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Considering Equity in Literacy Lessons that Integrate a Digital Tool

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Technology Integration and Social Justice

The United States has a long history of predictable racial patterns in educational outcomes, including student achievement in reading (Carnoy & Garcia, 2017). These outcomes are fueled by a myriad of factors, including how whiteness, defined as “the way that white people, their customs, culture, and beliefs operate as the standard by which all other groups are compared” (National Museum of African American History and Culture, 2021), has shaped teacher preparation (Ohito, 2016). To disrupt the predictable patterns that plague the education system, teacher educators must provide space for pre-service teachers (PSTs) to notice race and racism within the classroom (Shah & Coles, 2020) and provide instruction accordingly so that all children can achieve at high levels.

Additionally, teachers and PSTs must also prepare students to meet the literacy demands of the 21st century, which include digital literacies. Thus, the present study examined the use of the Technology Integration Planning Cycle (Hutchinson & Woodward, 2014) (TIPC) in ways that considered equity. The TIPC is a framework that can help educators as they design literacy lessons that consider the use of digital technology. The framework includes six steps that PSTs can use to plan literacy instruction when teachers are considering whether or not to utilize digital technology. The TIPC encourages on-going reflection throughout the planning process. However, it does not explicitly ask its users to consider equity during the planning process. Thus, the present study extends the TIPC by adding a lens of equity (See Figure 1).

Review of Literature

Love (2019) explains that children of color are harmed when their cultures are viewed as an afterthought. Therefore, teacher educators must support PSTs to make intentional, racially conscious decisions about their literacy instruction. PSTs must be able to identify how their own
racialized experiences have contributed to their views and ideas as well as understand the lives of their students. Then, they must be able to apply this knowledge to create equitable literacy instruction.

**Considering Equity in Literacy Instruction**

Edwards and colleagues (2023) describe equitable literacy instruction as culturally relevant, culturally sustaining, antiracist, and as informed by the view that literacy is a socially constructed practice. They propose that literacy instruction should: (a) build on children’s knowledge of literacies, (b) be rigorous, (c) respond to students’ interests and experiences, and (d) allow students to recognize and critique inequities. Rigorous literacy instruction in the 21st century must prepare students to make meaning using new literacies, which are evolving practices, skills, and strategies that occur as a result of rapid technological changes (Knobel & Lankshear, 2014). In order to provide this type of instruction, PSTs must be able to select technology that augments literacy instruction in equitable ways.

**Considering Equity in Selecting Technological Tools**

Digital technologies can serve as a tool to achieve more inclusive and equitable instruction for all (Haleem, et al., 2022). Yet, technologies change rapidly, and this makes it difficult for teachers to establish a routine of regularly utilizing specific tools (Eutsler & Perez, 2022). Further, teachers often report barriers to integrating technology effectively (e.g., Ertmer, 1999, Hutchison & Reinking, 2011) and are often unprepared to integrate technology meaningfully (Ertmer et al., 2012). Therefore, to effectively use technology in meaningful ways, PSTs often need support to develop dispositions to evaluate and use digital technology effectively (Hare et al., 2002).
This is particularly important because utilizing digital technology during literacy instruction can encourage the use of multimodal literacies, which are “systems of representation that use different ways of expressing one’s self and different forms of media, such as print, drawing, photography, and audio and video recording” (International Literacy Association, 2021, para. 15). Multimodal literacies and the use of multimodal texts can increase equity in literacy teaching because students can often use their own cultural identities in a learning community that utilizes multimodal literacies in ways that engage students in learning technologies while also making meaning from text (Watts-Taffe, 2022).

Theoretical Framework

PSTs must learn to draw upon a range of knowledge bases in order to make equitable instructional decisions about literacy instruction and technological tools that meet the needs of all students. Thus, the present study was undergirded by three frameworks that explain the types of knowledge that PSTs should use when making decisions as each of the six steps of the TIPC.

Pedagogical Content Knowledge

Shulman (1986) stated that teachers use overlapping knowledge of pedagogy and content to make instructional decisions. He argued that teachers hold both knowledge of the content they teach and knowledge of pedagogy. However, he explained that effective instruction utilizes pedagogical content knowledge that takes into account what pedagogy would most effectively teach specific content. That is, “both teachers’ pedagogical knowledge and teachers’ subject matter knowledge are crucial to good teaching and student understanding” (Cochran et al., 1991, p. 3-4).

