Teaching Lab

USING TECH AND CURRICULUM TO ACCELERATE STUDENT LEARNING

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INTRODUCTION

In July 2019, the Robin Hood Learning + Technology Fund approved a 2-year grant that challenged Teaching Lab (hereafter TL) to develop and test a **blended literacy model**[1] that could reap (and possibly multiply) the benefits of two high-impact and promising teaching strategies — high-quality, content-rich ELA curricula and blended personalized learning. As Robin Hood noted in a 2018 concept paper on blended literacy, "...our focus is on demonstrating the yet-untapped potential of bringing the two together...Our vision is not to prescribe how to implement a blended and content-rich approach to learning. We seek instead to invest in organizations and their school partners that will demonstrate this approach thoughtfully, will try things and iterate as they learn and improve, will create new tools, models, and resources to support others, and that will **ultimately generate measurable results that help the field learn more about what works, and what does not,** in what circumstances" (Robin Hood, 2018, p. 4).

[1] Teaching Lab grounds our programmatic work (in this project and beyond) with this definition: **Blended learning is an instructional approach where technology and digital media are integrated with teacher-led classroom activities in the service of specific learning goals.** Blended literacy applies that definition to contexts where literacy learning is the goal. **Blended literacy is an instructional approach where technology and digital media are integrated with teacher-led classroom activities in the service of literacy learning goals.**

With a charge to discover promising blended literacy practices, TL embarked on a two-year partnership with two traditional public K-5 schools in New York City's District 11, located in the northeast Bronx. TL recruited and selected the schools based on a number of prerequisite criteria, the first of which was early-stage adoption of EL Education's K-5 content literacy curriculum. TL then co-constructed a learning agenda with educators from both schools that focused on testing blended literacy approaches with high potential for improving student learning.

While navigating shifting conditions caused by the COVID-19 pandemic, teachers and leaders explored two questions, each structured as a Teaching Lab Cycle of Inquiry: 1) how to use blended resources to build students' content knowledge; and 2) how to use blended methods to collect student thinking and learning data. The first hypothesis was grounded in a belief that EL could be supplemented with blended knowledge-building resources that help improve students' access to and comprehension of the curriculum's complex texts. The second hypothesis focused on technology's power to efficiently collect information on student thinking and learning, which teachers could then use to make rapid, personalized instructional decisions.

Participating teachers emerged from the inquiry process confident that integrating blended learning strategies into a content-rich ELA curriculum can yield benefits for students, with 98% of teachers expressing support for blended literacy approaches in a survey administered by an external evaluator (CPRE, 2021, p.7). What follows are specific lessons that emerged from work across grade-level teams and schools. Each lesson is paired with recommendations for teachers to use as a guide when blending their own content-rich ELA curriculum. We also include examples of teacher practice, educator testimonials, and links to helpful resources that come directly from TL and participating teachers. Altogether, they comprise a practical blended literacy model ready for teachers to implement.

WHAT WE LEARNED

Lesson 1:

Blended resources help students build foundational knowledge. Digital resources present concepts and topics in engaging formats and multiple representations that help students visualize what they read about. This, in turn, leads to increased access to complex topics and texts.

Lesson 2:

Technology makes valuable data collection easy and efficient. Technology can provide immediate access to individual student thinking and learning in ways that are impossible when leading a full class. COVID-19 introduced participating teachers to a variety of tech tools such as Flipgrid, SeeSaw, Nearpod, Padlet, and Pear Deck along with Google products like Docs, Forms, and Jamboard that provide virtual access to student thinking and learning in a wide variety of forms: typed text; handwritten text; drawings or models; photos; and audio and video recordings.

Lesson 3:

It's important to internalize the curriculum's design before blending. When teachers deeply understand how and why the curriculum was built the way it was, they are poised to make effective blending choices while maintaining the academic and content rigor of the instructional materials. Conversely, without internalization of the design features, there is significant risk that modifications will undo the power of that design.

