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Editor

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Writing for the *South Carolina Association for Middle Level Education Journal*

The *South Carolina Association for Middle Level Education Journal* is a peer-reviewed journal that highlights research-based practices that improve middle schools and the learning that occurs within and outside of the classroom. Readers of this journal are generally teachers, administrators, and other educators who are interested in the issues that young adolescents and educators of those individuals face.

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Traveling Interdisciplinary Literacy Trunk (TILT) Integration Within SC History

Katie Oliver Spragg and Deborah McMurtrie

Abstract

During my internship experience in a low-achieving Title I middle school, I found that delivering traditional, lecture-based social studies lessons was not effective. I believed that I could increase student participation, interest, and achievement by offering small group activities, interdisciplinary real-life applications, and opportunities for student choice. I wanted to integrate South Carolina history standards, embed literacy skills in a meaningful context, and offer activities that appealed to multiple intelligences and modalities. To accomplish this, I designed and implemented a new Traveling Interdisciplinary Literacy Trunk (TILT) during my student teaching. I found that using this TILT helped improve my students' motivation and academic achievement across disciplines.

Introduction

It is the teacher's job to challenge and support all students regardless of ability or background. Every student should have the opportunity to experience academic achievement and success. Our schools are becoming increasingly diverse. Poor students, students of color, and students learning English as a second language often face unique challenges and may need additional support. Teachers need to be aware of this change in school demographics and the widening achievement gap. Teachers need to "think outside the box" to implement new tools and strategies that will help all students succeed. Doing this not only helps low-achieving students, but it also makes the class more engaging to all students.

During my internship experience in a low-achieving Title I middle school, I encountered a large number of students who were reading three or more years below grade level. In addition, the school had a high percentage of students who were learning English as a second language but were expected to master eighth grade social studies content. Delivering traditional, lecture-based social studies lessons was not working, so I decided to try something different. I believed that I could increase student participation, interest, and achievement by offering small group activities, interdisciplinary real-life applications, and opportunities for student choice. I wanted to integrate South Carolina history standards, embed literacy skills in meaningful context, and offer activities that appealed to multiple intelligences and modalities. To accomplish this, I designed and implemented a Traveling Interdisciplinary Literacy Trunk (TILT) during my student teaching, using professional literature as a guide (e.g. Anderson, Leventhal, & Dupere, 2014; Calderon, Slavin, & Sanchez, 2011; Hinde, Osborn Popp, Jimenez-Silva, & Dorn, 2011; McKown, 2013).

TILTs are "interdisciplinary units of study that are aligned with academic standards from multiple content areas with an emphasis on writing across the curriculum" (Center of Excellence in Middle level, Interdisciplinary Strategies for Teaching [CE-MIST], 2018, n.p.). My TILT included a unit plan (see Figure 1), daily lesson plans, and an implementation guide (see Figure 2), as well as essential questions, content area vocabulary, pre-writing and writing activities, instructional strategies for differentiating instruction, and assessments.

Figure 1. Unit Plan Overview for Traveling Interdisciplinary Literacy Trunk (TILT)

Title of Unit: Unit 9 – Birth of a Modern Era   Grade Level: 8   Duration: 2 weeks
Developed by: Katie Spragg Oliver

Alignment with South Carolina Academic Standards:
Social Studies Standard 8-6: The student will demonstrate an understanding of the role of South Carolina in the nation in the early 20th century.

English Language Arts Standard W.6: Write independently, legibly, and routinely for a variety of tasks, purposes, and audiences over short and extended time frames.

Music MG8-6.1: Compare and contrast the roles and income available through music careers in South Carolina and analyze the impact of the arts upon the economy of our state.

Summary of activities showing connections between content areas	Students will be looking at the impact of South Carolina and the United States during World War I, the 1920s, and the Great Depression. Pre-writing assignments will be used as formative assessments to check students' understanding of material and to practice their literacy skills. Information will be available through printable notes (website attached) and videos from YouTube. The videos appeal to student interest and also allow students to access technology during the lesson. The video about music allows students to compare music from the 1920s to the music they listen to today. Using the information they have learned about South Carolina History, the students will be producing a creative writing assignment that addresses ELA standards. The options for the RAFT creative writing summary are attached. At the end of the unit students will play a Kahoot review game using computers or other devices such as smart phones or ipods.
Text Set: Videos, poems, and printable notes	Videos – YouTube: - How to dance the Charleston: https://www.youtube.com/watch?v=Z0oHxyensok - The Big Apple: https://www.youtube.com/watch?v=1yXDTRPenWI - Great Depression (Summer Lovin'): https://www.youtube.com/watch?v=HupNDQwLN08&index=2&t=76s&list=PLCH8uxPXHDPBTI_rTeJkLDXQMKQK4kKQn - New Deal (Uptown Funk): https://www.youtube.com/watch?v=hsw4B1PWZLQ&list=PLCH8uxPXHDPD78wCzNPaKWH2_W66kFvt7&index=11 Poem: https://www.poets.org/poetsorg/poem/weary-blues Other Resources – Notes: https://www.teacherspayteachers.com/Product/South-Carolina-History-Partner-Read-8-6-Bundle-2371887
Essential questions	How did World War I impact South Carolina? What changes occurred in South Carolina during the 1920s? In what ways did South Carolina's Economy struggle in the 1920s and early 1930s? What were the effects of the Great Depression and the lasting impact of the New Deal on South Carolina? What do you think they would say? What have you learned throughout this unit?
Pre-writing and writing activities	Pre-writing activities include t-charts, Venn Diagrams, and rough drafts. Writing activities include summary paragraphs, analysis paragraphs, and the RAFT creative writing project. The RAFT activity looks different for every student because students were able to pick their role, audience, format, and topic.
Accomodations, modalities of learning, differentiating instruction, tiering	In order to best serve my students, I will follow the lists of accommodations in their IEPs. For students with ADHD, I will allow them to sit on bubble cushions that are available in the room if they need one that day. I will also have them restate directions back to me so that I know they have heard them correctly. I will also allow them to have more time on assignments if needed. Students with learning disabilities will have test and quiz questions read aloud to them and will receive frequent one-on-one time with the teacher. Students with other special needs are allowed to sit near the teacher or at the back table in order to work in a small group or retreat to a quieter part of the classroom.
Formative and summative assessments	Formative Assessments: T-chart comparing South Carolina to the United States, class discussions of notes, essential questions from notes, study guide questions, Kahoot review game. Summative Assessments: Summary writing of t-chart information, Vocabulary assignment, RAFT review.

Figure 2. Suggested Implementation Guide for Traveling Interdisciplinary Literacy Trunk

	Week 1	Week 2
English Language Arts	- Summarizing WWI: paragraph writing - Langston Hughes "The Weary Blues" poem analysis	- RAFT creative writing activity
Social Studies	- ETK readings 8-6.1, 8-6.2, and 8-6.3 - Essential questions for reading - Political cartoon "Bullet Proof" - Great Depression picture analysis	- ETK 8-6.4 - Vocabulary worksheet - Study guide - SC Great Depression picture analysis
Technology	- Videos about WWI - Dance videos during 1920s - How-to dance video	- Music video parodies about Great Depression and New Deal (Mr. Betts YouTube) - Kahoot! Review game
Music	- Compare music from 1920s to music from today	

I believed that my students would benefit from student-centered learning as opposed to teacher-directed learning. Accordingly, I focused on planning hands-on activities, increasing critical thinking skills, and providing opportunities for assignments that were relevant to the students' lives. I believed that incorporating literacy skills, like reading and writing, would help improve students' motivation and academic achievement across disciplines. Using interdisciplinary activities in the class would appeal to a wider range of students.

Methodology

In order to demonstrate that my TILT unit plan increased student participation, interest, and achievement, I conducted multiple assessments. First, I gave a short, ten question pre-test before teaching any lessons to see what information my students already knew and to assess what I needed to spend the most time teaching; this was not graded. Throughout the TILT unit, which was taught over a two-week period, I conducted formative assessments that allowed me to assess student participation and progress. Formative assessments included class discussions, probing questions, and conversations I had with individuals and small groups of students. I also used formative

assessments that required students to creatively express their knowledge by giving them many options that matched their interests, and I grouped them based on interests. It was important to incorporate assessments that appealed to my students' interests. The purpose of these assessments was for students to synthesize and evaluate the material they learned in a creative way.

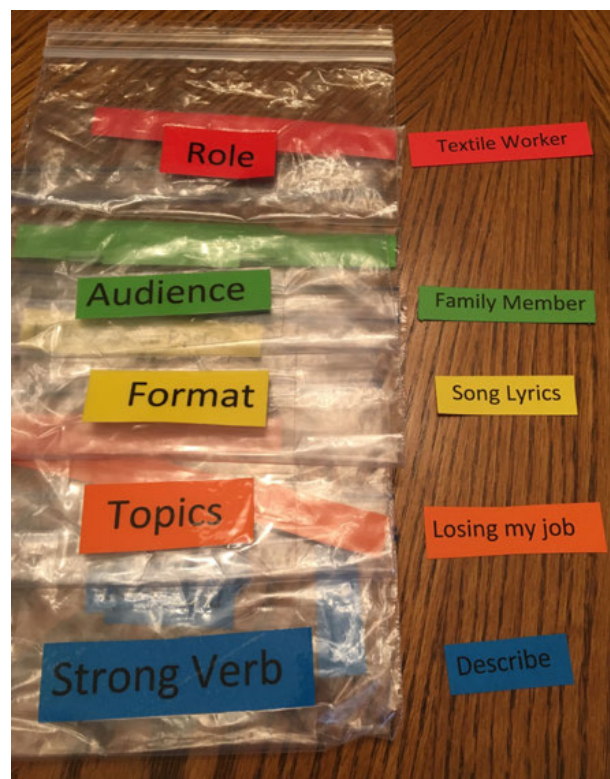*Figure 3*. RAFT and Strong Verb Example

Figure 4. RAFT Task Cards

Role (choose one)	Audience (choose one)	Format (choose one)	Topic (choose one)	Strong Verb (choose one)
banker farmer textile worker jazz musician President FDR flapper radio station boll weevil family member black middle-class man/woman movie producer	banker farmer textile worker jazz musician President FDR flapper radio station boll weevil family member black middle-class man/woman movie producer	postcard song lyrics help wanted poster text message cartoon	Why I left the South I'm not the bad guy What's new Stock Market Crash 1929 Losing my job Living the life/Weekend in Charleston	announce demand describe complain explain

Figure 5. RAFT Rubric

	16-25 points	6-15 points	0-5 points
Content	Explains accurate knowledge of history and includes important information.	Explains some knowledge of history.	Includes no historical facts or explains inaccurate historical information
Writing Technique	Uses correct punctuation, spelling, and grammar.	Some punctuation, spelling, and grammar mistakes.	Does not follow rules of formal writing.
Creativity	Shows originality, creativity, and thoughtfulness.	Shows an attempt at creativity.	Shows little or now creativity.
Presentation	Interesting illustrations, easy to read, and orderly.	Interesting illustrations, but lacks organization.	Messy with no illustrations.

Literacy standards were included in my TILT through a RAFT writing assignment that was used as a summative assessment. RAFT (Role, Audience, Format, Topic) is an acronym for a writing strategy that helps students understand their role as a writer as they choose from a menu of different audiences, writing formats, and topics (CE-MIST, 2018). A fifth category, "Strong Verb," can be used to establish the purpose of the piece (see Figure 3). The students' choices for each category are listed in Figure 4. My students' RAFTs were then graded using a rubric (see Figure 5).

At the end of my unit lessons, I conducted a summative assessment that consisted of the same ten multiple choice questions from the pre-assessment. I reordered the questions and the answer choices to prevent students from simply memorizing the test. I used this test to document student achievement. Figure 6 shows the pre-test and post-test data. I then analyzed the results by comparing students by gender, race, socioeconomic status, and IEP status.

As a conclusion to my TILT project and also my student teaching internship, I asked students to respond to questions about my interdisciplinary and literacy lessons. Questions included "What did you learn?" "What helped you learn best?" and "What will you remember for a long time?" Figure 7 shows some student responses.

Analysis of Student Learning
Whole Class

There were seventeen students in the class, comprised of nine females and eight males. The class had seven black students, five Hispanic students, three white students, and two students of a mixed race. The median grade for the pre-test for the whole class was 38.2. Only two students passed the pre-test (A passing score is a 60 or above). The median grade for the post-test for the whole class was 75.6. Fifteen students passed the post-test.

Gender

Out of the nine females in the class, five were black, two were Hispanic, one was white, and one was mixed race. The average grade on the pre-test for females was 35.6. Only one female passed the pre-test. The average grade on the post-test for the females was 74.4. Seven of the females passed the post-test.

Out of the eight males in the class, three were Hispanic, two were black, two were white, and one student was mixed race. The average grade on the pre-test for the males was 41.3. Only one male passed the pre-test. The average grade on the post-test for the males was 76.9. All eight male students passed the post-test, slightly outperforming the female students.