Technological Pedagogical Content Knowledge
Mishra and Koehler (2006) built on Shulman’s (1986) theory by positing that teachers also use knowledge of technology, in addition to pedagogy and content, when designing instruction. They explain that technological, pedagogical, and content knowledge do not work in isolation. Rather, “effective technology integration for pedagogy around specific subject matter requires developing sensitivity to the dynamic, transactional relationship between these components of knowledge situated in unique contexts (n.p.)”. Thus, Technological Pedagogical Content Knowledge Framework (TPACK) is foundational for the effective use of technology and requires knowledge of how concepts can be presented using technology, how technology can enhance understanding of concepts, how technology can reduce issues for students, and how technology can assist in building on students’ prior knowledge (Mishra & Koehler, 2009). However, TPACK does not explicitly address social justice knowledge.

**Social Justice Knowledge**

While TPACK added technology to Shulman’s (1986) original theory of teacher knowledge, Dyches and Boyd (2017) contended that another missing component was social justice. Thus, they offer that Social Justice Pedagogical Content Knowledge (SJPACK), which is a framework “predicated on the assumption that because all instructional maneuvers are politically charged and therefore are never neutral...PCK can never be siloed from social justice knowledge” (p. 2). Social justice pedagogical knowledge includes culturally accessing, critical, and agency-inciting pedagogies while social justice content knowledge includes traditional and critical content knowledge. Therefore, a PSTs’ social justice knowledge, or lack of knowledge, significantly influences their Pedagogical Content Knowledge (PCK).

Thus, we believe that teacher educators must prepare PSTs to use all of these overlapping forms of knowledge (i.e., social justice, technological, pedagogical, and content) when making
decisions about teaching literacy lessons that integrate technology—particularly because these decisions are never neutral and influence how the instruction is received by whom. That is, when PSTs make instructional decisions using technological, pedagogical, content, and justice-oriented knowledges, their decisions have the potential to perpetuate or interrupt patterns of inequity. Therefore, when PSTs make instructional decisions, it is necessary for them to make informed decisions about whose interests are being served and whose interests are being marginalized.

**Methods**

Design-based research (DBR) is a pragmatic approach to research during which researchers work collaboratively with practitioners in educational settings to iteratively test a designed intervention to a complex problem with the goal of generating frameworks for learning (Bradley & Reinking, 2011). DBR has been used in teacher preparation programs to form collaborative inquiry between pre-service teachers and researchers (Pellegrino, 2021) and has also been used to design new approaches for addressing complex problems in educational settings (Bergeson, 2021). More recently, DBR has addressed questions about race and power (Esmonde & Booker, 2016) and is increasingly used to promote equity and justice in schools (Campanella & Penuel, 2021).

In this DBR study, authors worked collaboratively with pre-service teachers to test and redesign a framework that integrates equity into the TIPC. In this partnership, efforts were made by both PSTs and researchers to develop a shared understanding of how the CEITI framework might support pre-service teachers in considering the beliefs they hold about equity and social justice in the areas of literacy, pedagogy, and digital tools while planning literacy lessons. This iterative study took place across two consecutive years during literacy methods coursework in a Midwest, public, regional university.
Participants

Twenty PSTs participated in Year One of this study. All participants were undergraduate students enrolled in a required literacy methods course during their final semester of an elementary education teacher preparation program at a regional public university in the Midwest. All PSTs identified as white in Year One of the study. Ninety percent of PSTs identified as female and ten percent identified as male. PSTs came to class with experience planning lessons and teaching elementary-age students during their field experience and student teaching.