Lesson 4:

Use blended approaches to personalize while protecting the integrity of the curriculum. Personalization is better when viewed as a strategy for all students to access common rigorous learning experiences rather than as an approach that aims to create different core tasks for different students. When personalized blended strategies are implemented to help students access high-quality curriculum content, they represent a more realistic pursuit in the quest for equitable learning outcomes than the creation of rigorous blended learning plans for individual students.

LESSONS EXPLAINED

with Recommendations for Practice

The lessons summarized above serve as the organizing themes of TL's blended literacy model. The thoughtful planning, classroom teaching, and analysis of outcomes that participating teachers engaged in produced a number of specific promising practices. They are presented here as "teacher-facing" strategies for successful blended literacy instruction.

Lesson 1:

Blended resources help students build foundational knowledge.

In our work with instructional teams in District 11, teachers reported that blended resources helped students build schema, which can be defined here as mental structures used to organize knowledge. Teachers referenced research such as Wexler's The Knowledge Gap to support their efforts to build foundational knowledge and frequently cited the critical role that knowledge plays in students' comprehension of what they read. For example, seeing pictures and videos about segregation helped students acquire mental models of what racial separation and prejudice looked like when they read about Jackie Robinson's journey to integrate Major League Baseball. The combination of visual representations of a topic, exposure to domain-specific vocabulary, and opportunities to make connections to their own prior life experiences positioned students to be more interested and engaged learners in content literacy. Teachers used phrases like "more engaged," "more comfortable," and "make personal connections" to describe their students' increased confidence when they entered a text with a foundation of knowledge. Here are some ways to do it.

Recommendation: Build knowledge using blended methods at two key moments in an arc of instruction.

Before beginning the anchor text. When you build students' knowledge before reading a complex text on a topic, they benefit from familiarity with content vocabulary, piqued interest in the topic, confidence to read and talk about the topic, and opportunities to personally identify with the topic. Teachers across grades designed **knowledge-building journals** to track their students' acquisition, application, and questions about the topic being studied. One 3rd grade team started their unit on freshwater with a video from National Geographic and a KLW (what do you Know, what did you Learn after watching the video, what do you Want to learn) chart. Teachers noted how students used this knowledge base to enter the anchor text with greater interest in the topic and personal motivation for answering the questions they each generated about freshwater. They revisited the chart three times during the course of the unit as they read the anchor text and engaged with other digital resources on the topic. Teachers also used **research note-catchers** that paired blended resources with text-dependent questions and prepared students for the topic ahead. For example, a 5th grade team used photos and videos to introduce multiple chapters of the text on Jackie Robinson mentioned above. Teachers remarked that their students were then able to draw comparisons between incidents in Jackie's life and other contemporary events (such as the Montgomery bus boycott and the experiences of Ruby Bridges) that demonstrated a conceptual understanding of segregation. You can introduce tools like these at the launch of a unit of study and use them as scaffolds to build knowledge, as assessments of baseline knowledge of a topic, and/or as ways for students to see themselves in the topic.

Later in a module when students apply foundational knowledge from the anchor text. You can design extension activities later in units of study where your students can apply their learning in new contexts or situations. Both participating schools engaged in efforts to make their curriculum more culturally responsive for their students. This created a natural opportunity to integrate blended resources to build additional knowledge and apply it. For example, after 4th graders read the historical fiction play Divided Loyalties about the forces that formed loyalist and patriot perspectives in the build up to the American Revolution, their teachers used a combination of history videos, digital texts, and software programs like Flocabulary to build additional knowledge about the experiences of marginalized groups such as Native Americans and enslaved African Americans whose perspectives were not emphasized in the anchor text. Students applied their knowledge of patriots and loyalists to the experiences of marginalized groups and reached conclusions on how the perspectives of these groups were shaped by their very different experiences.

Recommendation: Personalize the blended knowledge-building experience.