Race

Out of the seven black students in the class, five were female and two were male. Two of the black students had IEPs, and five were on Free or Reduced lunch. The average grade on the pre-test for the black students was 37.1. The average grade on the post-test for the black students was 71.4. Five of the black students passed the post-test as opposed to only one passing the pre-test. Two of the three 100 post-test scores were from black students. The two black students who did not pass the test had IEPs. Their IEPs may need to be updated and have new accommodations in place if they continue to fail tests.
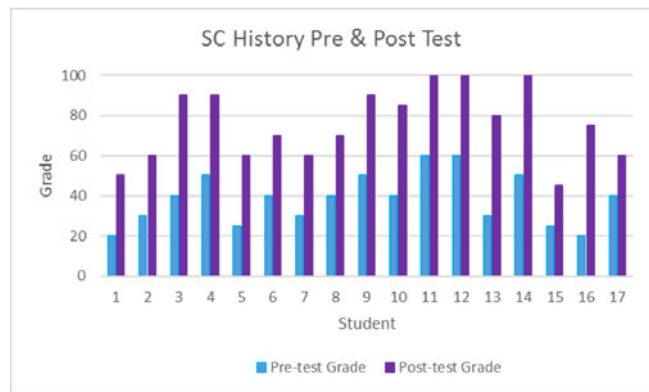
Figure 6. Pre and Post Test Data

Figure 7. Summative Questions

What did you learn?
"1920s were lit!"
"Great Depression was raw."
"New Deal helps you out."
"WWII ended the Great Depression."
What helped you learn best?
"YouTube videos."
"RAFT."
"The review game Kahoot!"
What will you remember for a long time?
"New Deal helps you out."
"RAFT activity."
"Flappers!"
"The day you let us use our phone."

Out of the five Hispanic students in the class, two were female and three were male. All five were also English Language Learners (ELLs). One student had an IEP and four were on Free or Reduced lunch. The Hispanic students had the highest averages on the pre-test. The average grade on the pre-test for the Hispanic students was 42. The average grade on the post-test was 76. All students passed the post-test as opposed to only one on the pre-test. One of the three 100 post-test scores was from a Hispanic male.

There were two students of a mixed race. The female scored a 30 on the pre-test and an 80 on the post-test. The male scored a 50 on the pre-test and a 90 on the post-test. These students were of different ethnicities from each

other. Neither of them had an IEP, but both were on Free or Reduced lunch.

Out of the three white students in the class, one was female and two were male. None had an IEP, and one male was on Free or Reduced lunch. The average grade on the pre-test for the white students was 33.3. The average grade on the post-test was 78.3. None of the white students passed the pre-test but all of them passed the post-test. The white students showed the most improvement between the two tests and have the highest average on the post-test.

Free and Reduced lunch

Out of seventeen students, twelve had Free or Reduced lunch. Five students were black, four were Hispanic, two were mixed race, and one student was white. Five of these students were female and seven were males. The average grade on the pre-test for the students with Free or Reduced lunch was 38.1, and the average for the post-test was 73.3. Ten of the twelve scored 60 or higher on the post-test as opposed to one on the pre-test.

IEP

There were three students with an IEP in the class. Two were black and one was Hispanic. Two of the students with an IEP were female, and one was male. The average grade on the pre-test for the students with IEPs was 25. These students scored the lowest on the pre-test out of the whole class; they have the lowest pre-test average out of all the subgroups. The average grade on the post-test was 51.7. This group showed the least improvement between the pre-test and post-test. Only one student passed the post-test with a 60, and no students with an IEP passed the pre-test. This occurred even with daily one-on-one learning, redirecting, and extra help including reading the test out loud to them. I may need to spend more time working with these students or make other instructional changes before taking a test. In addition, their

accommodations may need to be updated on their IEPs.

Findings

Implementing rigorous and relevant interdisciplinary lessons using the Traveling Interdisciplinary Literacy Trunk (TILT) increased student participation, interest, and achievement more than traditional social studies lessons. Comparing the students' pre-test and post-test scores showed dramatic gains. In addition to student achievement, I was interested in documenting student interest and engagement. Accordingly, I asked the students several questions at the end of the unit. Sample responses are listed in Figure 7. Finally, I am including examples that show what the students learned as represented through making comic strips, creating an advertisement, writing a song

Figure 8. Student Example of Making a Comic Strip
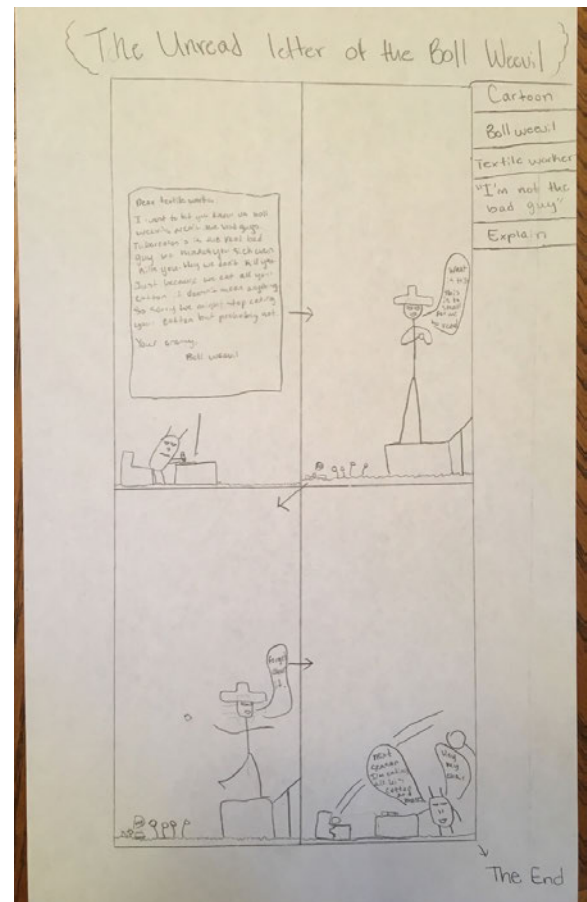
about the topic, and writing a dialogue (see Figures 8-11).

Conclusion

Most students I had observed throughout my practicums and internship seemed uninterested in social studies or did not seem to find purpose in learning about it. The purpose of this project was to show how implementing interdisciplinary lessons that are relevant to students' lives can positively impact their learning. I implemented a Traveling Interdisciplinary Literacy Trunk (TILT) unit during my student teaching. This TILT followed the South Carolina state standards for eighth grade and also our school district's pacing guide. My goal in completing and implementing this project during my student teaching was for my students to have a better understanding of South Carolina history by actively engaging students in

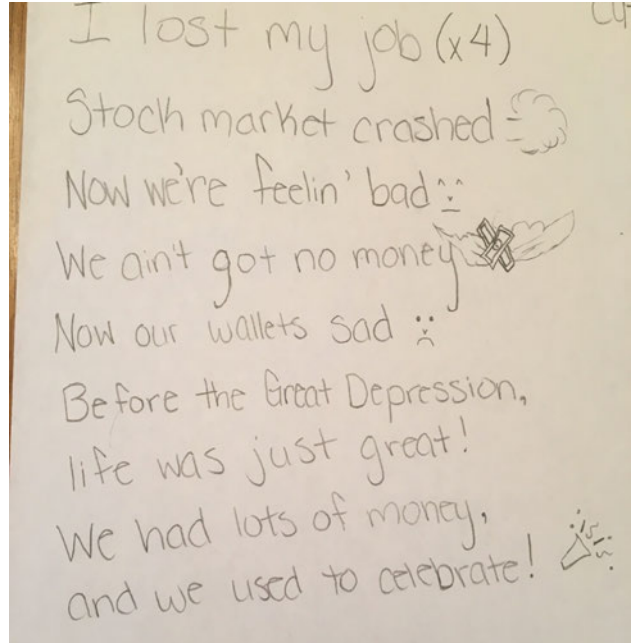*Figure 10.* Student Example of Writing a Song

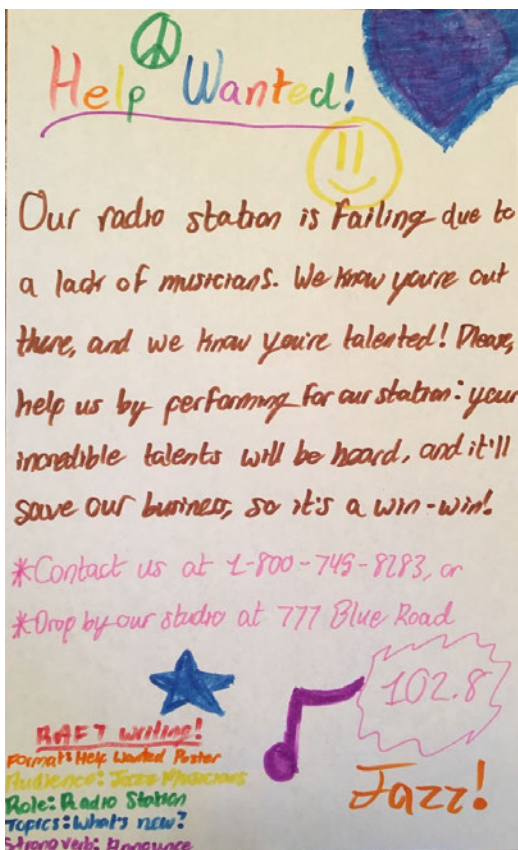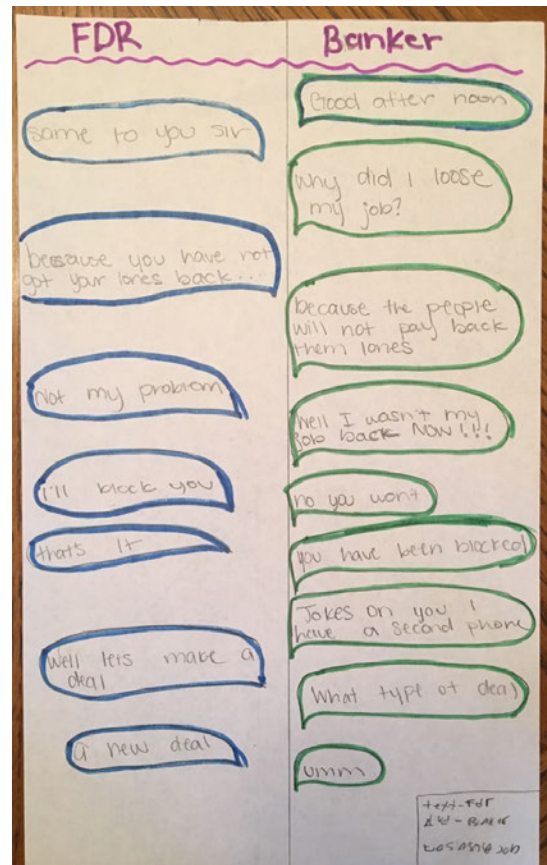*Figure 9.* Student Example of Creating an Advertisement

Figure 11. Student Example of Writing a Dialogue

the lessons and providing assignments that connect state history to their lives. For example, wearing fashionable shoes seemed to be important to this group of middle school students. For this reason, I launched the unit by showing them a photograph of a man wearing torn rag shoes during the Great Depression. I asked them to analyze the photograph and answer the following questions:

- How important are your shoes to you?
- During the Great Depression, shoes were a luxury. What is happening in this picture?
- How do you think this person feels?
- How would you feel if you were in his shoes?

Finally, I used data from my students' multiple intelligences survey to create formative assessment options. I found it more beneficial for students to be graded in a way they are able to best explain their knowledge of the content.

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Becoming a Change Agent: As Easy as 1, 2, 3, … 4

Elizabeth Affronti

Abstract
Fullan (1993) defines change agentry as "being self-conscious about the nature of change and the change process. Those skilled in change are appreciative of its semi-unpredictable and volatile character [and find a] way toward some desired set of ends" (p.12). For those involved in education, a change agent then becomes a teacher or administrator who strives for change within themselves, the classroom, and the school. After synthesizing and organizing data on change agentry, the author believes that in order to become a successful change agent in schools, educators must progress through four tiers: Creating Relationships, Varying Teaching Styles, Improving Schools, and Sharing with the Teaching Community. This article introduces and discusses these four areas of development and should help answer the questions: How can I become a change agent? What can I do to create change within myself, my classroom, and my school? How will accepting change help my students, especially highly influential, middle school students?

Ninety percent of teaching positions available are a direct result of teachers choosing to leave the profession (Coke, 2018). While many factors can influence a teacher's decision, common reasons include overwhelming workloads, low salaries, and teacher "burnout." To keep this profession from declining, educators must be open to change. No matter how many years of experience a teacher has, it is necessary to embrace the title of a change agent, someone "being self-conscious about the nature of change and the change process" (Fullan, 1993, p.12). Without accepting change, teachers become stagnant in the forever changing academic world. New technologies, research on engagement, and methods on implementing material are just a few of the many areas constantly changing. If resisting the inevitable, then frustration festers in work relations, learning outcomes, and school policies.

Teachers are not the only group who would benefit from change. Students, specifically middle school students, are in need of change because recent studies show a decline in academic functions (i.e. GPA, educational aspirations, educational expectations, etc.) during junior high school (Gutman, Peck,

Malanchuk, Sameroff, & Eccles, 2017b). Not only is there a decrease in middle school students' academic functioning, but there is also a decline in how a middle school student feels about school (Gutman, et al., 2017b). For these reasons, change agentry must be a priority. Students will become more dedicated to learning and teachers will revive their drive and passion. In order to fully embody this term, educators must advance through the following tiers of change agentry.