Method and Data Sources in Year One

This project spanned two weeks of regularly scheduled coursework in the fall of 2020. During this time, schools and universities adjusted delivery modes of instruction to accommodate the impact of COVID-19. For this reason, the first portion of this study took place during an asynchronous portion of the class. During this first asynchronous portion, PSTs learned about technology integration by reading Hutchinson and Woodward’s (2014) article titled *A Planning Cycle for Integrating Digital Technology into Literacy Instruction* which introduced the PSTs to the TIPC. In addition, PSTs selected and read an article of their choice, from a list of recommended articles, about technology integration and discussed these articles in a small group over Zoom. Next, PSTs explored the affordances and constraints of digital tools (e.g., Seesaw, Padlet, Adobe Express, Blabberize, ThingLink…) in small groups and listed their findings on a collaborative document. This collaborative document allowed PSTs to view the descriptions, affordances, and constraints of digital tools that were explored in small groups by members of the class. PSTs then wrote a reflection on their learning and identified guiding principles to support planning and decision-making related to technology use in literacy education.
During the second class that week, PSTs met on campus and shared their written reflections with one another related to guiding principles they developed for integrating digital tools in a literacy lesson. Then, PSTs viewed a video of a faculty member modeling her use of the TIPC while designing a literacy lesson. After this video, PSTs began designing their own literacy lesson based on the children’s book *Last Stop on Market Street* (de la Pena, 2015). The professor provided this text as a foundation for the technology integration lesson to simplify the number of decisions made for this assignment. Previous research shows that PSTs can easily become overwhelmed while planning technology integration lessons with literacy if they have to make all of the instructional planning decisions in their initial attempts to use the TIPC (Bergeson & Beschorner, 2021). In addition, this text offered opportunities for PSTs to consider race, class, and social justice while planning a specific lesson. A lesson plan template provided prompts for PSTs to consider equity for each step of the TIPC (See Appendix A). In addition, PSTs were given guiding questions in PowerPoint slides to deepen considerations for equity in literacy goals, pedagogy, and digital tools (See Appendix B). These guiding questions asked PSTs to consider whose interests were served and whose interests were marginalized across their instructional decisions on the TIPC. In addition, PSTs were asked to consider if their lesson provided authentic reading and writing opportunities for students.

PSTs finished planning their lesson at home. The following week, PSTs taught their lessons to one another in class in a small group format. After teaching their lessons and discussing feedback with their peers, PSTs wrote a reflection about the CEITI framework. Further, three PSTs met with the professor to discuss this framework in more depth and provide recommendations for revision. Each of these three meetings was initiated by PSTs based on questions they held, and this led to further clarification about the CEITI framework. The
professor encouraged each of these three PSTs to record their thinking from these meetings in
the written reflection portion of their lesson plan template. Ninety-five pages of PST lesson plans
and written reflections were collected as data for Year 1 of this study.

Data Analysis

We analyzed data using inductive analysis across two iterations of this study (Miles, Huberman & Saldana, 2014). First, we individually read through all PST lesson plans and written reflections several times. As we read, we took notes on the lesson plans and written reflections and wrote memos that represented key concepts linked to specific artifacts (Saldaña, 2015). Tentative themes were then discussed among researchers and evidence of themes was organized in a visual display. A minimum of seven examples from the data were identified and listed for each theme. Initial tentative themes included concepts, ideas, and patterns of effective planning, misunderstandings, and missed opportunities evident in PST lesson plans and written reflections. Both researchers engaged in another round of data analysis and again met to discuss evidence of themes. Throughout the study, researchers continued to meet regularly to discuss similarities and differences in memos and evidence of themes until a full consensus was reached. The multiple rounds of coding and discussion led to six themes that were well-supported by data in Year One of the study and two additional themes in Year Two of the study. In addition, our data analysis and discussion led to a redesigned framework for considering equity in technology integration and an opportunity to test the redesigned framework in Year Two of the study.

Year One Warrants, Interpretations, and Conclusions

The PSTs use of the original CEITI revealed themes related to planning literacy lessons that consider equity and integrate digital tools. In the section below, we describe each of these themes and how we revised the framework as a result of the findings.
Considering Equity as Part of Planning

PSTs embraced the opportunity to think about equity while planning their lesson. Kate reflected,

I think that considering equity while planning any lesson is extremely important. When students struggle to see themselves represented in stories they may struggle to relate or see the importance of the lesson.... I think analyzing the tools from a variety of perspectives is very important. It’s also important to represent groups that may not even be represented in your group of students. Just because you don’t have a student in a wheelchair doesn’t mean you shouldn’t make sure that people with disabilities are represented in your lessons. No group should be marginalized in your lessons.