Assess and match student needs and interests with blended resources. Using data on student needs or interests positions you to match blended resources with individual learners. For example, a student in that 3rd grade class studying freshwater who had yet to fully grasp the concept that the amount of freshwater on earth remains unchanged could be matched with a digital resource that makes that point. In similar fashion, one 4th grade teacher noted how her students whose first language was not English gravitated to tools that provided an audio feature. She knew to include audio resources for those students in future units. Whether the match is driven by a knowledge need/gap or a student preference for a specific type of learning experience (visual, audio), the range of blended resources available provides you with multiple ways to personalize the learning. Reinforcing these points, one teacher reflected:

> **"I think this blended approach helped me to spark interest in my students, which in turn lit the fire in me to find more interactive and blended opportunities for my students to learn...I feel that this practice helped me to get closer to my goal of truly accommodating ALL of my students."**

Provide students with choice. Structuring student choice into units is another way to leverage the power of technology. In the 4th grade American Revolution example described above, teachers gave their students the choice of which marginalized/under-represented perspective to study. Students could also choose whether to access video, audio, or texts at their reading level to support their learning. Teachers found that when they provided students with opportunities to exercise some control over what and how they learned, it led to higher engagement as well as increased independence and accountability for learning.

Lesson 2:
Technology makes valuable data collection easy and efficient.

District 11 teachers experimented with blended data-gathering tools ranging from individual formats like Google Docs, Forms, and Slides with Pear Deck to collaborative uses such as Padlet, Jamboard, and Nearpod. From the data these tools collected, they gained deeper insights into what their students were thinking and learning and then used that knowledge to inform their next teaching moves. Based on the actionable evidence gathered by these programs, teachers concluded it was well worth the time required to teach them to students. One 4th grade teacher eloquently made the claim that personalized data is what drives more equitable instruction:

> **"Without data to tell us what each student needs, students often all get the same support; that's equality. But when thinking about what data to collect and analyze translates to individual students receiving different resources and instruction to meet rigorous goals, then you are on the pathway to equity."**

Here are multiple recommendations you can implement to harness technology's potential to achieve more equitable outcomes.

Recommendation: Identify valuable moments to collect data.

Technology makes data collection easy, but the time required to analyze that data forces you to make decisions on when and when not to do so. A good rule of thumb for making the time investment is when the analysis will impact performance on a culminating task.

Start with the moments called out in the curriculum. Poorly designed questions and tasks produce inconclusive information about your students' understanding, so lean into the prompts provided by your high-quality curriculum. In their first week of virtual instruction under COVID, teachers transformed their traditional pen-and-paper exit tickets into digital data as Google Forms. Later in the pandemic, they used unit backward planning processes like unpacking protocols and templates and text-dependent questions from individual lessons to point to important data collection moments. Teachers frequently used tools like Jamboard or Padlet to elicit individual responses from all students to a question and then encouraged students to reference examples from that wealth of data when they launched into class discussions.

Explore greater collection of thinking and talking data. Don't stop where the curriculum calls for collection. Go beyond and consider key moments of structured student conversation or collaboration that were previously never captured in digital form. You can do this by using audio or video recording tools like Flipgrid to document student thinking at the first step in a think-pair-share sequence and then record again at the conclusion using a prompt like, "After sharing with my partner, I now think..." You can also use Google tools like Docs or Forms to capture your students' thinking about a text after reading but before talking about it and then again after a discussion with classmates has concluded. Both approaches can provide you with valuable insights into your students' formative thinking that later becomes their formal written products.

Recommendation: Maximize the value of blended tools to respond in real time.

Technology provides you with the power to access the work of every student instantly and simultaneously, thus equipping you with information to accelerate learning for all students. In the words of one teacher,

> **"You can monitor a full class worth of student thinking simultaneously whereas in person you may only have time to review a couple of students' work. Misconceptions are caught and addressed in real time rather than being reviewed after the fact. This is likely to set students up for success."**

A 3rd grade teacher discovered those benefits when she scanned responses across an entire class to identify an appropriate model to use for a "glows" and "grows" analysis activity. Through the power of Google Docs and Pear Deck, she was able to see every student's work and quickly find samples that included strengths and common errors she wanted to call out. A 4th grade teacher described how she avoided the "snowball effect" of misconceptions when she read her students' digital annotations live during class and followed up immediately. She contrasted the speed of this process with her past practice when she might not catch the error for days using pen-and-paper exit tickets.