Tier One: Creating Relationships

Being a change agent starts with the primary job requirement: teaching children and teens. Investing in students beyond academics and aiming to enjoy and "love [them]… before they achieve" (Benson, 2016, para. 11) is essential for a quality relationship. Creating a relationship does not require a lot of time or energy. Showing a caring personality can be as simple as complimenting a student's outfit, congratulating their performance in the game the night before, or asking them about their day. Creating bonds inside the classroom and extending that relationship outside the walls is a common occurrence. The media constantly

exposes committed teachers: teachers attend recitals, weddings, christenings, sporting events, art festivals—the list goes on. These relationships do not just last the school year; the bond and impact teachers have on students remains with them forever.

Besides forming relationships out of sincerity, relationships are a necessity for student success. Cook et al. (2018) found that "positive teacher-student relationships appear to impact learning outcomes through greater academic engagement" (p. 228). Teacher-student relationships are vital to students' personality, confidence, trust, and engagement. Building teacher-student relationships at any grade level is important, but there is a vital need for positive progress for kids emerging into their adolescent years. Studies find that the time period transitioning from elementary school into middle school is critical in terms of their adolescent development and their academic functions as they experience changes organizationally, socially, and instructionally (Gutman, Peck, Malanchuk, Sameroff, & Eccles, 2017a). In order to help the developing student, educators must create positive and encouraging relationships to help students adapt and learn. Without loving the kids, educators will not earn their trust. Without trust, students and teachers cannot engage. Without engagement, students cannot learn. Forming a bond with the students is the foundation for creating change in their overall academic achievements.

Tier Two: Varying Teaching Style within the Classroom

After forming relationships, educators must translate that love into various teaching methods. Without teachers having a certain charisma, students lack the attention necessary for learning new material. According to a recent study on student attention spans, those students "who are sufficiently aroused can sustain prolonged attention during lectures" (Wilson & Korn, 2007). The "arousal" or engagement can stem from a couple of factors: teacher personality and varying teaching styles. Marzano and Marzano (2003) believe that "effective student-teacher relationships have nothing to do with the teacher's personality" (p. 7). However, personality is a major component to the student-teacher relationship; if not to form a connection with them, then at least to engage them with the material. Studies have found that attention spans have less to do with the material and more about the teachers of the class (Galloway, 2017). Consequently, educators must instill the importance of the material while ensuring that students enjoy what they learn by bringing energy to the room. Standing in one position and lecturing how to solve a pre-algebra problem with a blank stare and in a monotone voice would lose students in a short amount of time. Constantly moving, changing speaking volumes, and even going off on minor tangents are simple ways to keep students engaged.

Whether video recording the students' boredom to identify areas for improvement, blocking off time each week for students to research their passion, or helping relieve stress through yoga, change must stem from the students' needs (Coke, 2018; Croy, 2016; Peeples, 2016). Students' needs variety, so using various teaching techniques is a vital component to change agentry. Goodwin (2016) calls this adhering to students' *thinking preferences*. As explained in Herrmann's Brain Dominance Instrument (Goodwin, 2016), people have different "domains" for thinking: "analytical, practical, experimental, and relational" (para. 4). If a teacher just uses competitive vocabulary card games or jeopardy style review, then only the hyperactive students are engaged (Marzano & Marzano, 2003). Allowing time to work individually and in silence would accommodate the relatively passive students. Educators can use this quiet time to walk around and give the reserved students a chance to ask questions and

to "reward small successes quickly" (Marzano & Marzano, 2003, p. 12).

Tier Three: Improving Schools

While some may think a teacher's job stays within the classroom, a change agent's responsibilities extend beyond the room and into the school itself. Ideally, changing individual classrooms leads to improving the workplace. Changing schools starts with building trust and having mutual respect for the teachers and administrators (Boyd-Dimock & McGree, 1995; Wolpert-Gawron, 2016). Next, asking questions is important to understanding "how certain rules [are] made, what inform[s] the process, and who [is] involved in the conversation" (Peebles, 2016, para. 17). From there, change can happen. One of the main reasons why this tier is the most difficult is because of the amount of time, effort, manpower, materials, and money involved. The administration, school boards, and government create rules and regulations that discourage educators from pursuing change. However, not every idea has to be groundbreaking. It can be as simple as having lunch meetings to better manage everyone's time (Peeples, 2016; Wolpert-Gawron, 2016). Change is possible when the desire is great enough. Start small and build up; sometimes educators forget their potential because of the monstrosity of the process.

Improving schools can take place in any setting: classrooms, computer laboratories, libraries, cafeterias, and even athletics. With regards to changing a school's athletic programs, some changes include adding new teams for different ages. For example, an Assistant Athletic Director from a small school in Sumter, South Carolina focused his energy on creating a middle school volleyball team. He faced resistance, experienced setbacks, and changed his plans more than a few times, but he had the experience and knowledge, he had the vision, and he just took the steps necessary for change. When proposing this idea to the Athletic Director

(A.D.), he was denied. After months of discussing with the A.D., they agreed under one condition: "it could not cost the school a single dollar" (R.R, email communication, September 24, 2018). Because of this, he had to coach both the middle school team and varsity, he had to search through the attics for old jerseys, and he had to schedule matches with other middle school teams. Because he believed in the change he was making, he sacrificed his time, took the criticism from other coaches, accepted the resistance, and eventually achieved positive results. After two years, he saw "the largest number of signups in school history" (R.R, email communication, September 24, 2018). Finally, the administration was on his side. The Assistant Athletic Director was an original and had a vision of what was and what could be (Scherer, 2016). Because of this, middle school girls were given a healthy outlet and the volleyball team was strengthened for the future.

Another way to improve schools, besides athletics, is through teacher in-service days, meetings, observation hours, professional development hours, and other requirements within the profession. At times, these hours are not spent as effectively as intended. As previously mentioned, teachers, like students, have one of four learning styles and "respond differently to challenges depending on dominant thinking preferences" (Goodwin, 2016, para. 7). A way to change one-size-fits-all mundane in-service days is by allowing the teachers to choose the meetings they attend. One group could spend the hour interacting on the computer while listening to general instructions on Google Classroom while others could listen to a lecture on the gradebook update. Having varied options throughout the day still required attention, diligence, and professional development, but altering days based on the teacher's needs is more productive than assuming all teachers need the same information or instructions. Overall, administration can make a simple, positive change for the betterment of the teaching staff.

Tier Four: Engaging in the Teaching Community

This tier involves teachers becoming comfortable with sharing everything: the resistance, failures, and successes, in order to grow as educators (Fullan, 1993; Murphy, 2016; Wolpert-Gawron, 2016). Some recognize the benefit to sharing within the teaching community but feel as if the very nature of teaching (i.e. teaching within the walls seven periods a day, five days a week) restricts learning from other educators (Rogers & Babinski, 2002). Allotting time for collaboration, outside of the twenty-minute lunch break in the faculty lounge, helps schools progress in all areas.

One of the best examples about the benefits of sharing with others is a personal testament from my first year. The week before the first day of school, several teachers took me to dinner which made me feel welcomed and included. They shared stories proving they had won the professional fight (Rogers & Babinski, 2002) their first year which was encouraging to hear. We shared personal narratives while on an English retreat in Charleston. Rogers and Babinski (2002) believe this provides a powerful vehicle for engaging others. When sharing stories, we engaged on a personal level which opened up a whole new type of dialogue once we returned. Because we spent that vital time away from school conversing, I felt more comfortable asking the veteran teachers any question during my first year. Along with connecting on a personal level, a few teachers gave me previous lesson plans, tests, and PowerPoints, so I had some lessons at the insert of a flash drive. Having this foundation was vital to starting my career. Without them sharing their stories, knowledge, and material, I would have felt isolated, unheard, and lost in my curriculum. The idea of sharing teaching stories, methods, materials, and engaging on a personal level helps teachers grow and trust sharing with others in their profession.

Conclusion

Advancing through these tiers and guidelines proposed in this article will help in becoming change agents, but without knowing why this concept is important, the four tiers become obsolete. Answering "why become a change agent?" reinforces why educators entered the profession in the first place. Being a change agent is not changing all teaching strategies or rules, but rather a way of continually being open to improving each year based on the children sitting behind the desks. Educators hold the power to change their classroom, school, and the attitudes of young students.

Research proves a powerful correlation between positive teacher support and an increase in students' academic interest and emotional well-being (Duchesne, Ratelle, & Roy, 2012), especially during the vital period of transitioning into middle school (Fite, Frazer, DiPierro, & Abel, 2019). Committing to changing for an overall more effective environment will help students grow individually, academically, and could even help young students see the joys of being an educator. If educators are not positive advocates for the teaching community, then the number of those interested in the profession will continue to decline (Brown, 2016). Educators must change now in order to prevent a further decline in the profession and so students will have positive attitudes and successful experiences before advancing into high school.

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Making Multiple-Choice Questions Interactive

Thea Dirton

Abstract
When students are engaged and positively interacting with content, they have a deeper understanding of the content and perform at higher levels. This leads to higher achievement on benchmarks, standardized tests, and course grades. This article is about finding ways to use multiple-choice questions in an engaging and interactive way, and provides strategies to modify the traditional use of multiple-choice questions.

Introduction

It is best practice for teachers to provide students with opportunities to interact with academic content; this provides students with opportunities to think critically and build conceptual understanding. In a study by Woolley, Strutchens, Gilbert, and Martin (2010), the researchers found that content delivery methods that are interactive increase student achievement as well as improve other educational factors such as student motivation. They found that "innovative instructional practices" (Woolley et al., 2010, p. 42) were effective in all populations, including students of African-American and Hispanic descent.

Ladson-Billings (2013) also discussed findings similar to these. She found that instead of traditional content delivery methods, students "desire to be deeply engaged in learning. … [T]hey do not want to receive a passive education where rote memorization and regurgitation passes for learning. They want to innovate, create, and implement" (p. 108). Acknowledging this research and many additional studies like it, while also providing other opportunities for students to be successful on state standardized tests, is challenging. However, in order to provide rigorous learning opportunities for students that will help them move beyond lower-level thinking, which will

help them be successful on standardized tests, teachers must use various formative and summative assessments (National Middle School Association [NMSA], 2010). Finding interactive ways to assess students using traditional methods is essential to increasing students' understanding of content and level of achievement.

A Change in Traditional Best Practices

Best teaching practices increase students' understanding of content and their level of achievement based on the research and practice of researchers and educators. "Historically,… education has relied on lectures, recitation, seminars and laboratory instruction. These teaching methods were arguably successful and are still widely used" (Alstete & Beutel, 2016, p. 175). However, to keep up with a changing workforce "since… society [has] moved into the post-industrial knowledge economy," (p. 177) traditional methods of delivering and assessing content, and to a certain extent the content itself, should change. Instead of merely giving and receiving orders, members of the workforce are expected to explain, evaluate, persuade, analyze, etc. (Alstete & Beutel, 2016). This change in the workforce and the requirements needed to be successful in it

should spur a change in the way we are educating and assessing our students.

New best practices have been researched, updated, and used as students' educational needs have changed. These practices span the continuum of educational content and feature various types of content delivery methods because all students do not learn content material best using the same techniques (Mason et al., 2012). Teachers should use educational best practices because it is necessary for students to be introduced to ideas and content using the most effective practices possible so that they can make connections and deepen their understanding of content.

Among the best practices that researchers Lee, Robinson, and Sebastian (2012) suggest, which includes clear objectives for success, a rapport between teachers and students, and the encouragement of students to strive for success, the first listed is that "all instruction should engage and interest students" (p. 21). Additionally, they state that "courses are more successful (i.e., students learn more) when their teachers encourage active student participation and discussion, compared to classes where instruction is more didactic and involves a one-way flow of information from teacher to student" (p. 21).

Positive Outcomes

New best practices suggest that an increase in interactive teaching and assessment methods would increase the engagement of students and could break the historical pattern of students disengaging from school and dropping out due to disinterest. Shin and Brock (2017) found that interactive teaching and assessment methods, such as watching videos on content before class, engaging in class discussion during class, and finding other engaging ways to introduce, review, and assess material, motivated students to prepare for and become involved in class.

The way that teachers instruct and assess students can cause students to become disengaged and change their attitude toward learning. Historically, "disengaged students have poor attendance, often leading to dropping out" (Lee et al., 2012, p. 16). Fullan (2016) states that this disengagement or boredom is due to a lack of engagement by students in schools which declines from Kindergarten to Grade 10, "where barely more than one-third of the students were actively involved" (p. 10). Getting students actively involved by using interactive teaching and assessment methods would enhance students' interest in schools and may deter them from dropping out due to disinterest. Incorporating engaging teaching and assessment methods is beneficial to students who are historically disengaged, disinclined, or apathetic due to undesired instructional components because these methods may cause the students to take a renewed interest in school.