In another example, Joel wrote, “I have never written a lesson plan like this before. I have considered equity before, but I have never used this process before. I will find myself referring to this process of considering equity.” Further, May reflected, “I liked it because it made you think about equity throughout the lesson plan and not just in the initial planning stages. I think that it was helpful to be prompted to reflect on the teacher’s decisions throughout the activity.” All PSTs in this study stated the belief in their written reflections that equity is an important consideration for their work as a teacher, and this assignment supported their learning.

Complexity in Planning

In an effort to keep the planning cycle simple in the CEITI framework, we added the same two prompts for each step of the TIPC in the lesson plan template (See Appendix A). These steps in the TIPC lesson plan template included considering the (1) instructional goal, (2) pedagogy, and (3) digital tool selection for the lesson. The prompts that we gave students for each of these three steps included the following: 1) Whose interests are served and whose are
marginalized? 2) How are children being given authentic purposes for reading and writing? Then we provided PowerPoint slides with guiding questions about social justice and equity for each step of the TIPC as a resource for PSTs. (See Appendix B). The process of considering equity for each step of the TIPC added a layer of complexity to planning for PSTs.

Though some PSTs were able to negotiate between the slides and the lesson plan template, most did not. Evidence of confusion was seen when PSTs wrote similar considerations for equity related to their instructional goal, pedagogy, and digital tool. As an example, when considering whose interests were served and whose interests were marginalized related to the literacy goal, Ben wrote, “Students’ interests are served that like technology and like a different way of learning. Some students might not be on the same page with technology.” Ben’s written reflections about his pedagogical decisions were very similar. He wrote, “Kids who use technology and like technology interests are being served because it is a web-based technology tool. Students who don’t use technology very often may be marginalized to some degree.” If Ben had referred to the Instructional Goal PowerPoint, he would have considered questions, such as whether texts were historically accurate and provided opportunities for children to see themselves in the text and also learn about others. In the Pedagogical PowerPoint slide, Ben might have considered whether children were given equitable opportunities for critical thinking, creativity, choice, and inquiry in the lesson and whether his instructional approach encouraged empathy and thoughtful reflection about fairness and justice.

It is reasonable to assume that some PSTs designed lesson plans without taking full advantage of instructional scaffolds, yet a majority of PSTs were missing reflections related to the PowerPoint guiding questions. Previous research shows that PSTs, who are new to determining instructional goals, making pedagogical decisions, and integrating technology are
often overwhelmed as they plan their literacy lessons (Bergeson & Beschorner, 2021). Lesson plans and written reflections revealed PST’s difficulty integrating multiple instructional goals in their lesson.

**Difficulty Centering Race**

When PSTs did not refer to the guiding questions as scaffolds, many initially thought about equity related to a student’s ability to complete a task, read a passage, or understand and use digital tools. As an example, Julia wrote, “Students who are of a higher level in reading, and have the ability to compare and contrast, are being served. Students who struggle and are unable to read or compare and contrast the characters are being marginalized.” The guiding questions that we provided were intended to move students away from this, but more than half of PSTs wrote about skill or reading level as their main consideration of equity. Race and social class rarely surfaced explicitly as considerations for equity in PST lesson plans.

Some PSTs wrote about equity in their lesson plans by making universal statements about “all students”. In their effort to consider equity in an inclusive way, these PSTs missed opportunities to think about how their students might experience a story or lesson in different ways. As an example, Keitha wrote, “All students are given the same opportunity to succeed.” In another example, Jay wrote, “All students can relate to this story.” Further, May wrote, “All students will be able to connect to the story.” Equity, in these written reflections, appeared to be based on a perceived value in equal, rather than equitable, opportunities and a wish to be inclusive.

**Knowing Your Students**

Yet, PSTs did recognize the importance of knowing their students well as they considered equity in their planning. This was seen when PSTs considered the selection of a digital tool.
an example, Ann wrote in her guiding principles about the importance of selecting a digital tool based on learning preferences. She reflected, “You really need to get to know your students and how they learn best.” Her concern for students who “check out” with technology led her to select a tool that supported engagement with critical and creative thinking. PSTs were also concerned about individual students’ access to digital tools and communicated that knowing their individual student’s access to digital tools was an important consideration for equity in their lesson plan.

