates using modes of images, text, audio, and symbols on shape attributes with a book from the Amy Wu series (Figure 7). She planned on using this to begin a discussion around embracing differences in others' lifestyles.

This discussion would then relate to an activity where students could observe housing structures across the world and create their own geometric homes. In both cases, Kyla and Jackie aimed to use children's literature and multimodal literacies as a foundation for connecting mathematics with a variety of disciplines such as art, history, and geography but also encouraged intercultural connections by cultivating space in mathematics to interrogate notions of giving, sacrificing, and honoring differences.

Not all connections were made through children's literature. Some samples from Jackie's lesson plans demonstrate how she planned to engage students with an interdisciplinary STEAM inspired playground problem using a Canva comic design, and multiple times she (and other TCs) utilized familiar foods or images to engage students in mathematical discourse and discovery related to teaching topics like counting by threes or understanding teen numbers (Figure 8).

First, we will need to figure out how big the area's length and width are, then we can measure the sides. We can then get prices from fencing companies and present the totals to the committee!

Whew!

Whew!

This'll take a minute... Jen! Committee!

What do you wonder?

What do you wonder?

What do you wonder?

What do you notice?

What do you notice?

Figure 8: Example From Slides of Jackie's Multiple Field Experience Lesson Plans

These slides show consideration for the tenor of teacher to student through modes of images, text, and symbols and involve fields of mathematical concepts, problem-solving, and critical thinking. She aimed to appeal to her students' cultures through relating intentional multimodal choices like relevant images, foods, and comics to elementary mathematics.

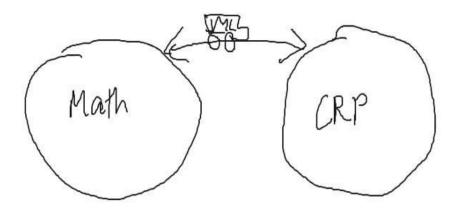
Additionally, Britney made interdisciplinary and intercultural connections on our historic community walk and trip to a local art museum that she expressed through the mode of text in her presentation slide:

It is important for me as an educator to teach my students material that is culturally relevant. Art can be used to make connections to other subjects, such as history, science, math, and ELA. The art at the museum was relevant to our community and I learned new things through the experience. The experience demonstrated to me a way that I can help my own students make real world connections. I can plan activities and field trips that will provide students with their own experiences.

She recognizes here that validating varied student interests in content areas through multimodal literacies can help them connect their daily lives and experiences. She equally notes the value in leveraging student assets through cultural connections to their local community and that one possible way this can be accomplished is through multiple literacies. Ultimately, learning about a specific community and/or culture through multimodal literacies, followed by lesson planning for direct field contexts, and subsequently teaching and applying these ideas in field experience were effective applications for this theoretical integration.

After the semester when I interviewed participants, I drew a rough model—intentionally a bit bare and general (Figure 9).

Figure 9: Multimodal Image Drawn to Represent Coursework Goals



I used it to describe how I conceptualize multimodal literacies, "ML", as a small vehicle carrying some of our main course takeaways back and forth between "Math" and "CRP". I asked participants what they would change or add to the representation and Kyla responded:

I like this. I honestly, I don't think I would add anything to it . . . I think it's just the connection we need for everything. So, when it comes to teaching . . . I think the image is perfect. I mean you could literally put CRP in the middle, and then put all of the subjects around and then draw to that. But then also draw them to each other, using the multimodal [vehicle] from math to literacy, literacy to music, to ELA—any of them—social studies. That's what I was originally thinking when you drew it. It was a Venn Diagram with the ML in between. You could literally make a pretty little flower.

Kyla's theoretical view on these connections excited me as her professor in terms of what I hoped she might glean from coursework. Though, in candor, some of the practical applications for what I consider CRP throughout all TCs assignments could still best be described as developing. At times, their interdisciplinary and intercultural connections left a bit to be desired in terms of what I would term critical, civic, and authentic engagement and what Ladson-Billings (2014) would suggest are deeper implications of cultural competence and critical consciousness that move toward culturally sustaining practices. In light of this, I aim to pose suggestions toward this finding and others in the subsequent discussion.

#### **Discussion**

Participants' coursework, responses, and interactions with multimodal literacies demonstrate significant, new connections in their developing perspectives toward learning and teaching in elementary mathematics. The different connections negotiated through multimodal literacies created safe opportunities and choices for incorporating multiple identities, expressing feelings or interests, understanding various disciplines, validating others' cultures, and simultaneously valuing personal ones. For many, these perspectives are not typically associated with elementary mathematics, as admitted by participants in their pre assessments and interviews. Multimodal literacies began to shift their perceptions of mathematics from black and white, yes and no, right and wrong, or cut and dry, to position it through CRP as a potential space for negotiation and connection. This connective framing included freedom, expression, ownership, agency, exploration, empowerment, and discovery. This indicates growth and change within TCs understandings of the true nature of representing and communicating mathematics through CRP.

Despite this progress, the apparent lack of critical consciousness sometimes evident in TCs assignments is particularly noteworthy. Though presentations and discussions indicated expansion of TCs cultural competence, their integration of critical literacy and discussion into their lessons was still improving. As might be expected, TCs reflected varying levels of comfort in terms of cultural awareness and facilitating critical conversations. Some of the TCs takeaways became based around creative ways to promote academic success and mathematical engagement through multicultural, social, emotional, relevant literacy "supplements" or "injections" of sorts. By her own admission, Kyla wrote in a final online reading response "I find I have only scratched the surface of being culturally responsive and aware in my mathematical instruction."

However, these aspects of TCs identities should be acknowledged and addressed, not forcibly altered. I see their applications as promising in terms of supporting mathematical achievement or affinity, cultural competence, and disciplinary literacies even though I do not necessarily see them as full actualization of what is possible for CRP through multimodal literacies in mathematics. Incorporating critical consciousness into elementary mathematics pedagogy can be complex, but I corroborate Ladson-Billings' (2014) assertion it cannot be overlooked. I take this as a personal responsibility and challenge to continually interrogate, incite, and cultivate through further iterations of study.

Findings confirm the value in moving forward in additional research in multimodal literacies for teacher education across content areas, especially with a lens toward elementary TCs, since content literacy instruction often focuses on secondary teachers and candidates (Accurso, 2020). The study affirms the call for integrating multimodal literacy instruction into teacher education programs (Fang, 2014), while illuminating disciplinary literacy instruction as not limited to secondary settings. The results also point to important questions for TEs and programs in terms of intersecting needs of content literacy and CRP. As it can be uncommon to find faculty with expertise in both literacy and specific contents like mathematics, various institutions have attempted collaborative relationships between departments for integrating content literacy with TEs, though the focus is primarily among secondary TCs, literacy education faculty, and disciplinary faculty (Draper et al., 2012). This study illuminates a need for similar emphases in elementary teacher preparation.

For elementary TCs, if programs separate contents and coursework such as mathematics and literacy pedagogy, while TEs simultaneously uphold the value of integrating CRP and interdisciplinary approaches in elementary subjects, we could be creating an unintentional conundrum. Shifting this lens of distinct domains and courses in creative ways is worth

considering. A proposition is raised, that shared needs of educating TCs on multimodal literacies and CRP in content areas necessitates fresh perspectives toward collaborative faculty efforts in teacher education. Further, it directs attention toward innovative possibilities in partnerships with schools, administrations, and other community stakeholders who may already be implementing interdisciplinary afterschool, enrichment, or intervention programs that focus on these combinations. In practice, these results have led me to newly collaborate with a historian from our local Black History Museum and my colleague, the Children's Literature and Advanced Literacy professor. As first steps, we have been working together toward planning and taking extended, improved "field trips" together with our undergraduate TCs.

#### Conclusion

The study is limited by a few factors influenced by the research design. Though purposive sampling aimed to investigate diverse participants, the study was conducted in coursework at one university, limiting the sample. Including TCs of varied ethnicities, backgrounds, genders, mathematical and literacy abilities, and general perspectives toward both mathematics and teaching would benefit ongoing research in this area.

Additionally, the study was conducted in a single type of course with me as the professor. Since the study and instruction were designed and facilitated by me, this provided detailed understanding of both the instruction and research methods, accompanied by considerable rapport with my participants; however, it also is limited in how it may apply to different educators and institutions. Admittedly, my lens as their white, female professor can also be restricted to inform some of these perspectives. Moreover, while my unique position as someone with degrees and teaching experience in mathematics, language, and literacy afforded specific strengths to the design and applications, my knowledge and role as a professor with this combined interest and training may be hard to recreate or simulate when extending to other contexts.

Nonetheless, it is useful to consider both the difficulties and possibilities in how this can be further researched since similar studies may manifest differently in other contexts. I plan to continually collect data through future coursework and the newly formed cooperative partnership mentioned. I propose that with further research, applications of multimodal literacies and CRP in a learning community can move beyond a specific mathematics pedagogy course to provide students with opportunities to engage in meaning-making through ways that contribute to growth in literacy, learning, and multiple identities.