Updating the Use of Multiple-Choice Questions

In most instances, multiple-choice questions do not lend themselves to be interactive. However, multiple-choice questions are a valuable assessment source and, when written correctly, can provide growth opportunities for students. Multiple-choice questions can be used to show evidence of application, strategic thinking, problem-solving ability, and comprehensive learning. They can also be used to identify errors in thinking and develop problem-solving strategies through the constructive use of effective answer choice distractors. The use of problem-solving situations and higher-order thinking questions allow students to develop a strong academic foundation and challenges them to think about concepts in different ways (NMSA, 2010). In order to expose students to the different types of multiple-choice questions, but also keep them

Figure 1. Students in pairs with multiple-choice questions and answer cards
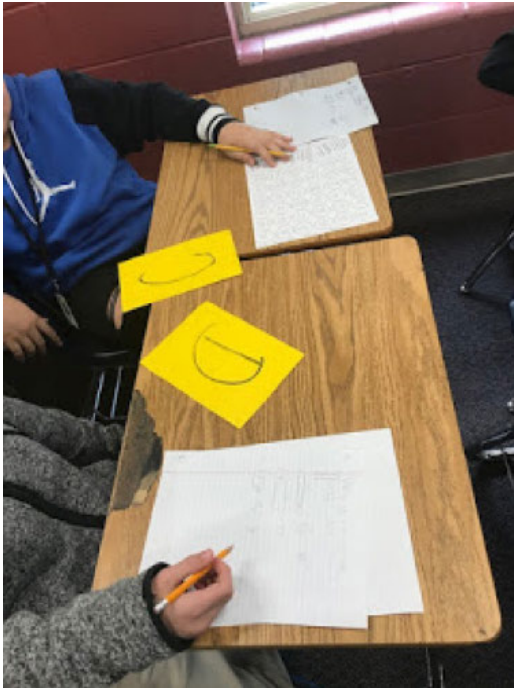
engaged in learning, teachers should find ways to connect the two.

An activity that can be used to keep students engaged when answering multiple-choice questions is having students work with a partner to answer multiple-choice questions. For instance, teachers can have students partner up. Each set of students are given cards with the answer choices from the multiple-choice questions on them (see Figure 1). Students then have 2-3 minutes (or longer depending on the rigor of the question) to determine what their answer will be. This determination should include structured and previously-modeled accountable talk. Students can then choose the corresponding card and hold it up when the teacher asks the class to do so. This activity allows the teacher to do a quick scan of the cards and immediately assess the students' understanding of the content (see Figure 2). Computer applications and programs, such as QR codes and Plickers (see Figure 3), can be used to integrate technology and allow teachers

to capture and save student responses for analysis.

In addition to this strategy there are a multitude of strategies that can be used to increase the level of engagement in the traditional use of multiple-choice questions. Teachers could place the letters of the answer choices in the four corners of the classroom and have students walk to the answer choice that they think is correct. There are also websites such as Kahoot! and Quizziz that allow students to answer multiple-choice questions in a game-like environment.

All of the strategies mentioned above are interactive and instantaneous assessments. Whether it is with lettered cards or personal devices, these strategies allow the teacher to gather data on the students' understanding of the assessed concept. Several outcomes are possible from this type of assessment. For example, all students could have the same right answer which could lead to a discussion on why the other answers are ineffective distractions. All students could have the same wrong answer, which should lead to a discussion on that specific answer choice and why it is incorrect. Some students could have a variety of wrong answers and this could spark a debate about the concept

Figure 2. Teachers can immediately assess the students' understanding

Figure 3. Web Resources

[Plickers](): Poll or assess students quickly, no student devices needed
[Kahoot!](): A game-based website that allows for formative and summative assessment
[Quizziz](): An interactive assessment tool
[Google Forms](): A google based tool that can be used to quickly assess students' knowledge
[Google Docs](): A google based word processing document
[Padlet](): A web-based site on which presenters can create boards and participants can post to

and why students chose their respective answers. One group could have a different answer and could be asked to justify this answer. This activity is an interactive way to expose students to high depth-of-knowledge multiple-choice questions and encourage error-analysis through effective answer distractors.

An extension of the card activity is that it could be paired with a justification component. The justification component would require students to write a justification for their chosen answer. Prior to revealing the answers that they selected, students could be required to justify the answer that they chose. This could be completed on a sheet of notebook paper, a formal worksheet, or using a technology component such as [Google Forms](), [Google Docs](), or [Padlet](). The teacher could also informally incorporate this into the strategy by listening to the students' conversation while they discuss the multiple-choice questions.

Conclusion

Research shows that content delivery methods should be interactive and engaging. In this writer's current research, she has determined that when students become engaged in learning, they can answer questions and apply knowledge at higher levels which translates to higher scores on district-level benchmarks, course grades, and statewide standardized assessments. As we prepare students for the 21st Century we must acknowledge that they are a new variety of students who listen to various types of music, are captivated by and absorbed in technology, and do not fit into traditional demographical roles (Ladson-Billings, 2013). With this realization also comes the realization that educators must approach teaching and assessing these students with innovative and engaging methods.

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Color Deficiency Within the Classroom

Tiffany Zorn and Deborah McMurtrie

Abstract
Color deficiency is a unique disability that is often overlooked. Since knowledge on the subject is limited, so too are pedagogical strategies to address it. Individuals who experience color deficiency may find it difficult to analyze and interpret maps, charts, and images in their textbooks. They may struggle when asked to observe prism wavelengths, analyze pH results, or describe chemical reactions. Research suggests that there is likely to be at least one student in every class with a color deficiency. Yet, most teachers make little or no adjustment for these pupils. This article outlines specific strategies to provide accommodations and become a supportive adult advocate for students with color deficiency.

Introduction

How does the world look through another's eyes? Most of us take for granted what we have naturally been given – our "perfect" vision. Yet there are those who lack the ability to see pure color as others do. Individuals who experience color deficiency are unable to see specific colors or hues. They are said to be color blind, which is the "inability to perceive color differences under normal lighting conditions" (Chhippa, Hashmi, Ali, Hamal, & Ahmad, 2017, p. 430). Last year I learned that my little brother has a color deficiency. Rejecting a deficit perspective, however, I have embraced his difference, allowing it to guide me into understanding. I began to research this topic to increase my own knowledge, as well as the knowledge of those around me.

Unfortunately, I have sensed an ambivalence within society regarding this simple difference. There are very few individuals who devote their work to color deficiency, and if they do, there are still fewer who devote their time to finding ways to make appropriate accommodations for these students. Since knowledge on the subject is limited, so too are pedagogical strategies to address it. In other words, when a teacher does not fully comprehend what color deficiency is and how it works, he or she may prevent students from learning to the fullest of their capabilities, thereby hindering their educational potential. To help increase awareness for this overlooked subgroup of individuals, I shall share a brief synthesis of recent research on the topic. This is particularly relevant for young adolescents in middle school, who do not wish to be perceived by their peers as "different."

An overview of color deficiency

Within society, there are many types of "different," however, each group has its own unique characteristics. Students with color deficiency, for instance, are a group resultant from a human chromosomal variation. The trait can also be gained later in life as a "result of chronic diseases such as diabetes, age-related macular degeneration, vitamin A deficiency, and more" (Berger, Findler, Maymon, et al., 2016, p. 1245). The symptoms may vary by different degrees but usually last a lifetime. They "may be mild and remain stable or…[become] severe and progress to more serious forms of colour blindness" (Colour Blind Awareness, n.d., para. 7).

Since congenital color blindness is an inherited trait passed through the X chromosome, males are more likely to be color blind. In fact, a recent study found that "men were 3.8 times more likely to be color blind than women" (Chhippa et al., 2017, p. 431). Since it is carried on a recessive gene on the X

chromosome, women are more likely to be the carriers of the trait.

Within my family, both my brother and my aunt's son inherited it from our maternal grandfather, due to the inheritance being situated on the X chromosome, which is rare (National Eye Institute, 2015). This is not to detract from the prevalence of color-deficient individuals within our society, however. Indeed, as reported by the National Eye Institute, there is likely to be at least one student in every class with a color deficiency (Maule & Featonby, 2016, p. 1).

With the ever-growing population of the United States, there are bound to be more color-deficient individuals than in previous decades. Therefore, we as teachers must strive to improve our understanding of this group of individuals. A fair starting-point is the observance of the three, subgroups related to color blindness. The most common of the three subgroups is red-green color deficiency, in which individuals struggle with perceiving and identifying between reds, greens, browns, and oranges. (National Eye Institute, 2015; Torrents, Bofill, & Cardona, 2011). The second subgroup, which is less common, constitutes a blue-yellow color deficiency, in which individuals struggle with perceiving and identifying blue and yellow but can readily see red and green. Lastly, the third subgroup is the most rare and severe form of color blindness in which little to no color can be seen. Those affected "see the world in black, white, and gray" (National Eye Institute, 2015, para. 25).

Aside from the physical vision implications of color deficiency, other unique challenges may occur. For instance, color vision deficiency has been linked with physical conditions such as "irritable bowel syndrome, enuresis and somatoform disorders" (Berger, Findler, Maymon, et al., 2016, p. 1245). Those affected are also more likely to experience frequent migraine headaches. As many studies have shown, there is "a statistically significant association between migraine in males and color vision deficiency" (Berger, Findler, Korach, et al., 2016, p. 594).

Implications for middle school teachers

Due to this natural "difference" students may have inherited, teachers must help to ensure their academic success and acceptance within society. The Association for Middle Level Education's (AMLE) *This I Believe* (National Middle School Association, 2010) position statement has three statements that speak directly to this issue. The following statement forms a clear notion as to how students with color deficiency should be perceived: "I believe that every young adolescent thrives academically, socially, and emotionally in a democratic learning environment where trust and respect are paramount and where family and community are actively involved" (para. 8). In other words, regardless of the presence of color deficiency, each individual has the right and the ability to prosper in all manners of life. Moreover, those students are entitled to receive exemplary education opportunities with accommodations. They "must have access to the very best programs and practices a school can offer" and they "must be engaged in learning that is relevant, challenging, integrative, and exploratory" (para. 5-6). In short, every student must be given the relevant resources, materials, and strategies to be successful.

Teachers are one of the primary sources of help to prepare these students for the difficult times they may face. Even when students need special accommodations to fit their learning needs, they are not "trouble cases." Yet, many teachers revert to this perspective when they encounter them. A recent study (Maule & Featonby, 2016) found that "although aware of 'colourblindness,' most teachers make little or no adjustment for these pupils for whom tasks may be more difficult" (p. 1). These teachers do not understand or simply disregard the fact that their

students need help. They are issuing a silent mandate of "It's my way or the highway," forcing students with color deficiency to experience a "feeling of puzzlement, inferiority or lack of confidence in some lessons" (p. 1). Thus, despite the continuous integration of new materials and knowledge within a classroom, the students remain perplexed and may develop a sense of exclusion. Their puzzlement only intensifies due to the fact that "it is not uncommon for teachers to misinterpret the learning difficulties of their color deficient pupils" (Torrents, Bofill, & Cardona, 2011, p. 607).

Teachers may be surprised when routine practices such as color-coding, color-assigning, or using color-specifics within a lesson causes confusion. For example, students with color deficiency may find it difficult to analyze and interpret maps, charts, and images in their textbooks. In science class, they may struggle when asked to observe prism wavelengths, analyze pH results, or describe chemical reactions. These students may also face the inability to clearly see writing on a white board, causing the question of a physical vision impairment to arise. If a student is diagnosed with a physical vision impairment (as my brother was), professionals are less likely to consider the possibility of color deficiency as being the source of the problem. Yet, the students will continue to face their struggles – often alone – because they are too ashamed to inform others of their difficulties, or they do not know about them themselves.

Strategies for students with color deficiencies

Teachers must evaluate their classroom practices and lesson plans to accommodate the needs of students with color deficiencies. The following tasks may seem tedious to some, but they offer extraordinary benefit to others, namely students. Regardless of whether a teacher knows

that she has a color deficient student in her class or not, he or she should always provide clearly labeled coloring materials (colored pencils, crayons, markers, etc.). For example, my brother could not see the color green, but he could identify a green crayon that was labeled "green." If the teacher is aware of color vision deficiencies within the classroom, she should utilize black markers on the white board, since black provides the sharpest contrast.

Another fundamental strategy to aiding these students is the implementation of one-on-one explanations of materials. Within these "mini-conferences," the teacher could list which colors are expected for the day's or week's workload. Finally, teachers must make every effort to avoid drawing attention to a student's color deficiency. If a teacher suspects a student is color deficient, she must not exclaim her "finding" in front of others. Instead, in order to avoid embarrassment, she should ask the school nurse to screen the entire class for color blindness. Abu Bakar & Chen (2014) recommend using the Colour Vision Test Made Easy (CVTME) test as a screening tool. Keep in mind that simply providing students with additional time to complete assignments is not an effective strategy because, regardless of how long the student looks over an assignment, he will not be able to see its color. A list of recommended "Top Ten" strategies to support students with color deficiencies is provided in Figure 1.

Advocating for students with color deficiencies

Every educator must become a supportive adult advocate for students with color deficiency. The role of these adult advocates could include serving as a mentor and a mediator. Considering the ever-growing prevalence of bullying within school systems, the adult advocate must protect these students who are "different" and shield them from harm.

Figure 1. Top Ten Recommendations for
Working with Students with Color

1. Be aware that mistakes students make may be related to color deficiency, as opposed to misunderstanding directions or not paying attention.
2. Seat students with color deficiencies in good, natural light, directly facing the board.
3. Only use black markers on white boards for contrast. Especially avoid using green, red, and pastels.
4. Be aware that textbook manufacturers do not take into account the needs of students with color deficiencies. Teachers may need to reproduce color images in exaggerated grayscale, with sharpened contrast.
5. Only use white paper and black ink for handouts.
6. Find alternatives to color coding text, graphs, and charts. For example, annotate text using bold, italics, underlining, all caps, patterns, or other visual cues instead of color.
7. Allow students to submit black-and-white drawings or self-selected colors they are able to see. For example, students may have difficulty reproducing a color-coded map.
8. Identify colors using word labels.
9. Allow the student to choose a partner when working on assignments that require color discernment, such as chromatography, pH strips, or interpreting chemical changes.
10. Avoid using a "traffic light" system for classroom management. Students with color deficiencies may not be able to discern between red, green, and yellow.