The selection of the children’s book, Last Stop on Market Street (de la Pena, 2015) led PSTs to think about how the story may or may not connect to students’ personal lives. Many PSTs created goals centered on inclusivity based on this book and assignment. Randy wrote, “The authentic purpose is for students to develop empathy and the ability to see experiences from other people’s perspectives. This allows them to think critically and how an experience may be different from their own.” Sarah wrote, “The story encourages them to think critically about other people’s lives or things they may see in their daily lives. It offers different perspectives of characters and how they see the outside world, therefore, making children think about the fact that everyone lives and looks at life a little differently.” Jason wrote about the opportunity to get to know his individual students better through this book. He wrote, “Depending on the things that happened in the story, you will learn more about the lives your students live and the things they encounter in their own lives.” PSTs considered how the story may or may not impact students’ personal lives, and they adjusted their instructional plan based on the perceived needs of their students.

**Engaging Tools for Learning**

The digital tools selected by PSTs encouraged students to use technology for authentic purposes and engage students with individual thinking, creativity, and enjoyment. Examples of
digital tools used in lessons included Seesaw, Adobe Express, Padlet, Nearpod, Popplet, Venngage, and Thinglink. In addition, PSTs integrated the use of these digital tools in their lessons in ways that could elicit and share multiple points of view from their students. Further, PSTs selected digital tools that could expand their students’ abilities to share thinking and learning with wider audiences. This goal of purposeful engagement with digital tools could be seen in written reflections when PSTs reported selecting digital tools that could help students compare and contrast different points of view in the story, use multimodal tools to express and share their thinking, engage in critical and creative thinking about the characters and events in the story, connect their personal life to the story, and use engaging modes of communication and learning. PSTs avoided dehumanizing approaches to technology integration, such as isolated skill and drill activities.

We believe there are a couple of reasons PSTs selected digital tools that supported authentic learning opportunities for this lesson plan. First, the CEITI assignment led students to consider the integration of a digital tool to support a literacy goal while students were engaged with an authentic text. This assignment, and the TIPC, appeared to scaffold a careful selection of digital tools and the purpose for using them. Robby wrote, “It’s easy to forget the purpose of integrating technology, so this planning cycle was helpful to keep the lesson on track and remember the real purpose of integrating technology into a lesson.” In addition, the opportunity to collaborate with peers about a variety of digital tools, and carefully analyze affordances and constraints of these tools, appeared to support meaningful selection of digital tools. Peter reflected, “The exploration of the tools makes me think about and realize how many digital tools are out there. We have to look past the super common tools and find the technology that will
have the greatest benefit to our students.” PSTs believed their selection of digital tools could enhance student learning in meaningful, and authentic ways.

**Need for a Redesigned Framework**

Based on the challenges PSTs faced integrating and attending to equity while planning this literacy lesson, we concluded that PSTs would benefit from a stronger instructional scaffold that organized the guiding questions in a framework on one page. Based on PST recommendations, we redesigned the framework, and we added guiding questions to the framework to make the questions more accessible (See Figure 1).

Figure 1: Framework for Considering Equity in Technology Integration
In addition, we redesigned the lesson plan template with a simpler prompt aligned to each step. (1) Consider equity related to your instructional goal. (2) Consider equity related to your pedagogy. (3) Consider equity related to your digital tool. The design of this new lesson plan template evolved from the collaborative efforts of PST recommendations with the professor and researcher (See Appendix C).
Year Two: Testing the Redesigned Framework

In Year Two of this study, we tested the redesigned CEITI framework with a new group of students.

Participants

Twenty-seven PSTs participated in Year Two of the study. Similar to Year One, all participants were enrolled in a literacy methods course during their final semester of an elementary-education teacher preparation program at a regional, public university in the Midwest. In Year Two of the study, 89% percent of students identified as white, eleven percent identified as students of color, 89% percent identified as female, and 11% percent identified as male. Participants in Year Two had experience planning and teaching lessons to elementary-age students in their field experience and during their student teaching.