Recommendation: Select data-gathering tools with broad functionality.

While some apps may do one function really well, choose apps that do lots of things well enough. For example, instead of using an app that does only video recording, select the one that also has photo and image uploading capacity, too. Here are some additional guidelines relating to functionality based on teachers' experiences.

· **Go multimodal.** Opt for programs like Seesaw where students can show their thinking and learning in multiple ways rather than a single format. Typing, drawing, and video were the most desirable features from teachers. Teachers praised tools with a range of capabilities because they benefit you (when designing tasks) as well as your students (who might appreciate choice on how to share their learning).

· **Choose those with feedback capability.** Programs like Google Docs and Slides and extensions like Pear Deck that include comment or feedback features within the software are better than those like Flipgrid that produce an email that must be retrieved elsewhere.

· **Consider integration capability into common platforms and programs.** Programs accessible via a single sign-on are preferable to those that require users to leave their LMS/platform. Tools like Jamboard, with unique URLs that can be linked in other documents, provide easier access for your students and easier data retrieval for you compared to programs like Nearpod that require a code.

Lesson 3:

It's important to internalize the curriculum's design before blending.

All teachers participating in the project were in at least their second year of implementing the EL curriculum and repeatedly referred to design features when making decisions on when to integrate technology. The general rule that emerged was to avoid blending for blending's sake (i.e., just to spice up lessons and/or to engage/excite students) and blend only when doing so helps achieve the curriculum's learning targets more effectively than without it.

Recommendation: Master unit design first, and then identify where blending opportunities can accelerate learning.

Backward planning helps you deeply understand a unit's topic, learning targets, texts, and tasks (known as the 4 Ts in EL), which positions you to elevate those moments where building knowledge or collecting thinking data are most critical. When you approach planning from the end and work backward, you are more likely to make blending decisions that improve the learning experience for students. Tools like unit unpacking protocols can be very helpful to achieve this. In the words of one participating teacher, "Thinking about backwards planning and what is the end goal...then picking specific lessons or assignments that align with that goal" helps identify moments worthy of data collection or knowledge building. She later noted, "We understood the elements needed for students to successfully complete the assignment," which helped her pinpoint when best to integrate technology.

This recommendation was also evident when teachers tackled the challenge of modifying their curriculum to make it more culturally responsive for their students. Teachers began by unpacking units and then the sequence of lessons to identify moments where connections to their students' cultural identities could be fostered. Making these decisions after internalizing the curriculum produced a culturally responsive learning experience that was both personalized and blended.

Recommendation: Leverage features of the curriculum designed to prompt student thinking while integrating technology.

In EL, features such as Total Participation Techniques (TPTs), text-dependent questions (TDQs), and the Read Think Talk Write (RTTW) cycle call out moments for students to process and share their learning. These individual and collaborative moments in any high-quality curriculum lend themselves to effective blending. For example, you can use tools like Jamboard or Padlet to post individual thoughts on a text-dependent question before launching into a class discussion. As the TDQ lifts up an important moment of understanding, a blended tool helps students see a range of responses that can add depth and precision to their understanding. Using blended tools in this way may actually be a better way to accomplish your instructional goals of total participation and accountability. And even better, you have a digital record of every student's thoughts before the discussion and the capability to capture their thoughts again after the discussion.

Lesson 4:

Use blended approaches to personalize while protecting the integrity of the curriculum.

Some degree of student control over what, when, and how they learn is often included in definitions of personalized learning. During this project, TL staff and participating educators surfaced a combination of hypotheses and proposals about approaches to personalization that may help guide, more generally, the personalization of high-quality and content-rich ELA curriculum. These "ahas" surfaced while investigating other hypotheses so they are still in the early stages of development and should be considered "under development" as opposed to "evidence-based conclusions."

The rigorous texts and tasks at the center of high-quality curriculum are a strength. They create the opportunity for all students to engage in the critical thinking expected for their grade level. Even under the imperfect conditions created by COVID, where modifications to nearly all practices were contemplated, teachers were reluctant to modify anchor texts and tasks. Instead, they wanted to ensure their students were engaging with complex texts and tasks. Participating teachers also gained an appreciation for the analysis that goes into the choice of texts in high-quality curricula. Analyzing potential texts for measures of complexity highlighted the time and energy required to design multiple alternative and equally rigorous learning activities from which students can choose.

Together, these two noticings translated to high levels of commitment among teachers to maintaining the integrity of the EL curriculum and ensuring equitable access to it. Based on these experiences, TL hypothesizes that personalization may be better when used as a strategy to access rigorous learning experiences rather than as an approach that promotes different core learning experiences (texts, tasks) for different students.

Recommendation: Personalize interventions and enrichment opportunities but not core tasks and texts.

Start by maintaining and not compromising equitable access to a rich curriculum's topics, targets, texts, and tasks. Do not modify those elements of core instruction (specifically, what students read and what tasks they complete) that researchers like TNTP have noted have historically resulted in opportunity gaps, especially for low-income students of color (TNTP, The Opportunity Myth, 2018). With that guiding principle in mind, you can leverage technology to personalize access to those 4Ts as well as to apply and extend learning to other settings. The 4th grade example on loyalist and patriot perspectives illustrated this recommendation, where all students read and wrote about the same anchor text on loyalist and patriot perspectives (integrity to the curriculum) and then each chose a marginalized perspective to research and analyze as a personalized application opportunity.

Recommendation: Be cautious not to reduce the productive struggle for students.

Technology's speed and accuracy are alluring but they may inadvertently reduce or eliminate situations where you want your students to cognitively sweat. For example, given the recommendations above, you might be tempted to replace unit introductory activities like picture tea parties (where students make inferences from multiple artifacts/images on what the unit topic will be) with videos that directly state and explain the topic. While the blended resources could help your students build familiarity with the topic, that instructional move could also eliminate valuable opportunities for students to make predictions based on evidence. Teachers also grappled with the question of how to choose resources that build student knowledge without giving away key learning designed to be gleaned from the anchor texts. When supplementing or making modifications, a good question to ask is, "How does this affect what my students are asked to do?" If the answer points to less cognitive demand, then you may reconsider whether that change best serves your students.

WHERE DO WE GO FROM HERE?

"I think the blended literacy approach is a cornerstone to creating educational equity" (Pilot School Teacher, as cited in CPRE, 2021, p. 9). Testimonials like this teacher survey response give us hope that we are onto something. Watching school teams organically integrate elements of the TL blended literacy model when new circumstances arose, such as making culturally responsive modifications, gave us confidence to predict that these core lessons will hold up when applied in future contexts. Hopefully, these lessons and recommendations provide you with a menu of concrete ways to use the power of technology to enhance and personalize literacy learning for your students. And while the educators involved in this project answered the questions we posed with many promising strategies, this two-year journey revealed additional questions still worthy of more investigation. Two areas stand out as relevant and interesting research questions for the next chapter of this work:

• **Implications for post-COVID classrooms.** The instructional changes forced upon teachers by the pandemic produced "ahas" about the potential of technology that otherwise would not have occurred. As schools return to in-person learning settings, we encourage teachers not to abandon the lessons they have learned but rather to incorporate them into a new vision for literacy instruction. For example, let's use tools like Jamboard, Padlet, and Pear Deck to capture what students are thinking and saying during think-pair-share moments and benefit from having a digital record of those interactions. There are significant questions to be asked and answered beyond blended literacy about how best to leverage what we have learned about technology's benefits for learning. We look forward to continuing that work and learning from others who are equally excited.

• **Other hypotheses to study.** While participating teachers in this project gravitated to the two hypotheses explained in this report, all who participated were humble enough to know that other hypotheses on the potential benefits of personalized blending exist. For example, one hypothesis proposed but not pursued was to investigate how best to integrate literacy skill-building programs, such as i-Ready and IXL, into a content-rich curriculum. Teachers could explore the question: "Under what conditions can blended skill-building programs help accelerate literacy skill development in combination with a content literacy curriculum?" We encourage those inspired by this and other questions without answers to pursue those avenues of inquiry and report what you find to the field.

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