Research continues to call for developing CRP in TCs (Leonard et al., 2014) and university faculty in their own praxis (Ellington et al., 2021). This study confirms the value of investing into collaborative development for TEs and TCs to explore interdisciplinary implementations of literacy and CRP. Specifically, it is pertinent for TEs and TCs to understand the nature and value of multimodal literacies in content areas. TEs are a vital component in considering the practical ways coursework assignments can be leveraged to effectively promote and cultivate the connections for TCs.

Furthermore, understanding how TCs make sense of the relationship between mathematics, multimodal literacies, and cultural relevance will ultimately help them facilitate these connections in their own classrooms. If TCs can begin to understand their own multimodal and mathematical reasoning from the past into the present, it could lead to more meaningful integration of these same literacy practices into their instructional planning and assessment decisions. In turn, this would also influence mindful choices of modes they provide for their own students to use during instruction and assessment. Ultimately, more informed, thoughtful attention toward incorporating

and leveraging multimodal literacies in mathematics instruction can forge and validate relevant, accurate connections to students' cultural lives and other content areas. By focusing on this potential with elementary teachers and students, we can actively cultivate and invest in their development of enduring, rich perspectives toward mathematics and literacy as lifelong learners.

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# **Culturally Sustaining Writer's Workshop for Beginners**

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#### **ABSTRACT**

This article presents the implementation of a writer's workshop as a culturally sustaining practice, allowing students to exercise agency in their learning and writing. The workshop follows a structured flow of read-alouds, modeling, an invitation to write, and sharing. Teachers choose specific writing skills or crafts to teach, incorporating culturally relevant literature that exemplifies those skills. Students are encouraged to write in their own languages and explore diverse story structures while also learning dominant forms of writing. The article emphasizes the importance of linguistic diversity and challenges the notion that only dominant English should be taught. Step-by-step guidance is provided to start a writer's workshop, including book selection, modeling, and supporting students' individual stories. The writer's workshop aims to position students as active subjects in the instructional process, allowing them to express themselves while developing conventional writing skills. The article encourages teachers to begin with the suggested lessons and adapt them to meet the needs of their students to create a culturally sustaining classroom.

#### **KEYWORDS**

writer's
workshop;
culturally
sustaining
pedagogy;
linguistic
diversity; mentor
texts; agency in
learning

In a time of scripted curricula and packaged programs, the writer's workshop continues to offer a space for students to be an agentive part of their classroom. In a writer's workshop, students have choice and autonomy over their own learning and production. I am a university professor of language and literacy. I collaborated with two fourth, fifth, and sixth-grade Language Arts teachers to begin a culturally sustaining process of discussing, creating, thinking, writing, and sharing. This article is designed to share our process with others in hopes that more teachers can get started. Getting started was very hard for these two teachers, as reflected by the sixth-grade teacher when she stated, "I kind of felt like I was jumping into stuff that I really wasn't 100% sure of what I was doing, but I enjoy the process and value it." The teachers were admittedly nervous about letting go of control and letting the children lead; however, when they did let go, the students and teachers ended up in a learning space they never expected.

When Paris (2012) set out to expand on the concept of culturally responsive pedagogy (Ladson-Billings, 2009) to the idea of being culturally sustaining, he described that teachers must "support young people in sustaining the cultural and linguistic competence of their communities while simultaneously offering access to dominant cultural competence" (p. 95). A writer's workshop provides the space for students to use, practice, and play with their own stories, languages, and literacies while also learning more dominant forms of the written word in order to access the competence and power of which Paris speaks. The teacher must model, teach, reinforce, and praise diverse cultural and linguistic stories and forms of writing to elevate them.

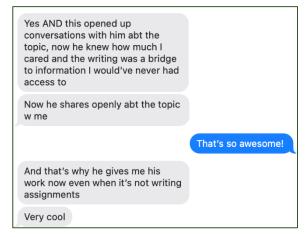
Too often, students are told by their teachers explicitly and implicitly that their stories and home languages do not belong in the classroom. The fourth and fifth-grade teacher shared, "I have learned so much more about them than in other spaces. For example, one student's dad is in prison, and I knew that. But in his writing, he wrote about him, and he hadn't talked about him before." Following that conversation, the teacher shared that they have a better relationship because of this

writing. The text exchange (Figure 1) shows how

different their relationship is now.

This article will share how writing is a perfect space to enhance (or even begin) your path toward being more culturally sustaining in your classroom practices. The following section includes three suggested ways to implement a more culturally sustaining workshop: through book choice, story structure, and linguistic diversity. The following section has concrete tips on how to get started with your workshop. Being culturally sustaining inherently means that you know the community in which you teach and that you adapt based on your students for the year or even class period. This school was in the Southeast United

Figure 1: Text Message Exchange



States in a majority Black neighborhood. The neighborhood is predominantly low-income; however, the school enrolls students from all over the community. The students and families mainly speak African American Language, and many have lived in this small neighborhood community for decades. All these cultural aspects matter to being culturally sustaining. Readers of this article must consider their school's communities and cultures and adapt accordingly.

#### **Book Choice**

Students must see themselves reflected in the books they read (Bishop, 2012) and by the authors they read to identify with them. Choose books with stories your students might have experienced, with characters or plots they can relate to, and have ideas that connect to their beliefs (Tables 1 and 2).

Table 1: Writing	from Mom	orios (Rasa	d on a Mini-l	assan in lace	nhenn 2010)

Step		Time Allotted	Details
1.	Set Goal	1 minute	"Today, we will learn how to write a story from our own memories."
2.	Mentor Text	10 minutes	Read or have a student read aloud <i>She Come Bringing Me That Little Baby Girl</i> (1974) by Eloise Greenfield.
3.	Anchor Chart		(none)
4.	Model	2 minutes	(Think aloud) "Now I have to think of my own memory. I don't have a baby sibling, so I can't relate to that one, but I do remember a time when my parents told me that my brother was moving out. I think I'll write that story."
5.	Invite	15 minutes	"Discuss a few memories with your neighbor; which one is a good story to tell that others might find interesting? What format do you want to tell it in? (Graphic novel, poem, picture book?) Get started on that story or finish what you were working on and write a

Szech 59

memory story later. Add it to your topic list so you don't forget, though!"

Table 2: Choosing Better Words – Adjectives

Step		Time Allotted	Details
1.	Set Goal	2 minutes	"In your writing, you want to choose words that give your writing interest and strength. Today, we are going to talk about adjectives."
2.	Mentor Text		The Undefeated (2019) by Kwame Alexander (read aloud at another time before teaching this lesson)
3.	Anchor Chart	10 minutes	Prepare a chart with the word "adjective" and a kid-friendly definition (something we add to a noun to describe it better). Define it for the students and ask them to listen while you read. After you read <i>The Undefeated</i> , ask kids to suggest adjectives they heard. Go through pages and discuss how Kwame Alexander leaves off the noun, but the adjectives speak loudly.
4.	Model	3 minutes	"In my writing today, I am going to circle a few of my nouns and then figure out how to describe them better." Using teacher writing from the memory lesson, circle a few nouns and think aloud how to add adjectives to them.
5.	Invite	5 minutes of writing	Invite students to find a few nouns in their writing to add adjectives and then continue with their stories or start new ones.

# **Story Structure**

Many examples of culturally sustaining writing practices have been documented. Delpit (2006) observed how there is no ending in Arapaho storytelling. Endings represent the end of life, which they do not believe in. The teachers in this community did not understand this initially and were correcting students who did not wrap up their stories with traditional endings. Eventually, the teachers understood this cultural practice and adjusted their teaching. Delpit (2006) also documented how many Black students she observed told: "episodic' narratives—stories that include shifting scenes and are typically longer" while the white students told "topic-centered' narratives- stories that focused on one event" (p. 55). These examples show the importance of teaching writing organization in various ways. Students deserve to learn a story's "beginning/middle/end" structure to succeed on a standardized test. However, they must also have space to structure their stories in ways that sustain and celebrate the storytelling styles of their communities (Tables 3, 4, and 5).

Ordoñez-Jasis and Flores (2011) showed how the Latinx families they observed often engaged in oral storytelling and wordplay. As a result of understanding this cultural norm, teachers explicitly worked to change their classrooms by committing "themselves to centralize the songs, ghost and love stories, pretend play, and rhyme that families engaged in" (p. 133).

Table 3: Story Structure Lesson 1 – Thematic Organization

Step		Time Allotted	Details
1.	Set Goal	2 minutes	"Sometimes writing is about a theme or topic instead of a beginning, middle, and end that flows from one event to another. We will read <i>Love</i> , written by Matt de la Peña, and see if you can identify how he used theme to write his book."
2.	Mentor Text	10 minutes	Love (2018) by Matt de la Peña

3.	Anchor Chart	10 minutes	Put the word "love" in the middle of the chart, then identify all the ways that he shows and describes love in the book. Do they need to be in one order or another? Not necessarily.
4.	Model	3 minutes	"In my writing today, I am going to think of a concept like love and see if I can describe it in many different ways. I'm going to write about my neighborhood. There's no organization to the people, events, and feelings in my neighborhood; I am just going to describe them."
5.	Invite	5 minutes of writing	"Today, I invite you to write a thematic story if you aren't in the middle of something else. Map it out, then get started."