Method and Data Sources Year Two

We tested the redesigned framework by engaging in a similar instructional process for learning in Year Two of this study as Year One with three notable changes. First, PSTs were assigned an additional article to read and discuss titled, Using Literacy Approaches to Begin the Conversation on Racial Illiteracy (Kaczmarczyk, Allee-Herndon & Roberts, 2018) to center race in this assignment. Second, we asked PSTs to choose the text for their lesson. Third, we provided PSTs with our redesigned framework and lesson plan template as scaffolds (See Figure 1 and Appendix C). One hundred and twenty-seven pages of lesson plans were collected as data and analyzed using inductive analysis (Miles & Huberman, 1994) for this second iteration of the study. Our data analysis process followed the Year One data analysis process of the study. The following two themes were well supported by the data.

Centering Race
In Year Two of the study, the majority of students centered race, language, and culture as they considered equity in their lesson plans compared to Year One of the study when the majority of students wrote about reading levels and skills in their considerations of equity. We believe the instructional scaffold of reading and discussing the additional article *Using Literacy Approaches to Begin the Conversation on Racial Illiteracy* (Kaczmarczyk, et al., 2018) was an important support. This article focuses on equity related to race and provided resources for PSTs, such as books that address race and a bookmark to support elementary students in making life connections and conversations. In addition, PSTs read about instructional approaches such as literature circles, dialogue journals, and projects that can raise racial consciousness and decrease racial illiteracy in elementary classroom spaces.

Also, the refined lesson plan template and redesigned CEITI framework provided a better scaffold for designing literacy lessons that consider equity while integrating a digital tool. In the majority of Year Two lesson plans, PST written reflections included the guiding questions from the CEITI framework. As an example, Molly wrote,

I intentionally chose this book because of the clear purpose of equity. My planning for equity relating to my instructional goal is that all students will know and see themselves and others as unique. All students will understand and grasp the main idea when reading the book *All Are Welcome* and that they are all welcome within our classroom. I want them to notice the different cultures, races, genders, religions, and levels of interest and abilities in the characters. In the end I want the students to see themselves and others within the story and realize theirs and others uniqueness and what they bring to the classroom as individuals.

Jess wrote,
The book selected provides students with opportunities to see themselves in the text as well as others. *Each Kindness* is a book related to how far an act of kindness can go. This book shows equity and social justice in a way that opens students’ eyes on how they should treat everyone fairly, with kindness. In the lesson, students will be able to use *Seesaw* to describe the main characters in the story and show how they feel. Students will then rewrite the end of the story, as if they were one of the characters to change the way Maya felt. By rewriting the end of the story students are presented with the opportunity to express the way they feel.

The simplified one-page handout of the CEITI framework with guiding questions, rather than negotiating between multiple PowerPoint slides for the guiding questions and the lesson plan template, improved the use of the CEITI framework for PSTs while planning this literacy lesson.

In addition, the simplified lesson plan directions that prompted PSTs to consider equity in the instructional goal, equity in the pedagogical approach, and equity in the use of digital tools, rather than the Year One directions that asked PSTs to consider whose interests are served and whose interests are marginalized for the instructional goal, pedagogy, and digital tools, seemed to clarify the lesson planning process for PSTs. Rather than the confusion that we saw in Year One, a majority of Year Two lesson plans centered race across each step of the TIPC on the lesson plan. As an example, Miguel wrote for his instructional goal,

Planning for equity in relation to the instructional goal largely regards the content and materials that will be present within a lesson. This lesson revolves around the text *Last Stop on Market Street*, where CJ and his Nana take the bus after church on their way to the soup kitchen; while on the bus, CJ observes the differences between his life and the
lives around him – accordingly, this story provides consistent opportunities for students to consider equity and social justice. In addition, the questions that I have prepared for during and after the read aloud… provide additional opportunities for students to consider equity and social justice. A further point of planning for equity within this lesson, is the opportunity students will have to see themselves within the text… while also learning about others.

When considering equity in his instructional approach, Miguel wrote,

Throughout this lesson, there are various instances of equity related to the instructional approach. For instance, during the lesson, students will have the opportunity to make choices, which therefore allows them to gain more control over their own learning… I understand that students’ interest, engagement, and learning is heightened when choice is included in the educational setting. I also understand that many students, especially those who are emergent multilinguals or who have differences in academic accessibility, benefit greatly from utilizing graphic organizers when doing a task such as comparing and contrasting… In addition, the instructional approach provides numerous opportunities for reflection about fairness and social justice, while also encouraging empathy and consideration.