The adult advocate could also administer surveys, or screen classes, to identify color deficient students, and then share options for flexibility and adaptability with other classroom teachers. Once indications of color deficiencies have been exposed, the adult advocate may wish to direct students and their families toward helpful resources and referral agencies. The most common resource in detecting color blindness is a local/personal eye doctor. Some eye doctors offer a color blindness test, as well as the opportunity to acquire color vision correction glasses. My brother recently got a pair of these glasses and it has made a huge difference. A local agency states that "although Color Vision

Correction will not give you perfect color vision, it will enable you to see a greater array of colors, shades, and hue" (EyeCarePro, n.d., para. 4). Individual screenings can also be performed through online testing with a company called Enchroma, where color blindness glasses can be attained.

Conclusion

The challenges of students affected with color deficiency does not cease at academic achievement. Middle school is a time when young people are beginning to make plans for high school, college, and/or careers. However, individuals with color deficiency may not have access to specific employment opportunities. For example, color vision standards are imposed by aviation and railway agencies. A chef with color deficiency may not be able to differentiate between raw and cooked meat. Health care workers must exhibit extra caution with their work, as those with "color deficiencies experience difficulties in identifying changes in body color such as pallor, cyanosis, jaundice and erythema" (Chhippa et al., 2017, p. 432).

Therefore, those with color vision deficiencies may experience limited economic opportunities and discrimination based solely upon an aspect they cannot control. Becoming aware of the challenges, making accommodations to classroom practices, and serving as adult advocates, the middle school teacher can positively impact these students' success in middle school, high school, and beyond. Students with color vision deficiencies must not be allowed to feel abandoned; instead, it is our duty as a nation, as a society, and as adult advocates to promote the rights, safety, and achievement of every student.

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A Robotics Program That Helped Middle School Students Actualize the Profile of the South Carolina Graduate

Casey Stevenson and Julia Wilkins

Abstract
Our work in an afterschool robotics program attended by at-risk middle school students in upstate South Carolina indicated that through students' participation in the program they were able to actualize the Profile of the South Carolina Graduate. In this article, we describe how students developed World Class Knowledge, World Class Skills, and Life and Career Characteristics as they collaborated in teams to design, build, program, and test their robots. Each project culminated with a challenge that students were motivated to win, which helped them develop perseverance skills that they previously lacked.

Introduction

Middle school teachers often struggle with knowing how to make learning both rigorous and meaningful for students. When students understand the purpose behind a learning activity and see it as relevant to their lives, they are not only more motivated to engage in the activity, but are more likely to persevere until they have accomplished their goals (Martinez & McGrath, 2014). Using technology and collaborating with others on creative assignments can provide students with opportunities for purposeful learning that prepares them with real-world 21st century skills.

Our work with at-risk students in an afterschool robotics program in upstate South Carolina demonstrated that students who previously had little interest in school became engaged with learning, concerned about their performance in school, and motivated to learn skills they saw as important for their success in college and future careers. We found that students met competencies of the Profile of the South Carolina Graduate (South Carolina Association of School Administrators [SCASA], 2016) through their participation in the program over the course of one to two semesters.

The Robotics Program

The robotics class was offered twice a week at a community-based afterschool program located in an old school building. The first researcher was the teacher for the robotics program for two years. During four months of this time, he collected data to study the benefits of the program for students.

Students used LEGO MINDSTORMS robotics kits that included a programmable brick (controller) with one input for loading programs and eight output ports that students programmed using computers in the classroom. Research on LEGO MINDSTORMS indicates that the programs enable students to explore different interests and showcase a variety of talents while gaining hands-on design and engineering experience (Cross, 2017).

The Students

Most of the students who attended the program were from low socio-economic status households. The six students who participated in the study were African American middle school students. Only one of the students was female. One student had been court-ordered to attend the program. Reports that students' teachers shared

with the director of the center indicated that students did not enjoy academic work and were underachieving in school. The director also noted that students lacked goals and the perseverance needed to work through basic problems. At the beginning of the study, students' questionnaire results revealed that they did not enjoy challenging problems and we noticed from our observations that they did not work well in groups.

The Study

The first researcher conducted weekly hour-long observations of students working on their robotics projects. Students were also administered questionnaires to gauge their interest in robotics and their enjoyment of the program. In addition, students participated in a group interview and two students participated in individual interviews.

Data were analyzed to see if the students met competencies of The Profile of the South Carolina Graduate (SCASA, 2016). The Profile is divided into three components (a) World Class Knowledge, which involves standards in a variety of disciplines, (b) World Class Skills, which involve creativity and innovation; critical thinking and problem-solving; collaboration and teamwork; communication, media and technology; and knowing how to learn, and (c) Life and Career Characteristics, which involve integrity, self-direction, global perspective, perseverance, work ethic, and interpersonal skills. In the following section, we outline the competencies demonstrated by students in the robotics program with specific examples.

The Profile of the South Carolina Graduate
World Class Knowledge

Students in South Carolina are expected to meet rigorous standards in language arts and math for college and career readiness. The middle school students in the robotics program met English Language Arts standards (South Carolina Department of Education [SCDE], 2015a) in being able to "Assess the processes to revise strategies, address misconceptions, anticipate and overcome obstacles, and reflect on completeness of the inquiry" (p. 60). At the beginning of each project, students were given an instruction, such as "make a vehicle with two wheels that will drive the circumference of the table without stopping." In their teams, students developed questions that would guide them in the process of designing, programming, and building their robots. The culminating activity was a challenge involving a competition with another team. At the end of the challenge, students would reflect on what worked in their team's process and what did not work. Sometimes, all of the supplies would be laid out on the table with the only instructions being to organize them in the way that would work best. After the challenge, teams reflected on how the organization of materials impacted their performance.

Students also developed mathematical literacy as defined by the South Carolina College- and Career-Ready Standards for Mathematics (SCDE, 2015b), including the ability to "make sense of problems and persevere in solving them" (p. 7). Students identified litter as a problem for the earth and designed robots to clean up the sides of roads. After building their robots, students tested their ability to pick up litter. The results caused students to revise the process many times before they were satisfied with the outcome. Students were able to "reason both contextually and abstractly" (p. 7) as they measured turns using ratios and degrees and then translated them into the computer software to program their robots. They also used "critical thinking skills to justify mathematical reasoning and critique the reasoning of others" (p. 7) at the end of a projectile launcher challenge when they had to arrive at an understanding of why Team Two won even though Team One got the furthest

distance on one test, but small distances on the other two tests and Team Two only hit the middle range on all three tests. Even though Team One shot their projectile the furthest, Team Two won because they had the highest mean score.

In terms of Science, Technology, Engineering, and Mathematics (STEM) standards, students met several indicators of the International Society for Technology in Education (ISTE) Standards for Students (2019). When students were presented with a problem to solve (e.g., create a robot that can maneuver a maze), they needed to make decisions about how best to use the technology to accomplish the goal using new and imaginative solutions. They also had to collect data on distance and turns, and translate the data into the programming software. During this process, students had to make many decisions about how to program their robots. For example, the software provided several options for how to make motors turn the wheels. Based on what their team decided, students had to program the robot with the correct order/setting combinations. When things did not work as planned, students learned to see these situations as opportunities to learn. Improvement in students' teamwork skills and computer programming skills were also noted in a study Karp and Maloney (2013) conducted in an afterschool robotics program.

Students' learning was enriched through their collaboration with others and their ability to work effectively in teams. During the planning process, students worked together to explore different variables that could impact their design. Students assigned themselves roles in their teams such as designer, engineer, and manager, but they also had to assume different roles if a team member was absent in order to make progress toward their common goal.

World Class Skills

In all of the students' robot designs they demonstrated creativity and innovation. In fact,

results from the questionnaire indicated that what students enjoyed most about the robotics program was the ability to be creative. When one student was asked why he would like to be in the program again, he responded, "Cuz I want to make new things and be creative again." The development of creative robot products has been noted in previous studies of students in problem-based robotics programs (Nemiro, Larriva, & Jawaharlal, 2015).

In addition, students who had previously preferred easy problems at school now preferred challenging problems in which they had to use critical thinking and problem-solving skills. Marquise (pseudonyms are used) expressed his preference for challenging problems, stating, "I just like being challenged...Because it's probably going to come up on you in life one day…and I just want to get ready for it." This quote also indicated that Marquise had developed self-direction, a Life and Career Characteristic (SCASA, 2016). Students realized that they were acquiring knowledge and learning skills that would help them in the future so they wanted to stay focused in order to accomplish their goals. This focus also tied in with students' work ethic. Students recognized that they needed to develop skills for their future careers. For example, Taiquan mentioned the benefits of learning how to build things in case he wanted to build his own house in the future.

Students came to understand that they had to work hard not only to win challenges in the robotics program, but also to do well in school and to be successful in life. They already noticed their hard work paying off, with one student reflecting on the difference between his academic achievement now compared to when he entered the program: "I think my greatest change was I used to make F's and D's and C's and now I make A's and B's and not really C's."

Students had developed new mindsets; instead of giving up on problems that were challenging as they did before they came into the

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program, students saw the rewards of sticking with problems and seeing them through to completion. Being middle school students, they were still motivated by rewards such as getting candy when they won a challenge! But their motivation to win challenges drove them to persevere on perfecting their designs, and the process of building, programming, testing, rebuilding, and reprogramming their robots.

Life and Career Characteristics

Having opportunities to explore open-ended problems without one right answer helped students understand the importance of exploring, testing, reworking, and sticking with a problem to the end. In other words, as a result of their participation in the program, students developed the perseverance they were lacking when they entered the program. In one situation, a team started their design with four wheels, with one wheel borrowed from another team. When that team started to build, they also needed four wheels for their design and therefore needed their wheel back. In response to this problem, Zaquarius switched the orientation of the motors and created a single axel that spanned the back of the robot to hold one wheel, thereby supporting his teams' four-wheel design with only three wheels.

Students who previously did not work well with others came to recognize the benefits of collaborating with team members to solve problems. Taiquan explained, "If one person makes a mistake, we can work together to fix it." Students demonstrated an improved work ethic and even motivated one another to work hard. Sometimes when someone criticized another team member, it just motivated that team member to work harder. There was one student in particular who almost got into a fight with another student who criticized his design at the beginning of the program. But three months into the program, having his design criticized by team members for not being detailed enough just

made him work harder to create a design that everyone in his team liked.

Students also developed a sense of self-direction where they came to connect their actions in the present to their lives in the future. Marquise, who had been court-ordered to attend the program, stated that he wanted to make good grades in school so that he could get into a good college. He also noticed that his learning in the robotics program was helping him in the classroom. When asked if he liked school a little more now, he responded, "Mmhmm. And I like science now." Students' improved perception of science after participating in a robotics program has also been documented in previous research (Welch & Huffman, 2011).

Conclusion

The opportunity to participate in an afterschool robotics program gave students who were underachieving in school the opportunity to learn how to be successful learners. They were motivated to participate in the program and were engaged in their projects because they enjoyed exploring, being creative, and building things. Through their work in teams, they learned to collaborate with others and came to understand the importance of working together to accomplish common goals. The competitive aspect of the program motivated students to win challenges. In order to win challenges, students had to spend several weeks working on one project, which helped them see the connection between their effort and the outcome. When things did not work out as expected, students seized these opportunities to explore different solutions. Students also came to see how their hard work in the robotics program was contributing to their academic achievement in school. As they developed new perceptions of themselves as students who could be successful, they began to look towards their futures and value the skills they were gaining in the present.

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Drawing as a Pre-Writing Tool

Robert Vanderburg and Benjamin Halpin

Abstract

In order to aid students with their writing skills, the authors conducted a case study where middle level students were asked to use drawing as a pre-writing tool. The data analysis of this study concluded the students made improvements in their use of vocabulary, use of description, use of punctuation, use of sentence structure, use of a thesis, and flow. This paper shares a rationale for these findings and provides recommendations for teachers to implement art as a pre-writing tool for students.

Throughout my career, I (Robert) have been researching how to help students write. I have always taken a cognitive perspective on how to make the writing process easier for developing writers. I started by looking at how teachers can use Vygotskian theories to develop procedures and checklists to help developing writers. I presented ways students can free up cognitive space by reducing the number of tasks they undertake at one given moment during the writing process (Vanderburg, 2006).

I then looked at the relationship between Working Memory (WM) and writing (Vanderburg & Swanson, 2007). First, I demonstrated that WM was highly linked to the writing process. Then, I developed strategies to help reduce the cognitive drain on WM caused by the writing process. This research provided teachers with some specific editing procedures which help students improve their writing skills.

Just recently, I conducted a study looking at how middle level students can use drawing to reduce the cognitive drain caused by the writing process. The study was a case study design (Dyson & Genishi, 2005) in which textual analysis (Frey, Botan, & Kreps, 1999) was used to evaluate if students' writing had improved as a result of using drawing as a pre-writing tool. Specifically, a pre-test post-test design was implemented; students wrote an essay without using drawing as a pre-writing tool—they could use any other pre-writing tool if they chose to. Then, textual analysis was used to evaluate the students' use of vocabulary, use of description, use of punctuation, use of sentence structure, use of a thesis, and flow. One week later, the students wrote a second essay; however, this time all the students used drawing as a pre-writing tool before they wrote the paper. Again, textual analysis was used to evaluate the students' use of vocabulary, use of description, use of punctuation, use of sentence structure, use of a thesis, and flow.