Table 4: Story Structure Lesson 2 – Beginning-Middle-End Organization (Fletcher & Portalupi, 2007)

Step		Time Allotted	Details
1.	Set Goal	2 minutes	"Today, we are going to try to spread out our story from beginning to middle, to end. Let's revisit the story, <i>Hair Love</i> , to see how the author did it."
2.	Mentor Text		Hair Love (2019) by Matthew Cherry (read aloud at another time before teaching this lesson)
3.	Anchor Chart	10 minutes	As you revisit the story with students, map out Hair Love's beginning, middle, and end across three pages (sketch pictures, add a few words, etc.). Discuss how you want to stretch out the events to make a more detailed story.
4.	Model	3 minutes	"In my writing today, I am going to tell a story across three pages." Write a simple story about something that happened with a clear beginning, middle, and end.
5.	Invite	15 minutes of writing	Pass out three pages labeled "beginning, middle, and end" and invite them to sketch and write their own story.

Table 5: Story Structure Lesson 3 – Circular Organization

Step		Time Allotted	Details
1.	Set Goal	2 minutes	"Sometimes stories are not organized with a beginning, middle, and end. You have a choice to organize your story in different ways. One way is called the circular organization, where your story returns to the beginning at the end. Poetry is often written this way; let's examine this poem."
2.	Mentor Text		Poem to (F.S.) (1925) by Langston Hughes I loved my friend. He went away from me. There's nothing more to say. The poem ends, Soft as it began— I loved my friend.
3.	Anchor Chart	10 minutes	Write the poem on the chart and ask students to comment on how it is "circular" and what makes it work to be circular (not all stories work this way). Elicit ideas about topics that do not have to have a beginning, middle, or end. Make the distinction between event stories and feelings topics to help them.
4.	Model	3 minutes	"In my writing today, I will write about my mom. Our relationship does not necessarily have a beginning or an end; things just change. I am going to write a poem like Hughes."

Szech 61

5.	Invite	15 minutes of	"Today, I encourage you to try this out if it works for your topic or if
		writing	you want to start something new."

# **Linguistic Diversity**

Teachers often think they must teach their students dominant English (sometimes called "correct"

English, subliminally implying other languages are incorrect). As Delpit (2006) described, teachers are responsible for teaching students dominant forms of speaking and writing to access the power structures that expect them (job interviews, apartment hunting, etc.). However, in a culturally sustaining classroom and our broader society, dominant English is just one way to speak and write. In a writer's workshop, students craft their stories as their own; thus, all languages and literacies are welcome. Teachers might choose to teach a mini-lesson on dialogue and instruct students to make their characters speak in ways that accurately reflect the person depicted, practicing writing in both dominant English as well as other languages and dialects (Table 6).

Tip: An important distinction for teachers to recognize is the idea that a usage (spelling, convention, phrasing) must be shared amongst a group of its speakers to be a part of that culture or community. For example, spelling the word /ask/ as /aks/ is a very common, shared usage and, therefore, a correct way to spell and say that word in African American Language. If a student is a Spanish speaker at home and chooses to write in Spanish or a mixture of Spanish and English, that likely represents their community's real usage and is correct.

Table 6: Dialogue Mini-Lesson

Step		Time Allotted	Details
1.	Set Goal	2 minutes	"Today in your writing, I want you to consider how the narrator speaks and if it reflects how they might really sound in real life."
2.	<b>Mentor Text</b>		Chapter 1, The Skin I'm In (1998) by Sharon Flake
3.	Anchor Chart	10 minutes	Before the lesson, prepare three columns labeled Teacher Voice, Maleeka's Voice, and John-John's Voice. As you read chapter one, write the dialogue in each column. After reading the entire chapter, in a different color marker, add notes about what you learn or can picture about the character from the way they talk (Teacher is formal, "excuse me," John-John teases a lot "ba-boom," and Maleeka is casual "that-a-way.")
4.	Model	3 minutes	"In my writing today, I am going to make sure that I include dialogue and that it sounds like my brother and me." Model adding two sentences to my memories story.
5.	Invite	15 minutes of writing	"Today, I would like you to think about how your characters would talk, what you want us to learn about them from their talking, then include a quote or two."

# **Steps to Start**

Each writer's workshop lesson follows the same basic flow as shown in the examples above: read aloud, modeling, an invitation to write, writing, and then sharing out (Fletcher & Portalupi, 2001;

Jacobsen, 2010). First, teachers read a story or excerpt and point out the skill. Next, they model putting it into their own writing. Last, they invite students to try out that skill in their writing sometime soon and set them off to write. At the end, everyone comes back together, and a few students share and get feedback.

First, pick the writing skill or craft you would like to teach. These can be big-picture writing concepts like how to choose a topic or organize a story all the way down to the nitty-gritty of word choice

and comma placement. For example, in

Tip: Even with high schoolers, I predominantly use picture books and poems. When students are first starting, they are intimidated and modeling a skill in a novel subliminally sends the message they must write a novel.

**Tip:** Consider withholding paper in the beginning until they decide on a topic to start. Typically, students see the others starting to write and eventually want a paper to begin their own story.

the Book Choice section above, the craft-type lesson is 'writing from memories' while the skill one is using adjectives. Many teachers struggle to understand what to teach in a writer's workshop because writing is sometimes conceptualized only as skills. For example, a Common Core fifth grade writing standard states, "link ideas within and across categories of information using words, phrases, and clauses." This standard focuses on grammar. Writing is a craft, an art

form in a writer's workshop. Writing is taught as a means of expression along with the conventional skills that help the writer convey their thoughts to an audience. I highly recommend any beginner to writer's workshop purchase *Craft Lessons: Teaching Writing K–8* (Fletcher & Portalupi, 2007) for an abundance of mini-lessons and the book *No More "I'm done": Fostering Independent Writers in the Primary Grades* (Jacobson, 2010) for an overview of the workshop along with management tips. However, to be culturally sustaining, you must adapt the lessons and ideas to have culturally relevant read alouds and to be more centered in your students' cultural literacy practices.

After you decide on the specific skill you want to teach, you need to find culturally relevant literature that clearly models that skill. You do not have to know a lot of books, and this is a time to use your local school librarians or media specialists, public libraries, and online sites like Diverse Book Finder (diversebookfinder.org). You also do not need to purchase physical books; use free resources (e.g., Netflix's Bookmarks or a plethora of read alouds on YouTube). In the lesson plan below (Table 7), I've included books that have worked well for me in this community. However, you will have to adapt these choices to fit your community's needs and practices. Once you have picked a book, you will read it aloud to your class, explicitly examining the skill the author exemplifies. This is a great time to create anchor charts that you will display as reminders of each mini-lesson.

When the book or excerpt is complete, you will then model how you think about and apply this skill to your own writing. You will fully model this in front of the students. Now, this does not mean you are writing a whole story in front of your class. Perhaps you are working on picking a better start to your story. You could use a story you have previously written in front of them (save all your writing as well as theirs) and model trying out new beginnings until you pick the one you like best.

Tip: When the students are finished simply say "Great! Start another one!" and walk away so they realize writing is a continuous cycle (Jacobson, 2010).

After modeling, you will invite them to try out this new skill in their writing sometime soon. You do not make it mandatory because perhaps that skill does not fit with what they are

Szech 63

working on that day. Suppose you are teaching about dialogue and using quotation marks, but a student is in the middle of writing a descriptive poem. In that case, that student will have to file away that knowledge for a later story (which you and the anchor charts will help them with when it comes to that time). Because students are the producers of the work, workshop teachers do not expect students to work on specific timetables or checklists of skills.

As students write, the teacher is either writing themselves or circulating to help students with their work. Teachers are not endlessly hounding students to get started or providing them

Tip: Writer's workshop also includes individual conferencing. This is a very important piece to consider once your workshop is flowing. Read further into this topic after getting started. with a litany of ideas to write about. Students must come up with their own stories on their own, which sometimes takes a few lessons, but it is essential that they find their voice. Do not be surprised or frustrated with this process; I have yet to see a student NOT write anything.

Invite a few students to share their work in the last few minutes of every single writing period. When students share their writing, they reinforce the writing skill you were teaching by pointing it out or discussing it, celebrate their writing, and encourage reluctant writers to start because they also want this praise and attention. I recommend

starting Day 1 with a lesson on genre and format (Table 7).

Table 7: Genre and Format

Step		Time Allotted	Details
1.	Set Goal	2 minutes	Tell students they are going to study authors and books in order to understand how to write better.
2.	Mentor Text	(Prepare in advance)	For this lesson, set out a range of potential culturally relevant books around their reading levels with different genres and formats along the whiteboard ledge. Examples:
			<ul> <li>Black Boy (1945) by Wright (Autobiography, Novel)</li> <li>Hair Love (2019) by Cherry (Personal/Family Narrative, Picture Book)</li> </ul>
			<ul> <li>Punching the Air (2020) by Zoboi and Salaam (Personal Narrative, Novel in Verse)</li> </ul>
			<ul> <li>Sulwe (2019) by Nyong'o (Fantasy/Fairytale, Picture Book)</li> <li>The Black Panther Party: A Graphic Novel History (2021) by Walker (Historical Non-Fiction and Graphic Novel)</li> <li>Monster (1999) by Myers (Mystery, Play)</li> </ul>
3.	Anchor Chart	10 minutes	Prepare the chart with the words "genre" and "format." Define the terms in kid-friendly language. Ask the students to suggest genres and formats they may know and add them to the anchor chart (i.e., add a graphic novel to the format section and historical fiction to the genre section). When the students have exhausted their ideas, examine each anchor book to add that genre and format to the chart.
4.	Model	3 minutes	Briefly make your own genre and format chart of what you would like to try in your own writing.
5.	Invite	5 minutes of writing	Invite students to make their own genre and format chart of ideas they want to write someday. Save this chart in their writing folders.

#### **Discussion and Conclusion**

Because the students in a writer's workshop generate their own stories in their own languages, they will inherently be of their own practices. The culturally sustaining teacher's job is to embrace, celebrate, and expand on these practices while teaching dominant practices that lead to access to

power. The fourth and fifth-grade teacher I worked with reflected, "I wanted them to see that they are the authors; this is not 'read this book and tell me what the right answer is.' In writing, they make the decisions." Her students were gaining agency in the classroom. In 2014, Ladson-Billings described the shift towards culturally sustaining pedagogy, explaining how it "layer[s] the multiple ways that this notion of pedagogy shifts, changes, adapts, recycles, and recreates instructional spaces to ensure that consistently marginalized students are repositioned into a place of normativity—that is, that they become subjects in the instructional process, not mere objects" (p. 76). In a writer's workshop, your pedagogy shifts and adapts so students have that agency and are positioned in the center of instruction.

I encourage you to start here and then read more to grow your workshop. As the teacher in the introduction reflected, starting is one of the hardest parts. I suggest you order a book or two on leading a workshop, such as *No More I'm Done: Fostering Independent Writers in the Primary Grades* (Jacobson, 2010), and simply begin with the suggested lessons in this article. Once you get started, it will be much easier to understand and adapt to best fit the needs of your students!

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Szech 65

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# Assessing Language and Literacy of Students with Developmental Disabilities and Complex Communication Needs

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#### **ABSTRACT**

Students with developmental disabilities and complex communication needs are impacted by assessments that may not show their ability or address their needs. Multiple modes of assessment presentation and response formats, augmentative and alternative communication approaches, and assistive technology may help students engage more equitably in literacy assessment activities. The Nonverbal Literacy Assessment (NVLA) is an example of a tool used to assess the language and literacy skills of students with disabilities in various formats. Augmentative and Alternative Communication (AAC), eye-gazing, and speech-generating device (SGD) technology are also used to make assessment more accessible to students with developmental disabilities and speech difficulties.

#### **KEYWORDS**

assessment; developmental disabilities; communication needs; language and literacy skills

s an educator of nearly thirty years, I place great importance on assessing students with reliability and validity. However, assessing students with developmental disabilities and complex communication needs in the general education setting can be especially tricky in day-to-day classroom operations. For example, while working in a publicly funded pre-kindergarten classroom, I once taught a student who did not speak at school. According to the student's caregiver, conversations occurred in the home, but they were non-existent in the classroom. The assessment system used by the school required me to record evidence of contingent conversation and rate the student on a developmental checklist. This created a challenge because I did not have enough evidence to determine whether she could communicate verbally. Instead, I had to record examples of times that she did not respond so I could justify a rating of *not yet*. Although documenting the absence of communication was probably not ideal, there was a positive result. By continuing to speak to the child (if only to document that she was not responding), there were multiple opportunities for social engagement, which eventually led to a one-word response near the end of the school year. I imagine many other teachers have had similar experiences.

I wonder how much more progress could have been achieved if the assessment had been tailored to the student's abilities. Perhaps the assessment would have been more valid had I considered other forms of non-verbal communication rather than relying exclusively upon vocal speech. Additionally, I might have incorporated visual supports or technology to elicit more opportunities for communicative exchanges. In hindsight, I would have been better able to document my student's language development had I implemented a more expansive understanding of what constituted reciprocal communication, which might have been more in line with the spirit of the Individuals with Disabilities Act (IDEA).

Riddle 67

IDEA is a U.S. federal law that protects the educational rights of children with disabilities. Since the law's last reauthorization in 2004, updates have been made to serve students with disabilities more equitably. A 2016 revision addressed the over-representation of some children in special education programs, which could jeopardize their access to rigorous academic content in the least restrictive environment. Before IDEA, children with disabilities were often excluded from school. In the 2020–2021 school year, however, around two-thirds of students with disabilities spent at least 80% of their instructional day in the general education classroom (U.S. Department of Education, 2023).

Since many students with disabilities are already in the mainstream classroom and there appears to be a move toward increasing inclusivity, accurate literacy assessment of students with developmental disabilities and complex communication needs is crucial to facilitate their reasonable participation in general reading instruction. Unfortunately, these students are currently underrepresented in reading assessment data as many cannot participate in testing due to behavioral challenges or limited verbal ability (Fleming et al., 2018). Therefore, educators must find more inclusive ways to assess students with developmental disabilities and delays. Current methods may help determine eligibility for special education services by identifying weaknesses and deficits; however, we must also be able to identify what students can do so they are placed in the least restrictive environments that allow them to develop their strengths and abilities. This will create a more equitable learning environment for students who have too often been assessed and labeled based solely on their inability to conform to modes of performance that do not consider how they can demonstrate skills and abilities. Students with developmental disabilities and complex communication needs deserve the same academic prospects as their peers to reach their highest potential. A more thoughtful, flexible approach to assessment could contribute to that outcome.

This article presents a variety of tools that could be used to assess the language and literacy of students with developmental disabilities and complex communication needs. The section below describes how multiple assessment formats enhance student participation in literacy assessment, followed by a discussion of augmentative and alternative communication technologies that could increase access to literacy instruction and assessment if incorporated into mainstream classroom settings.

# **Multiple Assessment Formats**

One way to make assessment more available to students with developmental disabilities and complex communication needs is to provide multiple assessment formats. Presenting content in various ways and providing different response-type options can allow these students more opportunities to show what they know rather than merely display their inability to access content and/or communicate their understanding of it. Multiple assessment formats provide alternative ways for students to show what they have learned so that they can use a communication venue that works best for them.

One such assessment is the Nonverbal Literacy Assessment (NVLA), designed to evaluate the reading ability of students who utilize alternative augmentative communication or means of expressing themselves. This assessment includes six components: phonemic awareness, phonics, reading comprehension, listening comprehension, text awareness, and vocabulary. Answer choices are arranged in rows of two to four options, and students can respond by pointing, choosing cards, or eye-gazing (Ahlgrim-Delzell et al., 2011). The NVLA proposal document contains tables with some of the student performance tasks. It also provides the contact information of the

corresponding author. One of the authors of NVLA is also associated with the Early Reading Skills Builder (ERSB), which is available for purchase with other curriculum materials for students with disabilities at attainmentcompany.com/curriculum/ersb.

Multi-format assessment for students with developmental disabilities is supported by research. A pilot study at Baylor University used multiple methods to investigate the validity of norm-referenced language and literacy assessment for children with Down syndrome (DS). As with the NVLA, students could show their knowledge in multiple ways (Prahl & Shuele, 2022). Four parallel response measures of listening and reading comprehension were evaluated: nonverbal, cloze, passage with closed questions, and passage with open-ended questions. To address typically low performance on norm-referenced tests by individuals with DS, the researchers used multiple content presentations and answer formats to ensure participants with limited reading ability and speech articulation difficulties could respond to some items at the beginning of the assessment. This study lays the groundwork for creating and assessing reading interventions for children with DS through varied assessment types. It also sets the stage for learning the most effective ways to assess listening and reading comprehension of students with DS. If assessments are modified to match the communicative modes accessible to individuals with disabilities, children who have previously had limited participation in literacy assessment may be more fairly included in data that could impact the quality and appropriateness of education they receive (Prahl & Shuele, 2022).

Aidonopoulou-Read (2020) examined the impact of a differentiated approach with an adapted formative assessment for students with autism and significant learning challenges. This assessment considered both formative and summative assessments so that the relationship between the two could be used to assess whether students were learning. To establish the relationship, two checklists were created: one to measure academic progress and another to evaluate behavioral engagement. For example, the academic checklist contained literacy objectives, such as watching the teacher point to pictures or matching images to tangible items. The behavioral engagement checklist showed evidence, such as seeing a student turn toward a stimulus or observing a student's pleasant facial expression. The results indicated customized interventions were needed based on the differing motivations and needs observed through formative assessments. This modified assessment supports the simultaneous recording of formative and summative assessment data, which can be incorporated into daily classroom instruction. This is important because it creates more opportunities for students with different academic, social, and communication needs to participate in the classroom (Aidonopoulou, 2020). A modified assessment that evaluates both academic achievement and motivation would be useful to teachers for planning differentiated instruction based on students' needs and interests.

#### **Augmentative and Alternative Communication Technologies**

Augmentative and Alternative Communication (AAC) systems are another method to increase participation of students with developmental disabilities and complex communication needs. These systems typically use labeled visual representations, such as pictures and photographs, to depict concepts. While traditional, motionless AAC supports may possibly interfere with the acquisition of sight words, proposed enhancements to AAC technology would incorporate research-based transition-to-literacy (T2L) features that would include a more interactive, animated presentation focusing on sight words and student interests. A study by Caron and colleagues in 2018 found that after an intensive intervention using the T2L feature, five schoolaged students with autism spectrum disorder made gains of between 45% and 69% in sight-word

Riddle 69

accuracy and were able to use the words they had learned to make comments about images shown to them. The study concluded that when AAC supports are incorporated into literacy instruction, people with communication challenges can better integrate into a community that often requires literacy to participate (Caron et al., 2018).

Some examples of AAC technology used in the Caron et al. (2018) study include software programs like News-2-You, PixWriter, and Writing with Symbols, which match or substitute written words with symbolic images (Table 1).

Table 1: Software Programs that Match or Substitute Written Words with Symbolic Images

Software	Description	Link
News2You	Content is available online for purchase and includes news stories at four different reading levels with visual supports. Samples and demonstrations can also be accessed by following the link provided.	n2y.com/news2you/differentiation -accessibility
PixWriter	Uses voice output and pictures to help children struggling to read words learn to write by choosing illustrated buttons in a word bank. Documents created with this technology can be saved, printed, or emailed. Software subscriptions can be purchased and downloaded from the website of the Attainment Company or from the Apple App Store.	attainmentcompany.com/pixwriter -software
Writing with Symbols	A system produced by Widgit, has pictorial symbols in multiple languages and can be used to create differentiated flashcards, worksheets, and books. Templates are also available. Widgit products can be purchased through the link provided.	widgit.com/writing-with-symbols

Eye-gazing technology and mechanical switches may also support more reliable assessment of students with disabilities that involve complex communication needs. Eye-gazing technology enhances participation by providing a response mode for students with cerebral palsy, who may not be able to answer verbally, use a pencil-paper bubble sheet, manipulate a mouse, or push buttons on a keyboard. Mechanical switches access devices that can produce digital or synthetic speech. The switches allow students to visually scan the options on a computerized multiple-choice test and then linger at the answer they wish to select. Buttons can also be added to allow students to indicate that they would like to change or confirm an answer choice. Researchers from Australia and the U.S. conducted a study with school-age students in Australia comparing standardized assessment results for typical children who took traditional tests with those of students who took assessments modified for use with mechanical switches or eye-gazing technology (Karlsson et al., 2022). The study's authors hypothesized that the two groups would not have a significant variation in test scores. Findings have not yet been published but are expected to be shared in peer-reviewed journals (Karlsson et al., 2022).

Equipment used in the Karlsson et al. (2022) study included Switch Access, Tobii PCEye mini eye-gaze control technology, and Grid 3 software:

Item	Description	Link	
Switch Access	These interface products, such as eyewear and remote- control buttons, are available at online stores that serve individuals with disabilities. Google also provides instructions for Switch Access on Android devices.	shorturl.at/oqMSW	
Tobii PCEye	The Tobi PCEye mini has been discontinued, but Tobii Dynavox's latest eye-tracking products and accessories can be purchased through the first link provided on the right. The second link listed provides information about how to fund a device.	tobiidynavox.com/products/pceye tobiidynavox.com/pages/funding	
Grid 3	Software packages with switches and eye-gazing devices can be purchased at the Smartbox website following the provided link. Some functions include environmental control, school and work tools, and interactive learning activities.	thinksmartbox.com/product/grid-3	

Table 2: Eye-Gazing Technology and Mechanical Switches

Speech-generating devices (SGD) are another form of technology that can increase participation for students who are not able to vocalize communication. These devices produce speech by recording the human voice and creating digitized or synthesized speech. Researchers from several American universities collaboratively performed a scoping review of how SGD technology affects communication outcomes for people with developmental disabilities. Results indicated that these devices might effectively support word identification, syntax, literacy, and beginning communication skills of people with developmental disabilities (Chavers et al., 2022). This technology would help assess students who cannot respond verbally to test prompts.

Three of the many SGD products used in the Chavers et al. (2022) study are Easy Chat, NOVA Chat, and Vantage Lite with Unity (Table 3).

Table 3: Speech-Generating Devices

Device	Description	Link
Easy Chat	A trademark of Zygo USA, Easy Chat is a digital recording device with a static picture overlay. Messages and vocabulary can be stored in multiple languages. The provided link provides a product-description flyer with pricing and contact information.	zygo-usa.com/usa/images/ chatter/EasyTalk Description.pdf
NOVA Chat	Trademarked by Saltillo, NOVA Chat can be used with wired and wireless switches for scanning and includes a variety of voices in English and Spanish. Messages can also be sent to social media platforms. More information about the specifications of this product and how to purchase it is available through the link provided	store.prc-saltillo.com/novachat
Vantage Light	A Prentke Romich Company trademark. The company's latest SGD and other AAC technology can be purchased through the first link listed on the right. There is a tab leading to information about requesting Medicaid and other insurance funding is available.	prentrom.com/products
	A Vantage Light with Unity user manual with a detailed description, visuals, and company contact information can be accessed by selecting the second link listed on the right.	file.prentrom.com/104/Vantage- Lite-Unity-Manual.pdf

Riddle 71

#### Conclusion

Multiple assessment formats and assistive technologies are becoming more available to schools. Some of the products described in this article can be found on Amazon or eBay. Easy access creates additional opportunities to make assessment more inclusive for students with developmental delays and complex communication needs. Assessing literacy skills is imperative to be able to provide an appropriate education based on students' identified needs and abilities. Using multiple presentation and response types and incorporating AAC technology allows students to show their literacy skills, so that instruction can be tailored to their ability and lead to positive outcomes and gains in literacy. Literacy is essential for academic achievement, community involvement, personal autonomy, and meaningful interactions with others (Caron et al., 2018). Without accurate assessment, children with physical and cognitive difficulties may experience delays in receiving early intervention or be denied sufficient instructional support and academic opportunities at school (Karlsson et al., 2022). As educators, we must assess our students with disabilities in ways that allow them to show us more than deficits. It is also important to document their abilities so they can continue to make gains that will lead to both independence and community connectedness, which the ability to read and write sustains.

Had I known about alternative assessments with multiple presentation and response types or had access to technology that helped with communication, I may have been able to gather much more information to guide instruction for my student who did not speak at school. With more data, I may have been able to either help her speak more or to be able to communicate in alternative ways that showed how smart she truly was! If I could go back in time and take these resources with me, I believe there would have been better outcomes. Since there is no technology available at this time to go back in time, I will have to move forward with new knowledge to create a better future for students with developmental disabilities and complex communication needs. Steps literacy teachers can take to improve assessment for students with developmental disabilities and complex communication needs are listed in Table 4.

Table 4: Steps Literacy Teachers Can Take to Improve Assessment

Step 1	Look for what your students can do and use that as valuable data.
Step 2	Find out what limitations keep your students from communicating all that they know. Overcome the limitations with alternative presentation and response formats.
Step 3	Explore what technology is already available at your school that would help your students better communicate their knowledge. Discuss any needs with your school administrators to see if funding is available to purchase additional technology. Also, check with vendors to see what other funding might be available through Medicare or private insurance.
Step 4	Collaborate with administrators, special educators, service providers, and caregivers to find alternative assessments that could be used or to brainstorm different ways to formatively assess children each day.
Step 5	Decide how you will equitably assess your students with developmental disabilities and complex communication needs. Implement your plan right away!

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## **Moving Writing Forward Through Peer-Critique Partners**

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#### **ABSTRACT**

The author describes a simple yet impactful cycle for cultivating greater engagement and agency among students during the writing process. Specifically, the article explains how the implementation of peer-critique partners who provide one another with criterion-based feedback repositions students from mere "passengers" to active "drivers" on the journey to better writing. Feedback is found to "increase [students'] effort, motivation, and engagement and reduce the discrepancy between the current status and the goal" (Hattie & Clarke, 2019, p. 3). The key is having clearly defined writing criteria that inform students of the goals or expectations for writing. These expectations should frame the feedback (e.g., comments, critiques, suggestions, and questions) provided from one peer to the next and move students beyond mere editing to true revision. Traditional commentary such as "excellent," "good job," or "more work is needed," or over-concentration on mechanical errors is insufficient to move writing forward, closer to the desired outcome. Moreover, the article highlights four steps for effectively establishing peer-critique feedback partners. These steps are powerful drivers for helping students move their writing forward by implementing a true revision process. The article opens and concludes by emphasizing that writing is the evidence of thinking. For students to become more thoughtful in their written expression, they must have clarity, support, accountability, and some choice in the process.

#### **KEYWORDS**

writing engagement; peer-critique partners; writing support

riting is the evidence of thinking. It helps make that which is inward outward for others to enjoy, learn, or be inspired (Lee, 2021). If writing adds this much value to an experience, why aren't more students writing—and specifically—why aren't more students writing well? One can instantly witness the shift in the classroom when the teacher steps forward and announces, "Okay, scholars, great discussion! Now, take out a piece of paper (or computer device) and write an essay that reflects the ideas you discussed in your groups."

A cacophony of sighs ensues. "Aww, man, why do we have to write it? How long does it have to be? I don't have any paper. My computer just died!" Along with these responses is the obvious reluctance displayed by students' body language—legs extended, bodies slumped, an elbow on the desk with chin in hand, or pencils tapping on the desk.

As a former English teacher, I experienced these types of responses from my students early on; however, I eventually started observing more encouraging dispositions to writing when my students began seeing the value in the writing opportunity. Writing was no longer solely about the product—but the process—and what occurred throughout the writing process. My role versus my students' roles began to shift in more meaningful ways. In this article, I describe the peer-to-peer

feedback cycle that was paramount to my later success in increasing students' engagement and agency in the writing process.

It is important to note that the peer-to-peer feedback process that I implemented helped my students understand important distinctions between editing and revising. These practices are often used interchangeably; however, editing focuses on addressing word or sentence-level errors, typically involving punctuation, spelling, or grammar mistakes. Conversely, revision requires a holistic examination of the writing. This may involve mechanical improvements, but revision also includes enhancing broader aspects of the paper, such as strengthening the voice or the argument in a paper, ensuring a better organizational structure, or establishing greater clarity. Having a peer provide feedback during the revision process enables a comprehensive and neutral review of the writing. To the writer, his or her argument may be clear and substantial; however, a reader may find the argument limited or unsubstantiated. This article focuses on how to help students use a peer-to-peer feedback cycle to navigate the revision process.

In the classroom, I established expectations and strategies that moved my students from mere "passengers" to active "drivers" on the journey to better writing. By implementing what I term, peer-critique partners, my students received timelier and in-the-moment feedback to support the revision process. I define feedback as comments, critiques, suggestions, or posed questions that aim to close the gap between the current product and the desired product. By establishing peer-critique partners, my students were able to receive this guidance with greater efficiency.

What are peer-critique partners? This practice involves pairing two students to evaluate each other's writing using specified criteria. During this session, they offer commendations (glows) and recommendations (grows) for improving their written responses. The criteria answer the question, "What are the goals or expectations for the writing?" These expectations are identified by the teacher or selected in collaboration with students, and they are influenced by the learning standards for the subject matter. Additionally, criteria should require students to move beyond mere editing at the sentence level to revising important aspects of the writing, such as clarity, coherence, and development.

The writing or language standards may be most influential in language arts. Peer-critique partners may be required to evaluate the introductions for their essays to determine the effectiveness of the opening in establishing the context and purpose of the writing. Establishing and communicating clear writing criteria upfront ensures the feedback fundamentally helps move the writing forward, closer to the desired outcome.

Of course, I would love to say this meaningful practice grew out of my thirsty pursuit of evidence-based research that highlights those promising practices that increase student motivation and writing achievement. While feedback is found to "increase [students'] effort, motivation, and engagement and reduce the discrepancy between the current status and the goal" (Hattie & Clarke, 2019, p. 3), I instituted this practice due to being exhausted from grading 86 to 90 essays each week. Also, I felt my students were not as cognitively or emotionally engaged in the process as they needed to be to make meaningful enhancements to their writing.

I knew it was important to give my students feedback, but I was the one overly consumed and committed in the process—and to some degree—learning more and more about improving writing. My students were passive recipients—like backseat "passengers" in the process. As a result, I redesigned my writing experiences to ensure students took a more prominent role in the feedback cycle. In Figure 1 below, I describe the process that I employed with my students and, eventually, with teachers in writing workshops as a literacy coach, K–12 language arts coordinator, and soon after, an assistant superintendent of curriculum and instruction. Using the technique as

Lee 75

described in this article is most appropriate for grades three and above. The process is simple, yet it requires a lot of patience, modeling by the teacher, and student practice to ensure their feedback is effective in moving writing to the next level.

Figure 1: Peer-Critique Feedback Process

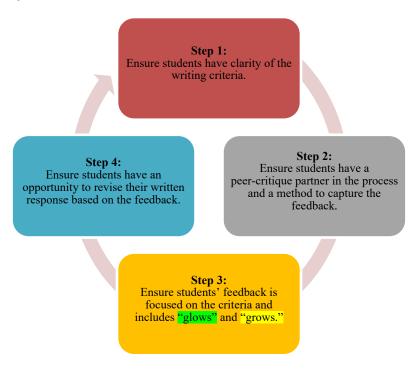


Figure 1 summarizes each step in the process of cycling peer-critique partners through their review session. The following section elaborates on each step and provides specific examples of implementing the practice.

#### Step 1: Ensure students have clarity of the writing criteria.

It is challenging to hit a moving target and even more challenging to hit an unknown one. The teacher and students must clearly define what constitutes effective writing based on the selected criteria. Here, I describe how instructors can determine their criteria or the expectations for writing. To start, teachers should Keep it Standards-based and Simple (K.I.S.S.) to ensure feedback is focused and feasible. Teachers can use their state's writing standards (e.g. Georgia Standards of Excellence) to prioritize the focus for the peer-critique session. The questions below provide further guidance on how to use the standards.

What is the standard of focus for the current lesson? Use the language from the standard. If the standard is too "meaty," determine what knowledge and/or skill is a requisite for the remaining portion of the standard. For instance, this sixth-grade language arts writing standard (ELAGSE6W1) states: Write arguments to support claims with clear reasons and relevant evidence. Element a. Introduce claim(s) and clearly organize the reasons and evidence. From this standard, the teacher may determine that first, he or she wants to assess if students can introduce a claim for an argumentative paper. Therefore, as students are critiquing one another, they may focus on evaluating how clearly and effectively the claim is introduced in the writing.

- What standards have I already taught? In the prior section, the focus was on the current lesson. Here, the focus is on previously taught standards that students should continue to implement in their writing. Consider what standards [e.g. writing standards, language standards] or writing traits have already been taught that should be present in students' writing. This practice holds students accountable for retaining the skills from previous instruction. For example, if students have learned about the importance of establishing an appropriate voice [e.g., overall style, word choice] in their writing, this may be a part of the writing criteria, along with the current standard, introducing clear and effective claims in the writing.
- How can students have a voice and choice? Have students determine an area in which they know they need to improve and want to continue practicing during future writing tasks. In this instance, students may choose to focus on revising their writing by developing their main ideas using relevant examples and textual evidence. This option is student-determined and student-driven and fosters student agency in the writing process.

Once the writing criteria have been determined, ensure students know what constitutes effective vs. ineffective versions of the criteria by using one or more of the following suggestions. Students benefit from seeing ineffective versions, too; this enables them to self-assess where their writing aligns more closely and make revisions accordingly.

- Use writing exemplars. Teachers can create examples or use mentor texts that reflect effective examples of the writing practice teachers desire to cultivate in their students' writing. For instance, through an analysis of a text that skillfully uses figurative language to bring ideas to life, students learn the impact that figurative language can have on meaning and engagement. The non-exemplars show students the outcomes of not using the desired writing technique.
- Use a writer's checklist. This tool outlines what specific standards or traits should be present in the writing, and it may include a section to indicate to what extent the writer achieves each criterion. Figure 2 provides an example of a writing checklist.

Figure 2: Sample Writing Checklist for an Argumentative Essay

Criteria	Yes	Partially	No
Effectively introduces claim(s)			
2. Uses an organizational strategy to present reasons and relevant evidence logically			
3. Supports claim(s) with clear reasons and relevant evidence using specific, well-chosen facts, details, or other information from credible sources and demonstrates a good understanding of the topic or texts			
4. Acknowledges and counters opposing claim(s), as appropriate			

• Use an analytical rubric. This rubric describes what standards or traits should be present in the writing using a continuum from ineffective (1) to extremely effective (4). The specific language of the levels may vary. Table 4 provides an example of an analytical rubric.

Lee 77

Students can see in advance the expectations for proficient writing, and during the peer-critique process, peers can use the language from the rubric to provide specific feedback that will aid the writing piece in moving toward the desired outcome.

Figure 4: Georgia Milestones Assessments – Opinion Rubric (Grade 3)

Trait 1: Idea	4	3	2	1
Development,	<ul><li>The student's</li></ul>	<ul><li>The student's</li></ul>	<ul><li>The student's</li></ul>	The student's
Organization,	response is a	response is a	response is an	response is a
and Coherence	well-	complete	incomplete or	weak attempt
This trait	developed	opinion piece	oversimplified	to write an
examines the	opinion piece	that examines	opinion piece	opinion piece
writer's ability to	that effectively	a topic and	that examines	that examines
effectively	examines a	supports a	a topic and	a topic and
establish a point	topic and	point of view	partially	does not
of view and to	supports a	based on text.	supports a	support a text-
support the	point of view,		point of view	based point of
opinion with	with reasons	<ul><li>Introduces a</li></ul>	based on text.	view.
reasons from the	clearly based	topic and		
text(s) read. The	on text as a	states an	<ul> <li>Attempts to</li> </ul>	May not
writer must form	stimulus.	opinion	introduce a	introduce a
an opinion from	Eff. Alberton	D id	topic and state	topic or state
the text(s) in	<ul> <li>Effectively</li> </ul>	<ul> <li>Provides some</li> </ul>	an opinion	an opinion
his/her own	introduces a	organizational	_ ^444-	- Manna at la anna
words and	topic and	structure to	Attempts to	<ul> <li>May not have</li> </ul>
organize reasons for opinion (from	clearly states	group reasons	provide some	any
text that they	an opinion	■ Provides	organization, but structure	organizational structure
have read) in	<ul><li>Creates an</li></ul>	<ul><li>Provides reasons to</li></ul>	sometimes	evident
				eviderit
	000			
		Оринон	readei	
opinion essay.				
	group reasons			
order to create cohesion for an opinion essay.	effective organizational structure to group reasons	support the opinion	impedes the reader	

#### Step 2: Ensure students have a peer-critique partner and a method to capture the feedback.

It is highly beneficial to have students involved in peer-to-peer feedback sessions. These sessions deepen their knowledge and command of the content (Almarode et al., 2022) and their needs to determine the most appropriate peer-to-peer pairing or to determine when students can freely choose their peer-critique partner. Ensure pairing is beneficial for both students so that reciprocal exchange of ideas and feedback can occur.

Peer-critique partners should have access to the checklist, rubric, or examples shared previously to ensure clarity of the writing expectations, which will guide students' feedback to one another. Partners should know how feedback will be captured and shared with one other. For example:

- If the feedback process is occurring electronically, partners can use the Add Comment feature in the writing for most applications. In some applications, partners may be able to add a voice recording.
- If the writing is not electronic, partners can use sticky notes and place the notes in the margin.

- Partners can use color coding, where each color represents a different criterion and indicates if the writing feature (e.g. detail, word choice) is a glow or a grow.
- Partners can write feedback on the actual rubric or writing checklist.
- Partners can verbally share their feedback, and each student is responsible for capturing the comments in writing.

Teachers are encouraged to model how to work with a partner and use the various methods to provide feedback to a partner. Teachers may consider providing students with a choice of which method(s) they want to use to capture and share the glows and grows in the writing they are critiquing.

## Step 3: Ensure students' feedback is focused on the criteria and includes "glows" [commendations] and "grows" [recommendations].

Many students will not know how to give standards-based feedback that reflects a combination of glows and grows. Students may be more accustomed to saying, "Good job," "I like it," or "I don't like this." The instructor will have to teach students how to reference specific criteria when they provide feedback, such as stating, "Good job of using relevant details to elaborate on your first main point." Teachers will have to model this process and give feedback to their students as they gradually release them to work independently. Peer-critique partners should remember the following during feedback sessions:

- Be respectful and focus on the writing, not the writer.
- Be clear and specific.
- Start with glows. [Share what was most enjoyable or effective about the writing in general if students are not yet exhibiting the writing traits of focus.]
- Share the grows. [Here, feedback should be specific to the criteria.]
- Allow the receiving partner to provide an explanation or ask any clarifying questions based on the feedback provided.
- Peer-critique partners are encouraged to provide examples to complement their feedback.
- As a courtesy, peers can thank each other for the opportunity to read and review the paper.

To reiterate, the teacher must model this process, perhaps modeling what it should and should not resemble. During feedback sessions, teachers should monitor, notice, and listen to gauge how well partners are implementing the process, how aligned the feedback is to the specified writing criteria, and what are the trends and patterns in writing that may need to be revisited with the whole class or with smaller groups of students.

Lee 79

Table 3: Example of Glows and Grows Peer-Critique Chart

#### **Writing Criteria:**

Introduce claims clearly and effectively [current standard].

<ul> <li>Vary sentence types for reader interest [previously taught standard].</li> </ul>				
The Writer: Student 1	The Peer-Critique Partner: Student 2			
Glows: I like that in your writing	Grows: In the future, remember			
<ul> <li>Your claim clearly explains your position on students having homework.</li> </ul>	<ul> <li>Your claim would be more effective if it aligned with the main ideas in the remaining portion of your paper.</li> </ul>			
<ul> <li>Most of your sentences are correctly written and not run-ons or fragments.</li> </ul>	<ul> <li>Select conjunctions to combine simple and choppy sentences in order to vary your sentence type.</li> </ul>			
Additional Comments:				

Table 3 shows an example of one peer providing feedback to another using specific writing criteria, which involve evaluating claim statements and sentence types. Notice that one criterion is based on the current lesson, and another criterion is from a previously taught lesson.

### Step 4: Ensure students have an opportunity to revise their written responses based on the feedback.

This is perhaps where the magic happens! It is great to know the criteria, it is wonderful to have a partner in the process, and it is remarkable to receive feedback. However, none of these steps adds a level of value as when students are required to revise to move the writing forward. According to research, "...most comments, unless they required a student response, were often ignored by students if the feedback comments were given out with no time allocated for students to read the comments, no chance to use them to improve, or where they were illegible or hard to understand" (Hattie & Clarke, 2019, p. 3). Of course, students can have a voice in what they choose to incorporate or not incorporate from the feedback session, but there must be an expectation for revising and editing because this is where the learning crystallizes in students' minds.

Revising requires students to think about their thinking and become cognitively engaged in the process—moving from passenger to driver. If writing is the evidence of thinking, the writer and the teacher must see that students really got it! And this is not verified by students merely stating what they will do next time. Seeing is believing! Furthermore, revising increases students' self-efficacy, motivation, and confidence in writing. One way to incorporate the revision process is via a strategy known as the ticket out of the door. Toward the end of the lesson, students are asked to revise a portion of their writing based on their peer's feedback. The teacher has a way to check or review each student's efforts before leaving the classroom.

In conclusion, the four steps described in this article and summarized below are powerful drivers for helping students move their writing forward. In order for students to become more thoughtful in their written expression, they must have clarity, support, accountability, and some choice in the process.

- ✓ Step 1 Ensure students have clarity of the writing criteria.
- ✓ Step 2 Ensure students have a peer-critique partner and a method to capture the feedback.

- ✓ Step 3 Ensure students' feedback is focused on the criteria and includes "glows" and "grows."
- ✓ Step 4 Ensure students have an opportunity to revise their written responses based on the feedback.

The process discussed in this article will hopefully provide meaningful guidance on how students can take a more active role in the writing process. The implementation of the Peer-Critique Feedback Process allows both the teacher and students to have greater clarity on how to implement feedback in an impactful manner. Continue to make writing an instrumental part of your instruction and ensure feedback is provided in real-time; this will take students' writing to the next level on their journey to writing with confidence and competence. Here's to activating your students' WriteVoice! To receive more practical strategies for teaching writing, purchase the WriteVoice Toolkit. Also, visit writevoicellc.com to sign up to receive writing strategies electronically.

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# The Open Mind Portrait: An Innovative Method to Promote Reading Comprehension and Critical Thinking

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#### **ABSTRACT**

This teaching tip article highlights the "Open Mind Portrait" as a visual art strategy to assess middle and secondary students' complex expressions of texts backed by research, the steps involved for implementation, and a student example to highlight the power of visual art projects. Employing visual art projects to promote reading comprehension and critical thinking offers classroom teachers an innovative reading response method to the standard constructed response. Through the combination of reading and art, teachers can assess students' comprehension of literary characters as students analyze the role of a character in a story, as well as the larger social, historical, and cultural world occupied by the character when responding to texts.

#### **KEYWORDS**

critical thinking; young adult literature; Bloom's Taxonomy; visual literacy; reader response

rs. Sloane passes out a worksheet and instructs her 10th-grade students to respond to comprehension questions one through five for Like Water for Chocolate (Esquivel, 1989). Some students quietly groan while other students verbally protest their lack of enthusiasm. Questions one through five require simple recall; responses that can be found in the text. Mrs. Sloane chooses not to respond. Rather, she ponders, "I think I need to change my mindset and move beyond simple paper and pencil quizzes. I've been teaching to the state-mandated test for so long that I've forgotten to teach my students to think."

#### **Background**

Recognizing that much has been written about the No Child Left Behind Act (No Child Left Behind [NCLB], 2002), reauthorized in 2015 as Every Student Succeeds Act (ESSA, 2015), we cannot ignore the numerous unintended consequences that occurred due to the enactment of the two federal laws. One such unintended consequence was a narrowed curriculum that was influenced by state-mandated tests that in turn, impacted the teaching and learning process (Veselak, 2018). Instruction shifted from teaching students important content knowledge in all disciplines to teaching students enough to pass the highly tested subjects of reading and math (Smith & Smith, 2020). Simpson (2015) noted that higher-order thinking assignments and activities were minimalized due to the heavy emphasis on state-mandated tests which resulted in a pedagogy of "drill and kill" (p. 49).

In the above scenario, Mrs. Sloane illustrates an example of the "drill and kill" pedagogy. Unfortunately, she has matched her instruction and assessment to find a single correct answer.

Instead, she would be wise to ask students how and why questions; questions that require her students to think critically. As a professor in reading education, I believe I have an obligation to teach my middle and secondary master-level students in reading education that the students they teach must be given opportunities to engage in higher-order thinking processes to develop critical thinking skills; skills that can be applied in a wide range of contexts and different fields (Heard et al., 2020). I believe it is necessary to allow my students to think, question, reason, and even argue as they read to model critical thinking skills for their classroom students. Coupled with the need to prepare my students to develop critical thinking pedagogy, I further want my students to be innovative and pursue creative approaches to teach their students to be critical thinkers. Creativity can foster critical thinking (Sukardi et al., 2021).

#### Context

Young Adolescent and Adult Literacy is a course I teach, and throughout this course, my students engage in multiple learning activities to enhance comprehension and critical thinking skills. First, I choose reading selections to speak strictly to the needs of the young adolescents and adolescents with whom my students interact in their classrooms by incorporating different genres of young adolescent and adult literature. In addition, I teach multiple reader response strategies (Rosenblatt, 1978) to enhance comprehension and critical thinking, including print, performance, visual, and digital forms of knowledge. Further, I integrate critical literacy with young adult literature to teach my students that literature is a space for conducting critical discourse. My stance has been adopted by the National Council of Teachers of English (NCTE, 2019) as a basis for the organization's resolution statement on critical literacy that offers, "critical literacy describes a pedagogical approach to reading that focuses on the political, sociocultural, historical, and economic forces that shape young students' lives" (Soares & Wood, 2010, p. 487).

At the beginning of each semester, I have found it beneficial for my students to develop a working knowledge of critical thinking that will be operationalized during the semester through assignments and assessments. My students come to know that the concept of critical thinking can be traced from the early writings of Socrates, Plato, and Aristotle. In other words, the concept of critical thinking is not a novel idea, and there are many schools of modern-day thought. However, my stance on critical thinking aligns with the educational school of thought. From this stance, I always begin by providing my students with materials to tap into their prior knowledge of Bloom's (1956) Cognitive Taxonomy they received in their undergraduate teacher education programs before I introduce the revised Bloom Cognitive Taxonomy (Anderson et al., 2001) that serves as the framework for critical thinking in the course (see Table 1). Through direct instruction, I focus their attention on Levels 4, 5, and 6 of the revised taxonomy, which includes analyzing, evaluating, and creating and the associated learning objectives for each stage. I have found many of my students are unfamiliar with the reorganization of the stages of cognition in the revised taxonomy and the learning objectives in each stage changed from nouns to verbs. According to Anderson and colleagues (2001), the rationale for this change is that cognition is a dynamic process; the thinking process requires action (Table 1).

Soares 83

Table 1: Bloom's Original and Revised Cognitive Taxonomy

Cognition Level	Original Cognitive Taxonomy	Revised Cognitive Taxonomy
Level 1 Cognition	Knowledge	Remember
Level 2 Cognition	Comprehension	Understand
Level 3 Cognition	Application	Apply
Level 4 Cognition	Analysis	*Analyze
Level 5 Cognition	Synthesis	*Evaluate
Level 6 Cognition	Evaluation	*Create

*Note.* \*Denotes the stages of critical thinking applied in the course.

#### **Open Mind Portrait**

One of the units I teach in the course focuses on making meaning through art and graphic representations. Specifically, my students create visual representations to fully understand the various dimensions of responding to literature visually. While there is a paucity of research that has been conducted on this line of inquiry, I draw upon the few evidenced-based practices when designing my teaching and learning instruction. For example, the use of visual art projects has been shown to aid in the construction of meaning (Constantino, 2007; Gullat, 2008) and increase critical thinking (Appel, 2006; Yenawine, 2013). Additionally, research has found that incorporating visual art projects increases creative problem-solving (Diaz-Lefebvre, 2006; Marshall, 2008). Vacca et al. (2016) explicated that art-making activities can be used in content area reading to promote critical thinking. Critical thinking is promoted as students reflect on their art projects through small group discussions or short writing activities to delineate their analytical reasoning when creating visual art projects in response to their reading.

To begin, I introduce my students to the "Open Mind Portrait" (Tompkins & Hoskisson, 1991) to build the foundation for the assignment objective, and I further introduce the rubric by which their portraits will be assessed (Figure 1). It is important for my students to understand that the response strategy is a method that allows them to visually analyze characters in a story and reflect on their interpretation of the character. This method allows my students to apply their analytical reasoning and critical thinking skills by taking a critical stance as they must consider multiple viewpoints and re-symbolize the unfamiliar worlds in texts into understandable worlds through their own lived experiences. As a result, emphasis is placed on the rubric's criteria: colors, symbols, quotes, and the critical thinking skills applied to represent the character and less on artistic ability. Additionally, I share portrait examples from my former students to reinforce their understanding of the assignment (Figure 2).

#### Figure 1: Directions, Materials, and Procedure

#### **Directions**

You will produce a visual representation of a character from Persepolis: A story of childhood (Satrapi, 2004) using the "Open Mind Portrait" strategy we have studied and provide a written explanation on your interpretation for the character in the graphic novel. The visual representation must demonstrate the cognitive thinking skills of analyzing, evaluating, and creating from Bloom's Revised Taxonomy (2001). You will post your visual representation on the character you choose to the discussion board.

#### **Materials Needed**

- 1. The Portrait template is provided.
- 2. Markers, crayons, or various art supplies
- 3. Digital tools

#### **Procedure**

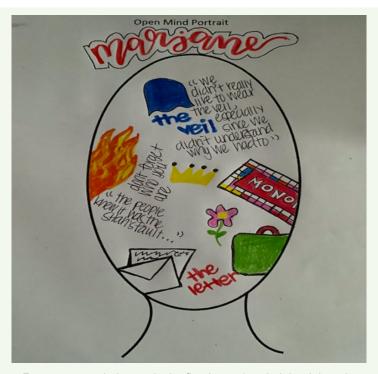
- 1. Utilize the template and rubric provided for the character's head and neck.
- 2. Draw significant scenes or images from the story that relate to the character portrayed and the character's role in society.
- 3. Include significant colors, symbols, and quotes that represent the character, and/or thoughts that are from the character's perspective.
- Include a short paragraph explaining the details of what was represented and why.

Table 2: Rubric for Open Mind Portrait

	Unacceptable 1	Developing 2	Acceptable 3	Target 4	Points
Overall Design: Use of Colors and Symbols to Present a Comprehensive Visual Product; Use of Quotes to Demonstrate Conceptual Understanding of Role and Impact of Character	Overall design is missing more than two required elements: colors and symbols, and quotes do not relate to the role of the character in the story or context.	Overall design is missing one of the required elements: colors, symbols, and quotes demonstrate a literal understanding of role of character in the story or context.	Design demonstrates an acceptable understanding of the character's importance. Acceptable use of color, symbol, and quotes reveal an acceptable understanding of the impact of the character on the story.	Design demonstrates a strong understanding of the importance of the character. Effective use of color, symbols, and quotes reveal a critical understanding of character's impact on the story.	
Cognitive Processes of Analyzing, Evaluating, and Creating	No evidence of higher levels of thinking in portrait or discussion	Less than two required higher levels of thinking are demonstrated in visual character representation and discussion.	Two of the three required higher levels of thinking are evident in visual character representation and discussion.	All three required higher levels of thinking are evident in visual character representation and discussion.	
Score					/ 8

Soares 85

Figure 2: Student Example



Explanation: For my open-mind portrait, the first image/symbol that I thought was important was the veil. At the very beginning of the graphic novel, Marjane discusses the implications of having to wear the veil, despite not truly understanding what it means. As the graphic novel progresses, the veil serves as a consistent symbol of religion and innocence, especially when faced with the possibility of having that innocence stripped away from her. The fire represents the war, demonstrations, and bombings that take place. Each explosion or conflict furthers the divide between peace and disaster in Iran. For example, the supposed arson towards the start of the graphic novel, in which everyone knew the Shah was behind. The crown represents Marjane's interpretation of how the king came to be versus the reality of the emperor's taking power as told by her family. The pink flower, or jasmine, represents her grandmother, who serves as a sturdy resource of peace and comfort for Marjane during the chaos and turmoil around her. The suitcase represents persecution and fleeing from the calamity, as Marjane is sent to Austria by her parents to protect her and give her the best chance at living a better life. The monopoly board represents Marjane's attempts to connect with her family, all overshadowed by her parents' fatigue and preoccupation with the demonstrations. Lastly, the letter represents the complexity of love in the story, as told through Marjane's involvement with the love letter between Mehri and Hossein, a neighbor boy.

#### **Final Thoughts**

When middle and secondary reading teachers permit their students to substantiate their interpretations of characters in a text and the impact of the characters' roles using visual art projects, they engage their students in an innovative and creative response strategy to literature. Moreover, they afford their students the opportunity to enhance their critical thinking skills; skills that are needed in all disciplines and for future careers. Strategies such as the "Open Mind Portrait" featured in this Teaching Tip allow students the opportunity to participate in critical discourse and examine their own implicit beliefs regarding the historical, political, sociocultural, and economic forces that have shaped their own lives. Comments from students support the usefulness of the strategy:

- I implemented the Open Mind Portrait for the first time with my 7th graders when we completed our reading of Monster. This was the first time my students were actively engaged in their ability to analyze the characters of their choice and had fun to doing it.
- The Open Mind Portrait was a new response strategy to me, but I will use the strategy again and I have shared the strategy with my teammates. It was[a] great strategy to enhance my students' critical thinking and creativity.

On a final note, the "Open Mind Portrait" is but one example for students to create visual representations when responding to literature visually. I have found that photography offers an additional medium that can used to assess higher levels of reading comprehension and critical thinking. Not only does photography offer an alternative for a visual art project, but I have also found photography aligns with my students' comfort zone due to the prevalence of today's cell phones with high-powered digital cameras.

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