When reflecting on planning for equity in relation to the digital tool, Miguel wrote,

When considering my planning for equity in relation to the digital tool, I believe there are several equitable factors that the tool I chose boasts. This tool… provides equity to students’ access and learning, as students do not necessarily have equal access to tools and broadband capabilities outside of the school setting…. During the lesson, when students share their diagrams and thinking with others, students have the opportunity to
practice considering the perspectives of others, which is an important facet of a
democratic, just society. Finally, upon analyzing the digital tool for bias, I was unable to
detect any; within the available graphics, the human beings and experiences that are
represented are from a wide spectrum (various ages, races, socioeconomic statuses,
physical abilities, cultures, and so forth, are represented).

The majority of lesson plans in Year Two confirmed the value of the refined lesson plan
template and CEITI framework as scaffolds for planning literacy lessons that consider equity
while integrating digital tools.

**Considering Equity Throughout a Lesson**

The CEITI lesson plans showed that a majority of PSTs were able to consider equity in
their text choice, instructional goal, pedagogical approach, and integration of digital tools. Often
PSTs planned their lessons with considerations of these aspects of the lesson in relationship to
one another. As an example, while Sarah is focused on the instructional goal, she also considers
equity in her pedagogical approach and digital tool as she writes,

> With the instructional goal, students will be able to see themselves and relate to the ideas
> the book proposes. Students will be able to think critically about the characters and see
> how their actions affect others. This is related to equity because the story allows students
to deepen their thinking and understanding related to the story. They will also think about
why characters act the way they do and character feelings. One way this will be done is
with discussions throughout the story. During the discussions, information about the
characters will be written in a t-chart. Another way is having students work together to
create a Padlet to describe one of the characters. Padlet lets students decide how they
want to present information. This shows equity as there are multiple ways for students to
show what they learned about the characters. This story shows equity because there are different views of characters, which can help students relate to parts of the story.

It is ambitious for PSTs to select texts, plan instructional goals, make pedagogical decisions, utilize digital tools, and consider equity throughout their lesson-planning process. PSTs, who are new to each of these elements of a lesson plan, can find this type of integrated planning overwhelming (Bergeson & Beschorner, 2021). Also, PSTs can lack awareness of missed opportunities to attend to equity in their lessons or rely on a single aspect of their lesson, such as text choice, to attend to social justice and equity (Kelly, Fogarty, Kabach, Tamte & Smith, 2022). In Year Two of this study, the redesigned CEITI framework provided a scaffold for PSTs throughout their lesson planning process and not just in one portion of their lesson.

**Significance of the Research**

The CEITI framework focused PSTs on PSTs’ abilities to apply social justice and technological, pedagogical, and content knowledge while planning literacy lessons. Using the TIPC with an equity focus required PSTs to make intentional decisions about how to create equitable instruction that also considers the use of technology. This is important because, without an intentional focus on equity (Dyches & Boyd, 2017) and digital technology (Mishra & Koehler, 2009), PSTs often plan “neutral” lesson plans that cater to dominant populations and overlook the ways that digital technology can contribute to instruction.

However, the present study illustrates that this was not an easy task for PSTs, which highlights the necessity to provide frequent opportunities for practice with the TIPC and indicates that PSTs need a significant level of support with, and frequent learning opportunities about, culturally responsive, antiracist instructional practices that are likely to result in more equitable outcomes for students. That is, while PSTs reported that the TIPC with the focus on
equity helped them to consider who was being served and who was being marginalized, without significant scaffolding, they often implemented those ideas into their instruction in limited or superficial ways. Explicit scaffolding in considering race and social justice while planning lessons may help move PSTs beyond reading level or reading skills in their considerations for equity.

Moreover, using the TIPC in a methods course can build PSTs’ technological knowledge (Mishra & Koehler, 2009), which is important considering that the tools that are shared in teacher preparation are often the ones that PSTs use as they plan lessons (Wright & Wilson, 2005-2006). Therefore, using the CEITI framework can provide an opportunity for PSTs to simultaneously grapple with the ways that their instruction advances, or does not advance, all children’s learning while also learning about digital technology that can support literacy learning.
References


Love, B. (2019). Dear white teachers: You can’t love your Black students if you don’t know them. *Education Week, 38*(26), 18.