The goal of this paper is to provide teachers with the results of the study conducted using drawing as a pre-writing tool, provide teachers with some rationale as to why students improved their writing ability as a result of using drawing as a pre-writing tool, and to present some ways teachers can implement art as a pre-writing tool during their instruction of writing.

Results

Our results demonstrated vast improvements in students' writing after using drawing as a pre-writing tool. Most students improved their writing skills in every area. Specifically, students added more words, larger words, and more elaborative vocabulary in the post-test. The students allowed the pictures to guide their language once they started producing text. We also observed an increase in description once drawing was used as a pre-writing tool. Students were writing with increased specificity in their description. They seemed to be able to

describe their arguments more due to the drawing.

Amazingly, the students significantly increased their use of punctuation as well as their accurate use of punctuation once they added drawing as a pre-writing tool. We think the drawing enabled the students to free up cognitive space, so the students could apply their punctuation skills during text production. The students new use of punctuation invariably increased the amount of compound and complex sentences the students produced. Because the students started using their punctuation properly, they started generating more accurate advanced sentence structures.

Finally, the use of drawing as a pre-writing tool also increased the students' ability to generate strong theses and produce text which cohesively supported those theses. We saw students provide more specificity and clarity in the theses they produced. In addition, the students developed body paragraphs which supported their theses and were well-structured and cohesive.

Discussion

We felt there were three main reasons why the students improved their writing using drawing as a pre-writing tool: time, connection, and cognitive space.

The students allotted more time to the writing process when they used drawing as a pre-writing tool than when they used a more traditional pre-writing tool. This time allowed the students to ruminate on their ideas. It allowed them to construct their ideas as images, as ideas in their head, before they wrote them on paper. The students were allotted enough time to flush out the flow, the supporting reasons, and the connections between each idea they were getting ready to put on paper.

It sounds easy to say—just give the students more time. The problem is the students need a constructive use of the time. Time doesn't focus thought on its own. The students can think

of other things in a nebulous period of allocated time. However, time centered on drawing pictures of the students' thoughts force the students to spend time on the writing task, even if the students are subconsciously thinking about the paper while drawing. Drawing the ideas enables the subconscious to focus on the ideas being drawn. In addition, having the students continuously use drawing as a pre-writing tool and, thereby, seeing a change in their writing might tacitly teach the students that good writing needs more time. The students might realize that good writers spend extra time just thinking about a text before they write the text, and the students might realize that writers don't only think about a text when they are writing the text.

The students had a deeper connection with their writing due to using drawing as a pre-writing tool. This level of connection allowed the students to care more about what they were writing. Teaching care for writing is a very difficult task. Using drawing enabled students to develop care for their writing opposed to trying to teach students to care about their writing. Caring more about their writing allowed the students to think deeper about their writing, think deeper about flow, think deeper about the organization, think deeper about the punctuation, and, in the end, think deeper about the way the text was perceived by the writer.

Connection with writing is hard to achieve using conventional means. It is nearly impossible to help students feel connected to a topic if they do not care enough for it. Using drawing as a pre-writing tool allowed the students to understand that writing requires a certain amount of care and connection. Drawing these ideas developed this sense of connectedness and, if only subconsciously, taught them that writing is a practice that requires a certain level of connection. Students might begin to realize that good writing only comes once the writer is completely focused and connected to the topic that they are writing about

and that this level of connection increases their writing ability.

Drawing as a pre-writing tool allowed the students to have more cognitive space to focus on their writing, because the drawing and rehearsing of the ideas made the ideas become static in the students' minds. Once one part of a task becomes static in a person's mind, the mind has more space to focus on other parts of the task at hand. Once the students enabled the ideas supporting their theses to become static in their minds, the students were able to focus on the use of vocabulary, the use of description, the use of punctuation, the use of a thesis, the use of sentence structure, and the flow of the text.

Students need as much cognitive attention on different parts of the writing process as possible, because writing is such a difficult task. If the teacher can use strategies or tasks to reduce the cognitive drain of a specific task or part of writing, the students will be able to use more on their mental capacity on other parts of the writing process. When students can focus less on the idea component of what they want to write due to using drawing as a pre-writing tool, their writing becomes more fluid and clearer. Using drawing as a pre-writing tool also serves to teach students that writing is a process that shouldn't be done in one instance. Drawing teaches students to prepare their thoughts and ideas prior to writing to allow them the ability to write clearly and concisely.

Conclusion

This study provides teachers with some evidence supporting that drawing as a pre-writing tool helps students improve their writing. We highly recommend teachers try using drawing and different forms of artistic representation of ideas as a pre-writing tool. We also recommend using drawing as a pre-writing tool for more academic forms of writing to see if the same results are revealed. Finally, we believe the notion of helping students use different visual forms of representing ideas will, in the end, assist them in transferring a world led by visual media and representations of ideas into a world of written ideas, helping students advance in writing and academics.

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Technology

Websites for Engagement

Katie D'Errico

Abstract
This paper reviews five different websites: Google Classroom, Quizlet, Newsela, Flocabulary, and Quizizz. Teachers and students can access these websites through iPads, tablets, or computers. These five websites can improve student engagement in the classroom, students' content knowledge, and students' 21st Century Skills. The websites are easily maneuverable for classroom activities throughout the school year and give feedback to teachers in a timely manner which can better inform future instruction.

Education is constantly trying to improve on how we deliver instruction to our students. Technology has been at the forefront of this advancement. There are computer labs and carts of iPads/computers in many schools across the US as well as schools that are 1:1 with technology. With more access to technology there have been many different websites and apps created to use in the classroom. Instead of having to sift through everything that is out there, here are five great resources that can be used in your classroom to improve instruction, feedback, and student engagement.

Google Classroom

There are many great features to use with Google Classroom, such as using Google Classroom as a communication tool. You can post announcements, add important events on the class calendar, and add links to websites. If you want to keep parents in the loop, you can add their email address and they will receive notifications as well.

Google Classroom also allows you to post assignments. There are a couple different ways to utilize this feature. You can post a worksheet or a document with instructions and then tell Google Classroom to make a copy for each student. When students log on, their name will be on the Google Document along with the name of the assignment. As the teacher, you can monitor each student's work in real time. So, you can see who is working and who is not. You can also comment on the paper to give them help or provide encouragement as they are working on the assignment.

A final feature of Google Classroom is that you can create a short answer or multiple-choice question worksheet. This could be used as a class survey or a quick formative assessment check. As you become comfortable with these features, you will be able to use the site to engage your students and get valuable feedback. You will also be able to use some of the following websites within your Google Classroom.

Quizlet

Quizlet is a way to make flash cards for your students and then allow your students to use those flash cards in more engaging ways to help students learn the material. Your flashcards can be traditional, vocabulary words and their definitions, or you can get more creative and do questions and answers. When you are creating the flash cards, you can choose different languages to write in. Math/symbols is one language you can pick. Math teachers can make flash cards with math problems. Once you have made the flash cards, the students can use them

as online flashcards, play a matching game, or use the "Learn" mode to take a multiple choice/ fill in the blank "quiz." There is also a feature that allows the teacher to take the flash cards and have them made into a test. You can share your study set to your class on Google Classroom and they will have access to all these options to help them learn and practice the new information you are teaching.

A whole-group feature that you can use in the classroom is Quizlet Live. You need at least four people for the game to work. After students join the game, the game randomly puts them into teams and they must answer twelve questions, in a row, correctly. If they miss a question, they go back to question one. This forces students to get all the content correct to win, not just finish as fast as possible. Quizlet gives students many ways to practice their studies and engage in the content while giving instant feedback to teachers.

Newsela

Looking for articles to use in all classes but need to differentiate the reading level? Newsela is your answer. You can search for articles by subject or topic. This may help with adding reading into other content areas. You can also search by grade level, reading skill, or language. Once you pick an article you can also choose the lexile level that you want the article to be on which is a great way to differentiate. You can share your article on Google Classroom for your students.

There are also quizzes that are already made that you can use with the article you choose. There are prompts you can pick to discuss the article as well as "Power Words" from the article that will help the students build their vocabulary. This site is a great way to incorporate reading in your content as well as get students to interact with the texts more.

Flocabulary

If you want to teach content through rap songs, Flocabulary is the site you need. Flocabulary has rap music videos for Language Arts, Math, Science, Social Studies, Life Skills, Vocabulary, and Current Events. There are videos with content for grades K through 12. You can watch the videos straight through or you can turn the discuss button on and the video will stop at certain points so you can discuss as a whole group.

After the video, you can take a ten-question quiz as a whole group that recaps what the video just went over. You can also create classes, or import them though Google Classroom and there are several resources that you can assign your students like vocabulary words, quizzes, and read and respond questions. There are also printable materials that go along with what was taught in the video. This site is a great resource to strengthen your students' understanding of particular content. Flocabulary is always coming up with new videos explaining new content for teachers to use.

Quizizz

Quizizz is a site that you can use creatively in your classroom. Quizizz allows you to make multiple-choice and true/false quizzes. You can come up with your own questions but you can also search other people's questions and if you like ones that they have, you can add it to yours very easily.

Once you have a quiz made up there are several ways that you can implement it. First, you can give it as a normal quiz and collect your students' quiz grades. You can jumble the questions and answers so everyone is taking it in a different order. Upon completion, you get the grades and a summary of each student so you can easily see if there was a question that was missed more than others.

There are other features you can turn on and off when students are taking a quiz. You can

turn the time limit for each question off, you can allow point values to be given, or you can allow for memes to be given when students get the correct answer. The nice thing about this type of quiz instead of a paper and pencil is that the students are given immediate feedback. As soon as they select an answer they know if they are correct or not.

You can also give a Quizizz as partner work or as a race as you can turn on the leaderboard. Lastly, you can assign a Quizizz as homework and this can easily be done if you have a Google Classroom. No matter what way you choose to use Quizizz, you will get results on each question and each student. This makes it easy for teachers to see if there is any re-teaching that needs to be done as a whole group or in small groups.

Conclusion

Adding more digital activities into your teaching strategies will give you more options to pull from when coming up with lesson plans. These five resources can be used as you are teaching content to get students to engage with the material, work together and collaborate, and give you formative feedback. Start using technology as a tool and see how your students grow.

Katie D'Errico graduated in December 2018 with her Master's in Education from the University of South Carolina. She just completed her seventh year teaching. Currently, she teaches 7th grade mathematics at Hilton Head Island Middle School. Along with teaching, she just finished her fourth year of being the assistant athletic director at her school. She has spent the last 5 summers working for Camp Adventure Child and Youth in Japan and Germany supervising college students who run summer camp programs on US Military installations.

Professional Book Reviews

Be Bold and Try Something New: Helping Teachers Embrace Change in their Classroom Practice

Victoria A. Oglan & Janie Riddle Goodman

During my time as a K-12 student, I remember having conversations with my friends about teachers. In those conversations, we talked about which teachers were the "tough ones" who had lots of tests; we also talked about which teachers were the "easy ones" who were understanding and would work with students to offer rewarding learning experiences. We learned which teachers did the same lessons year after year and, at times, we learned that some teachers not only taught the same lessons, but offered the same tests over and over again. We also learned which teachers were passionate about their subject and their students and who offered interesting, engaging, and challenging learning opportunities. This practice of finding out how teachers operated in the classroom carried through to my years in university. Choosing courses was also about choosing the professor.

As a classroom teacher, one of the things that sustained me and fueled my passion for teaching was that I was always looking for ways to enhance my classroom practice. It was important for me and for my students that I kept current on the changes and trends occurring in the field. My classroom was my professional lab where I would try things out, analyze the results, and solicit student input on their perceptions of how the teaching and learning were going. There were times when my attempts at trying something new were successful, and there were times when things didn't go so well.

Teachers are very aware that the demands of their job have changed over time. Teachers face ongoing and rising expectations generally across the profession and more specifically in the daily operation of their classrooms. With a prevalence of trends, innovations, and reforms that have surfaced in the last two decades, along with the ever increasing pressure of accountability when it comes to high stakes testing, many teachers feel burdened, overworked, and challenged. Add to this the fact that often there is a lack of professional development for teachers to keep current on the changes they face with regard to their classroom practice. In addition there are limited resources and time to implement these changes all of which paints a challenging picture for teachers.

Although change isn't easy for anyone, it can be particularly troublesome for teachers. Borko & Putnam (1996) posit that longstanding change in teacher practice can be problematic since it requires teachers to reflect on, challenge, and revamp deeply ingrained practices and beliefs. This sounds daunting. How then can teachers learn to embrace change in their classroom practice? Cohen (2017) offers some sound advice on accomplishing this reminding teachers that if they want to avoid burnout, they need to make strategic choices about embracing change. "They must have some autonomy in their choices, and must be guardians of their own

time to approach mastery. And if a teacher doesn't recognize or agree with the purpose behind a change, that change effort is doomed to mediocre implementation at best" (p. 37). Teachers are the change agents in the field. It is through their efforts that longstanding change in classroom practice can occur. Managing change takes time and it's best done in increments. Celebrating baby steps may be the best path for teachers to pursue.

This collection of resources offer teachers of all disciplines support for creating opportunities for making small changes that may yield big results when embracing change in classroom practice. In her book, *Content-Area Writing That Rocks and Works***,** Rebecca G. Harper (2017) offers a broad view of writing across the disciplines along with strategies for supporting students as they work to craft critical and creative writing pieces. To help teachers learn to align reading and writing experiences, M. Colleen Cruz (2019) in her book *Writers Read Better: 50+ Paired Lessons That Turn Writing Craft Work into Powerful Genre Reading* provides a collection of paired reading/writing lessons that support teachers to "highlight the powerful role of excellent writing instruction in developing students as writers as well as readers" (p. xix). In *Engagement by Design: Creating Learning Environments Where Students Thrive* by Douglas Fisher, Nancy Frey, Russell J. Quaglia, Dominique Smith, and Lisa L. Lande (2017), the authors present teachers with a framework for providing students with daily authentic engagements that may increase student motivation and learning. To offer teachers strategies that help students be motivated and take responsibility for their own learning, Ellin Oliver Keene (2018) in her book *Engaging Children: Igniting a Drive for Deeper Learning K-8* provides a framework for increasing student engagement that meet the needs of all learners. Teachers who are eager to try something new in their classroom practice will want to include

these helpful resources in their professional libraries. (VAO)
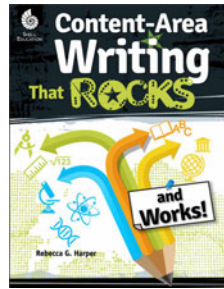
Content-Area Writing That Rocks and Works by Rebecca G. Harper, 2017, Shell Education, 119 pp., ISBN: 142 581 650 9

Content/Disciplinary literacy continues to be a hot topic in K-12 educational circles, but this is especially true for teachers in middle and high school. As new state and national college and career readiness standards focus a renewed emphasis on writing, teachers are looking for ways to enhance their writing instruction across disciplines. Students entering the 21st century workplace will be expected to write for a variety of authentic purposes and audiences as a demonstration of their ability to be effective communicators across diverse platforms. For teachers, this means they need to broaden and deepen their writing curriculum to address real world, informal writing that goes beyond the formulaic approach to writing instruction that has historically permeated classrooms. Real world writing and assigned writing share a place in the new curriculum.

Rebecca G. Harper (2017) offers teachers support to accomplish a more robust writing curriculum in her book *Content-Area Writing That Rocks and Works*. Harper wants teachers to realize that students engage in everyday real world, informal writing and responding in social media platforms. Real world, informal writing experiences like text messaging, emailing, blogging, and responding to online posts provide students with multiple opportunities to communicate their thinking and share their ideas with diverse audiences. Harper encourages teachers to embrace the informal writing students engage with and suggests "The challenge for teachers is to guide students to understand that there can be a bridge between

personal writing and academic, school-driven writing activities" (p. 8). This idea creates a space for teachers to connect the students' world outside the classroom with in-class engagements and assignments.

The book is designed into seven sections and each section is devoted to an essential skill. The sections include: *Why Writing?*, *Content-Area Literacy and Writing*, *Writing to Think*, *Writing to Prove*, *Writing to Learn Vocabulary*, *Writing to Summarize*, and *Writing to Organize*. Each section operates as stand-alone which makes navigating the text easy for teachers who can choose a section to meet their immediate needs. There are a total of 26 strategies in the seven sections. For each strategy the author provides details about the strategy's background, procedure, modifications, and extensions to support teachers' implementation. At the end of each description is a helpful feature that offers a content-area crossover to help teachers adapt the strategy across content areas. Harper also offers teachers a feature titled "Rock Star Tip" for every strategy with additional commentary on the implementation.

Teachers are faced with addressing argument writing across disciplines which proves to be challenging on many fronts. Content teachers have experience teaching content but have limited, if any, experience teaching writing in general. Now, they are expected to teach specific writing strategies in their content areas. Often content teachers do not feel confident in their own writing abilities and they also are unsure of how to assess genre-specific writing. In the section titled *Writing to Prove*, Harper outlines eight strategies to support teachers with teaching content-area argument writing. Harper writes that when writing to prove, students need to have a skill set that includes focusing on "textual evidence, personal/human experiences, analytical skills, and observations as a means to prove a point" (p. 36). One of the strategies that teachers may want

to try is the "Textual-Evidence Throw Down" (p. 42). This strategy is a collaborative engagement for the entire class. Every student finds one detail as evidence, records it and then discusses with their peers if the information is strong and valid. Throughout the sections, there are also samples of student work from a variety of content areas and at times, Harper offers her thoughts on the strategy, how it worked, and how it was developed.

Teachers are aware that students who have rich academic vocabularies are better readers, writers, speakers, listeners, and test takers. Word knowledge requires students know more than just a definition since words very often have more than one definition. Every content area has its own specific vocabulary so in a sense, every content area is like a foreign language; in order to learn a foreign language, vocabulary is foundational. Teachers need to be aware of how important vocabulary instruction is for students' growth as readers, writers, and thinkers. All too often, teachers rely on word lists and definitions as well as having students use words in a sentence. This limited exposure to vocabulary acquisition has not worked in the past so a new approach to teaching vocabulary is needed. In the section titled *Writing to Learn Vocabulary*, Harper offers teachers five strategies for developing academic vocabulary. Alpha Boxes is a strategy that helps activate prior knowledge of a topic and entertain word associations for a content-specific topic. Students can use words, phrases, or visual representations to make as many associations as possible. Students write the letters of the alphabet on a sheet of paper leaving space for words, phrases, or visuals. This provides opportunities for students to play with and personalize language. This strategy can be used over time while students are exploring a content-specific topic. Students are encouraged to collaborate with their peers to share their associations providing opportunities for students

to learn from one another. Conversation can also be an avenue for learning vocabulary.

Content-area writing is not the formulaic writing often stressed in the English classroom. Often it is writing that is short, responsive, and used to capture one's thinking on the page. Teachers need to embrace the vastness of writing and move beyond the traditional essay and research report. Harper's book offers teachers many writing strategies that can be easily implemented in the classroom. This resource has much to offer content teachers. (VAO)
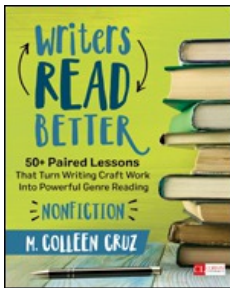
Writers Read Better: 50+ Paired Lessons That Turn Writing Craft Work into Powerful Genre Reading by M. Colleen Cruz, 2019, Corwin, 210 pp., ISBN: 150 631 123 7

Ruth Culham (2014) reminds us that every time we read, we receive a writing lesson. We learn how to spell, use punctuation and grammar, use sentence variety, and understand the organization of paragraphs and text formats; we also learn the many purposes for writing. Graham and Hebert (2011) share that every time we engage as writers we receive a reading lesson. Quality writing instruction can impact reading comprehension, fluency, and word knowledge. Clearly, reading and writing are connected in many ways, yet most often in classrooms they are taught as separate subjects. Teachers are eager to learn ways of helping students entertain the many connections between reading and writing so students can see the transfer of literacy skills from one mode to the other.

M. Colleen Cruz (2019) offers teachers a resource for teaching nonfiction/informational reading and writing they can use and customize to fit into the daily operation of their classrooms. Cruz maintains that developing students as

readers and writers simultaneously can yield many benefits for students. She challenges conventional wisdom and reveals her purpose for writing the book is to share with teachers that "some of the toughest teaching skills in reading are best approached by teaching writing first (p. xx)." Cruz suggests that teachers identify the reading skills students need help with and begin by teaching the writing first. The idea is if students understand how to write informational pieces and the organization of these pieces, they will be in a stronger position to navigate the same kind of text as readers. Although many teachers are accustomed to teaching reading first then teaching writing, Cruz encourages teachers to flip the order and see how teaching writing first can help learners "develop craft and comprehension holistically" (p. xxii).

The book is organized into four parts to support a different part of the writing process. Cruz holds fast to the workshop model of teaching and learning and maintains the integrity of student voice, choice, and agency throughout the lessons. Part 1, *Lessons for Generating Ideas – and Interpreting Author's Purpose* has six lessons. Part 2, *Lessons for Drafting – and Understanding Author's Craft* has seven lessons. Part 3, *Lessons for Revising for Power, Craft, Analysis, and Critique* has seven lessons. Part 4, *Lessons to Prepare for Publication and the Scholarly Study of Texts* has eight lessons. Cruz also includes a section that lists video and web content. In addition, in each part of the book you will find digital considerations for use with technology. To help teachers align these lessons with their existing writing curriculum, Cruz highlights in blue, sections in each lesson where teachers can use their own content. There is a progression in terms of complexity of the lessons in the four parts of the book.

The reading and writing demands of nonfiction/informational texts increases as students move from grade to grade. The texts often deal with more complex content in addition to being structured in a variety of ways.

Students who are familiar with text structure are in a better position as readers to construct meaning for successful comprehension. In Part 1, Lesson 5, Cruz engages students in developing an awareness of how structure plays an important role in their reading and writing experiences. She begins the lesson with an anecdote about her family ordering food at a Taco Bell. Even though they ordered different food items like tacos, burritos, and nachos, these items had the same ingredients. The difference was in how those ingredients were placed in the food item. She then has students brainstorm a list of subtopics about the school's cafeteria. Next, Cruz has students collaborate to determine how they would organize the subtopics into a table of contents for a class book on the school cafeteria. Students suggest a variety of ways the subtopics might be organized helping them see that the content is the same but the organization is different. Cruz instructs students to give careful thought to possible structures for their book on the school cafeteria. To complement this writing lesson, students then move to a reading engagement where they explore the structure of familiar nonfiction/informational texts helping them see that the content may be similar but how the author organizes the content makes all the difference. Making the reading-writing connections for students helps them grow as readers and writers simultaneously.

The lessons rely on teacher demonstration, guided practice, collaboration between and among students and teacher, ongoing student engagement and worktime, use of mentor texts and multileveled texts, and celebrations of reading and writing. All of the lessons are easy to follow and align with state and national literacy standards.

This book is a must-have for teachers. It provides a multitude of ideas about how and what to teach when it comes to complementary reading and writing lessons. It will provide teachers with much food for thought as they reflect on how they can embrace change in their classroom practice. (VAO)
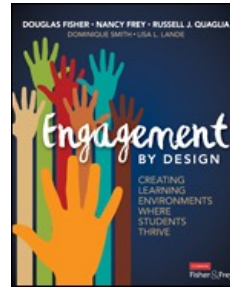
Engagement by Design: Creating Learning Environments Where Students Thrive by Douglas Fisher, Nancy Frey, Russell J. Quaglia, Dominique Smith, and Lisa L. Lande, 2018, Corwin, 192 pp., ISBN 150 637 573 1

What does it look like in a classroom where students are engaged? Are students who are doodling on the edges of their papers or gazing out the window engaged? Are students who are sitting up straight in their seats and looking at the teacher engaged? It all depends on how *engaged* is defined. While behavioral engagement may be easy to observe, what about cognitive engagement? What about emotional engagement? Does sitting up straight and looking at the teacher mean a student is engaged and learning? Does doodling on the paper or gazing out the window mean a student is not engaged and is not learning?

In this book, Fisher, Frey, Quaglia, Smith, and Lande (2018) ask teachers to examine what defines engagement and how it can be supported in classrooms across grade levels and content areas. They remind teachers there can be a positive relationship between behavioral engagement, cognitive engagement, and learning. After all, it's hard for students to learn when they are not engaged.

This book is a valuable resource because it provides teachers with specific ways to increase and enhance student engagement that will result in increased, deeper learning. Chapter 1 describes how to create an inviting classroom that focuses on (1) trust between teacher and students, (2) respect for everyone in the learning community, (3) optimism that everyone in the community can learn together, and (4)

intentionality that learning will happen for everyone. Included with chapter 1 are videos featuring the intentionally inviting classroom and teacher.

Additionally, chapter 1 provides the model for engagement by design which is supported by the authors' research. Teachers are asked to think of engagement as a function of design that results from "the intersection of the teacher, the student, and the content" (p. 13). These three intersections (relationships, clarity, and challenge) are explored in chapters 2 – 4.

In chapter 2, emphasis is placed on the creation of healthy, productive teacher-student relationships. The authors write: "Engagement by design requires explicit and intentional cultivation of relationships with students" (p. 23). To cultivate these relationships, teachers must create four general conditions within the classroom: respect, honesty, trust, and communication.

Readers learn in chapter 3 that "[c]larity in teaching is key to unlocking the curiosity and creativity that are essential traits for learning" (p. 57). Teachers must know what students are supposed to be learning and how students learn. Along with their teachers, students themselves must know what they are supposed to be learning and what success looks like. If students are to accomplish the intended objectives in the classroom, teachers must have clarity in their instructional practices.

Engagement by design situates challenge at the intersection between the student and the content. In fact, one inherent part of the engagement by design process is providing students with appropriate levels of challenge. It is through their transactions with challenging content and tasks that students stretch their thinking and begin to understand their own growing capacity for learning.

In chapter 5, the authors describe engagement by providing descriptive vignettes of engaged students, engaged classrooms, and engaged student outcomes. In addition to the previous chapters that focus on behavioral and cognitive engagement, chapter 5 explores emotional engagement. Concepts and figures in this chapter include: Heart At War Versus Heart At Peace, Students With Limited/With Voice, Students Lacking/With Self-Worth, and Students Lacking/With Purpose. These figures are powerful reminders of the roles *all* adults play in both the learning and emotional lives of *all* children in *all* schools.

Readers of this book will certainly want to access the additional resources provided as supplements to the text. The authors have provided video and web content throughout the book through QR codes. Videos and downloadable resources are also available at resources.corwin.com/engagementbydesign

This book would be an excellent choice for professional development at any school focused on promoting a culture of authentic, engaged student learning. As the authors concluded:

Engagement by design is about creating an environment in which all students thrive. It starts in the classroom, but it is designed to spill over into life. If we expect students (and teachers) to reach their fullest potential, then genuine engagement must become the norm, a natural way of being. Engagement takes root when schools ensure staff and students are deeply involved in the learning process, demonstrate enthusiasm and desire to learn new things, and willingly take positive, healthy steps toward the future. (p. 158) (JRG)
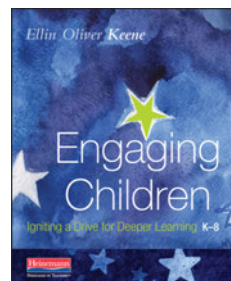
Engaging Children: Igniting a Drive for Deeper Learning K-8. by Ellin Oliver Keene, 2018, Heinemann, 224 pp., ISBN 978 032 509 949 1

In her prelude, Keene (2018) invites all readers of her newest book to

join her "in delving into this question: What can I do to help students develop intrinsic motivation or, better yet, engagement?" (p. xv). In addition to this invitation, she has created a Facebook page for her readers to share their thinking. Through embedded questions and the structure of the book itself, Keene has created an anchor text for educators to explore and share their ideas about student engagement and deeper learning. This book is an excellent choice for a classroom teacher who wants to discover new ways to increase student engagement and learning or an administrator who wants to make impactful changes in a school culture of student engagement and learning.

Each of the eight chapters in this book begins with an essential question and ends with a classroom application. Chapters 1-3 focus on what it takes to motivate, what it means to be engaged, and what the essential conditions for engagement in the classroom are. Chapter 4 outlines the four pillars of engaged learning: intellectual urgency, emotional resonance, perspective bending, and the aesthetic world. Chapters 5-8 focus individually on each of the four pillars.

Images of present and former students are bound to pop into readers' minds as they think about the clear distinctions Keene makes in chapter 1 about compliance, participation, motivation, and engagement. She states that while there may be small distinctions among these terms, the results lead to big differences in students' learning lives. She goes on to conclude: "…it will become clear that engagement is one of the most crucial learning tools we can help children develop. More important, however, engagement is a significant part of what makes us feel truly alive" (p. 17).

In chapters 2-3, Keene describes what personal engagement looks, sounds, and feels like as she applies her own experiences to the classroom. She shares three key components that synthesize the invisible and inaudible conditions essential to a culture of engagement:(1) students'

sense of well-being; (2) students' feelings of independence and agency; and (3) students' access to and participation in regular, thought-provoking conversations. In a sidebar, Keene includes her thoughts about incorporating student choice into these regular conversations. Providing these sidebars throughout the book allows Keene to share her thinking around other questions teachers might have about the ideas shared in the text.

In chapter 4, teachers will be very happy to read the section title, "How to Begin in Your Classroom," on page 63. Keene has not just written a book *about* engaging children; she has provided teachers with guidelines outlining *how to* engage children. Using Keene's tools (Appendix A-G) will help teachers recognize and redefine engagement in their own classrooms.

Keene begins this conversation about how to engage children with chapter 5. This chapter is filled with descriptions and examples of creating classroom conditions that spark students' development of intellectual urgency. These conditions prompt students to develop their own questions around issues and questions that matter to them. Students want to learn as much as possible when they come to realize their voices can make a difference in the world.

In chapter 6, Keene helps readers think about engagement born of an emotional resonance for ideas. She explains that children "are far more likely to remember the idea when a strong emotion is tied to a concept they're learning or a text they're reading" (p. 105). She notes how conferring with students about their learning is "one of the best venues in which to discuss and enhance student engagement" (p. 118).

Perspective bending, Keene's third pillar of engaged learning, asks children to confront complex, conflict-laden issues with others to bring about new dimensions of thought that can have the power to transform. She provides readers with resources such as other authors, texts, and teacher conversations that

support using an inquiry-based approach as a first step toward perspective bending.

Lastly, readers of Keene's previous books will not be surprised at her inclusion of the aesthetic world in chapter 8. In defining this fourth pillar of engaged learning, she writes: "An aesthetic experience can refer to an almost infinite array of personally meaningful moments and insights" (p. 164). By helping children understand an aesthetic response to learning, Keene concludes they can move from compliance to engagement. Readers who want to know more about this type of learning engagement should refer to one of Keene's (2008) previous books, *To Understand: New Horizons in Reading Comprehension*.

In this book, Ellin Oliver Keene shares her passion for helping students take charge of their own learning. After all, engaged children grow up to be engaged adults. Ultimately, this is what Keene wants teachers to embrace—what it means to encourage children "to be aware of what they think, how they feel, and what they believe" (p. 179). (JRG)

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Young Adult Book Reviews

Sheets

Written by Brenna Thummler, Lion Forge, 2018. ISBN 978-1941302675. Review by Katie Walker, Coastal Carolina University.

Brenna Thummler weaves two heart-breaking events into one heart-warming tale that will stick with you long after the story has ended. Thummler introduces her readers to Marjorie's story through full-color artwork. On the outside, Marj is a typical middle-school girl, but at home things are far from normal. Marj's father is lost in his grief after the loss of his wife, Marj's mother, and leaves the responsibilities of the household, raising five year old Owen, and the family laundromat to Marj. The business is struggling and a devious business man is plotting to take-over the building to create his dream resort. Things go so wrong that it seems as if the universe is conspiring against Marj.

The story shifts and introduces the readers to Wendell, a "dead youth," through black and white artwork. Wendell is struggling to adjust to the afterlife and heads back to the land of the living without permission. Through a series of events Wendell and Marj become friends and end up saving one another. *Sheets* is a story of friendship, community, grief, and resilience that will leave you believing that things can get better no matter how dire circumstances may appear.

The artwork in this graphic novel is just as sweet and melancholy as the rest of the story. The transition between full-color and black and white artwork supports the transition between

Marj and Wendell's worlds. At the end of the book, both worlds collide and Wendell and Marj are able to bring color to both worlds.

Early adolescent students could find many ways to connect to this text through the themes of loss and friendship. Sheets could be used as a touchstone text in advisory or counseling groups. This text could also be used in the Language Arts classroom to explore the ways in which various forms of media can influence a story or to analyze character and perspective within a text. *Sheets* is Brenna Thummler's break-out novel and proves her to be a talent that can enrapture her audience in a world that is both down-to-earth and whimsical, ordinary and extraordinary.

That Selfie Girl

Written by Linda Atman High, Saddleback Educational Publishing, Inc, 2016. ISBN 9978-1680210606. Review by Jasmine B. Nelson, Busbee Creative Arts Academy.

The book "That Selfie Girl" is about a teenager who is strongly addicted to social media, taking selfies, and posting. One day she was on the way to the police station to warn the police that there was a school shooting that was soon to happen. She knew who planned it and she wanted to warn the people in the community so that no one got hurt. While driving, she decided to take a selfie to post on Twitter where she was going. When she takes the selfie, she is

hit by a Walmart delivery truck. Read *That Selfie Girl* to find out the rest of the story.

Ghost
Written by Jason Reynolds, Atheneum/Caitlyn Dlouhy Books, 2016. ISBN 978-1481450164. Review by Benjamin Halter, Busbee Creative Arts Academy.

Call him Ghost. Ghost is his nickname and the main character in the book. As a child, Ghost had to flee his apartment with his mother when his father threatened him and his mother with a gun. He started running that night and has been running ever since from his trouble and on the school track team. Ghost and his mother took shelter at Mr. Charles' shop, where Mr. Charles took care of them, called the police and saved them from his father. Years later, Ghost remains loyal and friendly with Mr. Charles, visiting him daily to buy sunflower seeds. Mr. Charles constantly encourages Ghost like a grandfather, always urging Ghost to do his best and break a world record. Ghost often studies a Guinness Book of World Records, given to him by Mr. Charles. Ghost quickly finds out that even if he can run fast enough to break a world record, he can't outrun his troubles.

Mighty Jack
Written by Ben Hatke, First Second, 2016. ISBN 978-1626722651. Review by Dayna Chappell, Busbee Creative Arts Academy.

Mighty Jack is a graphic novel about a boy, named Jack, in a family of three that doesn't have a lot of money. Jack feels that he has to take care of his mother and sister since they don't have much money, but his mom just sees that he's making more trouble. Jack's sister, named Maddy, doesn't talk very much, but is very curious and interested about what she enjoys. Jack and his sister bought a box of magical seeds from a very suspicious man at a local flea market. Jack and Maddy had planted those seeds later on which led to a big problem, their garden wasn't exactly what you'd call safe or ok for anyone to be around without a weapon. The only way to stop it was to work together and enlist help. Read *Mighty Jack* to find out what Jack, Maddy, and maybe a new friend do to fix the mess they've created.

Divergent
Written by Veronica Roth, Katherine Tegen Books, 2011. ISBN 978-0062024022. Review by Kimberly Neely, Busbee Creative Arts Academy.

Divergent is a book about a girl named Beatrice who has to make a life changing decision. Beatrice will have to pick where she wants to belong, but how is she supposed to do that when she has not only her family, but also herself to think of? The five options are Amity the kind, Dauntless the brave, Abnegation the selfless, Erudite the intelligent, or Candor the honest. One could change her life forever. Which one will she pick?
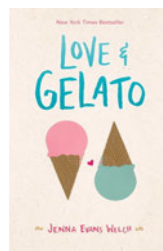
Love & Gelato
Written by Jenna Evans Welch, Simon Pulse, 2016. ISBN 978-1481432542. Review by Cyniyah Feagins, Busbee Creative Arts Academy.

A teen girl moves to Italy for a tragic reason!

Carolina, a girl who experienced a personal tragedy, finds herself in a situation where she has to move to Italy. Most people would be happy but in this case she is not very

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happy. Her mom made her move in with a person she barely knew! Some people's parents wouldn't send them off to a stranger! This girl was scared because of the setting this stranger lived in. This book is titled *Love & Gelato* because while Carolina was with this stranger she ate gelato and danced in fountains. She followed her mom footsteps when she lived in Italy.

       Love & Gelato is a book about family problems. People who have family problems should read this book. This book helps people get used to things that are new. If you are ever in a situation like this girl you should just try your best to be happy.

Skink

Written by Carl Hiaasen, Knopf Books for Young Readers, 2014. ISBN 978-0375870514. Review by Ashton Hudson, Busbee Creative Arts Academy.

       The tale of a kid taking a dangerous journey to find his abducted cousin.

       The book *Skink* by Carl Hiaasen is about a boy's (Richard) journey to find his cousin, Malley. Malley lied to her parents telling them that she was going back to school but instead went with a older boy. At first she went willingly with the older boy but when she tried to go back home he wouldn't let her. Richard is joined and helped by the old governor of the state who has abandoned office.

       This book is not part of a series (sadly) but it's a great book so it makes up for it. I recommend this book to people who love adventure, plot twists, and slow-paced action. To conclude, in my opinion this is one of the most interesting and intriguing books I've ever read.
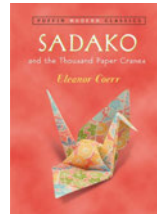
Sadako and the Thousand Paper Cranes

Written by Eleanor Coerr, Puffin Books, 2004. ISBN 978-0142401132. Review by Montrez Edwards, Busbee Creative Arts Academy.

       This is a story of a young Japanese girl named Sadako Sasaki who became ill from radiation poisoning as a result of the dropping of the atomic bomb on Hiroshima.

       World War II was coming to an end when on August 6, 1945, a US B-29 bomber dropped an atomic bomb on Hiroshima. A nuclear fission reaction set off the explosion. Sadako was just two years old when the atomic bomb was dropped on Hiroshima. The family home, along with those all around the neighborhood, were reduced to gravel. Sadako's mother, Fujiko, had to gather her two children and her elderly grandmother after the blast and run for cover. This bomb destroyed thousands of lives. People lost their homes; it was tragic. I recommend this book for mature viewers. This book is tragic and it touches your heart and helps you see Sadako's world and what happened to it. I think you should read this book because it gives you the story of World War II and the impact it had on this little girl's family.

       Even though most people don't know about Sadako she lives on in all of us in a way you may not even understand.

The Clay Lion

Written by Amalie Jahn, Bermlord, 2nd edition, 2013. ISBN 978-0615764962. Review by Mason Darazs, Busbee Creative Arts Academy.

       This book is the first book in *The Clay Lion* series and is about a 15 year old named Brooke. As Brooke faces existence without her

beloved brother, his life cut short by a rare lung disease, she can think of only one solution - to travel back in time to prevent his death. However, her attempts at fixing the past challenge her to confront everything she believes is true about herself. And ultimately, she is forced to discover whether or not we can ever truly be in charge of our own destiny. I would recommend this book to anyone who would like to read a very emotional book about a sister who would do anything for the brother she loves.