Appendix A: Lesson Plan Template Year One

Considering Equity in the Technology Integration Planning Cycle

Text: Next Stop on Market Street by Matt de la Pena

1. Instructional Goal (Pick 1 standard):

Standard:

1.1.9.9 Compare and contrast the adventures and experiences of characters in stories.

3.1.6.6 Distinguish their own point of view from that of the narrator or those of the characters.

Objective:

Reflection Related to Your Objective:

1. Whose interests are served and whose are marginalized?

2. How are children being given authentic purposes for reading and writing? (We define authentic purposes as the actual reading and writing of texts that people engage in outside of school.)

2. Instructional Approach

What do you know about how students learn related to your instructional goal?

Reflection related to your Instructional Approach:

1. Whose interests are served and whose are marginalized?

2. How are children being given authentic purposes for reading and writing? (We define authentic purposes as the actual reading and writing of texts that people engage in outside of school.)

3. My digital or non-digital tool is:

How does this tool contribute to the instructional goal?

What are potential constraints of using the tool?

How will you overcome these constraints?
Reflection related to your Digital Tool:

1. Whose interests are served and whose are marginalized?
2. How are children being given authentic purposes for reading and writing? (We define authentic purposes as the actual reading and writing of texts that people engage in outside of school.)

Instructional Plan

<table>
<thead>
<tr>
<th>Write the words you will say to your students to introduce this lesson:</th>
</tr>
</thead>
</table>

Instruction: (Please list each step of your instruction with enough detail for your reader to understand your plan.)

<table>
<thead>
<tr>
<th>Write the words you will say to students for your closure:</th>
</tr>
</thead>
</table>
Appendix B: Guiding Questions from Three Power Point Slides

Guiding Questions for Considering Equity in Relation to Your Literacy Goal:

1. Are texts selected that are historically accurate and provide opportunities for children to see themselves in the text and also learn about others?

2. Are you providing texts that bring the classroom opportunities to think about equity and justice?

3. Are children supported in thinking critically about texts to consider whose story is being told and whose story is being marginalized in the text?

4. How will you consider the assets, interests, and needs of children who will participate in this lesson in relation to the standard and objective?

5. Will all students’ languages be used as an asset?

Guiding Questions for Considering Equity in Relation to Your Instructional Approach

1. How and what will you model?

2. What scaffolding will you provide and to whom? How do you know who needs scaffolding? Are you making assumptions that are limiting your view of children’s capabilities?

3. Are all children being given equitable opportunities for critical thinking, creativity, and/or inquiry within this lesson?

4. Do all children have an opportunity to make choices that allow them to take control of their learning?

5. How does your instructional approach encourage empathy and thoughtful reflection about fairness and social justice?

Guiding Questions for Considering Equity in Relation to Your Tool.
1. Are any children being given dehumanizing approaches to learning through technology? (We define dehumanizing approaches as those that deprive someone of human qualities, ignore their individual personality, and deny them dignity.)

2. Do all children have access to digital tools and broadband capability in the school and at homes?

3. Do all children have agency in the production and consumption of authentic digital text, or are some children given reductionist, isolated skill work focused on task completion?

4. Are the technological tools purchased for school perpetuating power structures?

5. Is data being collected about children that give power to individuals or organizations outside of school who don’t know the children?

6. How are narratives being shared that can lead to a more democratic, just society? How are people listening to one another’s narratives?

7. Is technology being used to reimagine communication and collaboration across language barriers, geographical and cultural boundaries?
Appendix C: Revised Lesson Plan Template

Considering Equity in the Technology Integration Planning Cycle

Text:

1. Instructional Goal:

Standard:

Objective:

Consider equity related to your instructional goal (See Guiding Questions):

2. Instructional Approach

What do you know about how students learn related to your instructional goal?

Consider equity related to your instructional approach (See Guiding Questions):

3. My digital or non-digital tool is:

How does this tool contribute to the instructional goal?

What are potential constraints of using the tool?

How will you overcome these constraints?

Consider equity related to your tool selection (See Guiding Questions):

Instructional Plan

Write the words you will say to your students to introduce this lesson:

Instruction: (Please list each step of your instruction with enough detail for your reader to understand your plan.)

Write the words you will say to students for your closure: