ACCELERATING LEARNING
Making the Most of iPads in Kindergarten

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Last year, my kindergarten team applied to become part of our district-wide technology initiative, which aims to foster innovative technology practices by introducing devices such as iPads and laptops into classrooms. We partnered up with the literacy specialist at our school as well as the first-grade teacher who works with students who are reading below grade level to write a grant requesting five class sets of iPads. Although at the time we were somewhat technological newbies, we set out to improve reading achievement by using 1:1 devices with our students. Incorporating iPads into our daily routines and instruction has been a journey filled with challenges, frustrations, excitement, and amazement. Over the course of our first year using iPads, through trial, error, and lots of experimentation, we have learned a great deal about ways to make the most of using 1:1 devices in the classroom in order to increase student engagement and accelerate student learning. Although I hesitate to call us experts in the field of educational technology, we have acquired a few gems of wisdom about using iPads in the classroom that are worth sharing:

- Structure, organization, and clear expectations are essential.
- The more the merrier doesn’t apply to apps in the classroom—choose wisely.
- Students like to talk, and iPads can be great “listeners” by providing students with opportunities to record.

**iPad Expectations in the Classroom**

**Expectations and Organization**

Before putting iPads into students’ hands, we carefully thought through many aspects of using 1:1 devices in the classroom. We devised organizational systems, created classroom iPad rules, and talked to our students a lot about our expectations for how iPads would be used in the classroom. We teach students the procedures for iPad use, including how to hold and carry iPads (always with two hands), when they can access iPads, and how to care for the iPads and their accessories, such as headphones and styluses. We assign students to particular iPads so they can have a record of their projects and feel a sense of ownership for their device (Clark & Luckin, 2013), so each classroom set of iPads is labeled on both the outside and inside of the case with a particular number. One teacher assigns her students a letter and uses a photo of each student’s letter as the wallpaper on his or her device to help students easily identify which is theirs to use.

In my classroom, I’ve taught students that they must complete their morning work before they can take their iPad from our charging cart. Students can choose any of the assigned apps, which are posted on the board, for independent practice until it is time to begin our first lesson of the day. The iPads are stored in students’ work buckets (plastic magazine holders), which remain on their tables, so they can easily access the tablets throughout the day. In the morning, students retrieve a set of headphones, which we store in large, plastic bags to prevent the cords from getting tangled, and those are also stored in their buckets for the day to be used as needed. Because I share my classroom with an afternoon kindergarten teacher and her students, all materials must be returned at the end of my morning kindergarten session so the next group can access them. Maintaining an organized system for accessing, using, and returning materials is key.

**App Introduction and Explanation**

It’s wonderful to encounter students who are already familiar with using iPads and navigating apps; however, students’ familiarity is often limited to games they have played on a family iPad or on a parent’s iPhone. When students inevitably bring up Angry Birds, we have to inform them that Angry Birds will not be making an appearance among our apps because we use our iPads to work when we are in class. That iPads are to be used as a device for playing is a commonly held view among young students simply because playing games has been their only experience with an iPad thus far; therefore, it is important to reorient their thinking to help them see
Because we take a structured approach to introducing apps and new projects, the process is typically smooth. However, using instructional technology is not always seamless. Some of the most difficult aspects of using technology in the classroom are the frustration that comes along with the inevitable glitches and managing all of the questions that come at once when students are trying to figure out a new app. Multiply the potential for problems by the number of students who are operating individual devices, and interruptions to the flow of instruction can be rampant. On the plus side, teachers using 1:1 devices for instruction have the opportunity to model problem solving and flexibility when they encounter bumps in the road toward technological competence. Students learn that sometimes teachers struggle too and that we don't always have all of the answers, but that's OK!

Although some technology problems or questions do require teacher attention, we employ the “ask three before me” technique to encourage students to seek help from their classmates before bringing a problem to the teacher. This strategy contributes to a sense of classroom community because students learn to rely on one another when they need help. When students help one another, it reduces the teacher stress associated with having children chanting the teacher's name repeatedly because they need help with a problem they are encountering on their iPad. It truly has been amazing to see how quickly the students become iPad experts who are capable of problem solving with their devices and helping their peers. Sometimes they even help us when we experience a puzzling moment during instruction, which creates a wonderful reciprocal learning relationship where our students are teaching us!

On my most frustrating days, I've encountered no Internet connection just as I was about to introduce how to scan QR codes for a Valentine activity that I had created and exasperated students crying during the first time I walked them through the process of e-mailing me their work. Yet we have embraced the idea that technological glitches and frustrations are likely to happen, and we try our best to accept it and move on without compromising much instructional time. For any time “wasted” on a lesson that was halted due to technological glitches or the need to put out fires in the form of individual problems encountered by students, a much greater amount of time was “saved” by the

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**Organizational Tips and Tools**

- Portable storage containers like these plastic magazine racks give students easy access to their iPads throughout the day.
- Label iPads with numbers or letters so students can easily identify which one they should use.
Last year, our phonics instruction included an activity called Quick Erase in which the teacher wrote a word on the board and then changed one letter/sound in order to see how quickly students could read the newly created word. We might start with the word *pan* written on the board, change the *n* to a *t*, and then ask students to say what new word was created. Prior to using iPads for this activity, it was difficult to monitor how many students in the group were (a) responding verbally, (b) responding correctly, (c) responding incorrectly, or (d) not participating. Once we introduced this activity on iPads using the app Word Wizard, students became more accountable for their work because they had to document the words on their screen by moving the letters needed to make the word from the moveable keyboard to the top of the screen.

When using iPads, we can ask students to hold up their devices so we can scan and see which students answer correctly versus which students need additional help. One of my team members calculated the difference between opportunities students had to respond during this activity when it was done the traditional way and how many opportunities they have to respond when we conduct the same activity with iPads. In the traditional model, students responded chorally 8 times (once per word). With iPads, students actively responded individually for each word. Thus, if 25 students each respond 8 times, that is a total of 200 active responses (responses were active because students were able to individually manipulate the letters on their personal devices in order to show the answer rather than just saying it).

Apps that function like dry-erase boards give students opportunities to show their work by writing or drawing to respond to questions, but without the hassle of dry-erase markers that inevitable dry out or erasers that go missing. Some apps also allow students to record their thinking, which provides teachers with even more information about students’ thought processes and their understanding of content. Certain app functions provide students with choices that lead to more customized work, which is also enticing for students. Even if it’s something as small as being able to select any color from the color palette to use for letter-writing practice, students like to make choices for themselves and enjoy making their work reflect their preferences. In addition, erasing or making adjustments to work on iPads is typically easy, which means students are less likely to be upset about making mistakes. When students write the wrong answer and then proceed to attempt erasing until...
Moving Beyond Drill and Practice Apps

As part of our quest to make the most of our classroom technology during our first year of implementation, our team attended a presentation on using iPads in kindergarten to see what we could learn from a teacher who was already using iPads in her classroom. The presenter introduced us to an abundance of apps—so many that it was overwhelming to view her iPad screen, which was crowded with icons amid folders that contained even more apps. Further, the majority of the apps she talked about were games that students could play. The availability of educational apps is widespread, but all apps are not created equal. Some apps that are engaging and kid friendly may not be compatible with instructional goals or may fall short in challenging students to expand their skills; therefore, it is essential to be selective when choosing which apps make the cut. One of the mottos heard often at our technology meetings is “Get your head out of your apps,” which makes us chuckle while reminding us that using iPads for education is not about collecting as many apps as possible in order to replace our instruction with time for students to work independently on their iPads. Rather, teachers should be critical technological consumers in order to find multipurpose apps that can be used as a vehicle to teach skills as well as provide students with opportunities to extend what they have learned.

Although educational apps that present instruction or opportunities to practice in game scenarios can be motivating, engaging, and fun, we prefer to select apps that (a) can be used in conjunction with instruction as opposed to solely for independent practice, (b) can be used for a variety of tasks and activities, and (c) will allow students to create unique projects and customize their work. We prefer apps that provide students with opportunities to demonstrate their understanding in open-ended ways as opposed to apps that can be “played” by randomly touching buttons, possibly without even understanding the skill or concept being practiced. Unlike the student iPads that were shown to us at the presentation we attended, our iPads contain a limited number of apps. We feel that the apps we have selected are high quality and can be applied to a wide variety of activities and used across subject areas. We do incorporate some apps for individual skill practice, but we use only a small number of game-like apps. We prefer apps that meet the aforementioned criteria because they are more versatile.

Hillman and Marshall (2009) devised a schemata for evaluating digital content using six domains: (1) interactivity, (2) digital literacy, (3) global citizenry, (4) appropriateness, (5) results, and (6) participative nature, which includes guiding questions to pose when considering which digital materials to use with young children. Their domain of interactivity highlights what we look for in apps because that particular domain focuses on digital materials that bring about critical and creative thinking, decision making, and active participation.

When selecting apps to align with instruction, it is important to consider how the use of the app will fit into the lesson and how the function of the app fits with the lesson objectives. The SAMR model, created by Dr. Ruben R. Puentedura, is a framework with four levels (substitution, augmentation, modification, redefinition) that provides a lens for viewing technology integration in the classroom (see Figure 1).

Where substitution simply replaces a typical activity or assignment with a similar one via the use of technology, redefinition, the highest degree of technology integration, provides students with learning opportunities that would not likely occur without the use of technology. When planning for the use of technology, considering the SAMR model in conjunction...
to what they have recorded as many times as needed. A great benefit to using iPads for this type of activity is the natural connection among reading, writing, speaking, and listening within a single app (Beschorner & Hutchinson, 2013). When students are given opportunities to produce digital stories that combine dictation, pictures, and writing, not only are they incorporating reading, writing, speaking, and listening, but they are also stretching themselves to higher levels of Bloom’s taxonomy by creating unique products that better represent their thoughts and ideas.

At the prewriting level, students are expected to be able talk about their drawings in order to convey meaning, yet it’s challenging for the teacher to meet with every student in order to listen to the explanations and stories that go along with their pictures. Using apps that allow students to record their explanations and stories ensures that every student has a voice and every student is heard, which is extremely validating for young learners.

Although both the SAMR model and Bloom’s taxonomy represent hierarchical progressions of complexity, not all activities need to represent the redefinition level of the SAMR model or the highest level of Bloom’s to be effective. Although we don’t want all of our activities using technology to be at the substitution level, it is important to consider how the use of individual tablets can make instruction more effective by means of increased time on task, which adds a particular benefit to the use of technology even for activities that incorporate substitution.

At the beginning of the year, we frequently use an app called Letter School that augments letter-writing practice by providing students with a hands-on experience while freeing them from having to write with a pencil (see Figure 3). Many of our students enter kindergarten without experience using classroom tools such as pencils, crayons, and scissors, and therefore it takes those students some time to develop the hand strength and coordination to use such tools effectively. The letter-writing practice students get with Letter School exemplifies the SAMR level of augmentation because the app corrects for improper letter formation; thus, students are forced to learn and practice correct letter formation. Because students can use their finger initially and work their way up to a stylus, they can begin practicing letter formation even before they are able to hold a pencil correctly. Letter School includes animation and sound effects, which are extremely engaging for students who might not otherwise enjoy repeated practice with letter formation. We have found that our
students to draw a picture, or import a picture drawn using another app, and then record themselves telling about their picture. Students are able to take ownership of their stories and practice narrative technique even before they can put words down on paper. We teach students about the specific components they should include in their narrative (i.e., what they did, first detail, second detail, and their feeling about the event) that align with our writing rubric and then instruct them to record each component or sentence separately, which results in a separate icon for each. This helps students to keep track of the four parts of their narrative. Students can then use headphones to listen to what they have recorded and, when they are ready, they can play and replay their recordings in order to write their story down on paper. Students can also add text directly to their StoryKit page by typing. When students have the ability to support the writing process by playing back what they have spoken about in their story, they are much less likely to proclaim that they don’t know what to write. In addition, because students have direct access to their own dictation, they can work more independently without relying on teacher support to help them figure out what comes next, thus they develop self-confidence as writers and storytellers.

A Few of Our Favorite Apps

Depending on what grade level and subject you teach, your need for apps may differ from those we use in kindergarten. Yet many of the apps we use were chosen because of their versatility, so it’s likely they would be applicable to your instruction as well. The Table summarizes some of our favorite apps, their cost, and how we use them in our classrooms. Many of the apps we use are free, which is wonderful. The ones that have a fee (e.g., Popplet, Book Creator) are eligible for a discount when purchased in bulk, which comes in handy when you are purchasing for a class set of iPads. We made sure to ask for additional funds specifically for apps in our grant proposal so that we are not limited to free apps; however, we found that some of our favorite apps are free and the ones we had to pay for are well worth the cost! My top three picks are described in greater detail.

StoryKit

StoryKit is one of our favorite apps for scaffolding the writing process. Most of our students begin kindergarten without the knowledge of letter–sound correspondence needed to sound out and write words, but they still have great stories to tell! We love StoryKit because it allows students to draw a picture, or import a picture drawn using another app, and then record themselves telling about their picture. Students are able to take ownership of their stories and practice narrative technique even before they can put words down on paper. We teach students about the specific components they should include in their narrative (i.e., what they did, first detail, second detail, and their feeling about the event) that align with our writing rubric and then instruct them to record each component or sentence separately, which results in a separate icon for each. This helps students to keep track of the four parts of their narrative. Students can then use headphones to listen to what they have recorded and, when they are ready, they can play and replay their recordings in order to write their story down on paper. Students can also add text directly to their StoryKit page by typing. When students have the ability to support the writing process by playing back what they have spoken about in their story, they are much less likely to proclaim that they don’t know what to write. In addition, because students have direct access to their own dictation, they can work more independently without relying on teacher support to help them figure out what comes next, thus they develop self-confidence as writers and storytellers.

Typically, I don’t introduce journal writing until after winter break; yet my students use their iPads to record “weekend news” every Monday starting in October. I teach them how to e-mail me their work, which makes it convenient to listen to their recordings and view their work from my laptop during my prep time or
We use Educreations for a variety of subjects and activities, but we especially appreciate how easily students can create projects that demonstrate content knowledge, which can also incorporate teacher-selected images and photographs that represent content vocabulary. We create photo albums in iPhoto with images that correspond to vocabulary words, which we can then share to the entire class set of iPads.

after school. I can also easily forward their work to their parents’ e-mail addresses. Not only are my students getting practice in the focus, organization, and narrative technique components of narrative writing, but also I have the opportunity to know my students on a deeper level through hearing their weekly stories. The following is an example of one of my student’s weekend news: iphone.childrenslibrary.org/cgi-bin/view.py?b=v7rn2girrb2kpdt27ft

**TABLE. Favorite Apps**

<table>
<thead>
<tr>
<th>Price</th>
<th>App</th>
<th>Classroom Uses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Free</td>
<td>Sketchio</td>
<td>Individual dry-erase boards, drawing, writing, letter practice, number practice, math equations</td>
</tr>
<tr>
<td>Free</td>
<td>StoryKit</td>
<td>Narrative dictation, story retelling</td>
</tr>
<tr>
<td>Free</td>
<td>Educreations</td>
<td>Story retelling, vocabulary practice, demonstration of content knowledge</td>
</tr>
<tr>
<td>Free</td>
<td>Pic Collage</td>
<td>Personalized collage pages with written descriptions, demonstration of content knowledge</td>
</tr>
<tr>
<td>Free</td>
<td>Skitch</td>
<td>Labeling images, sounding out words, writing</td>
</tr>
<tr>
<td>Free</td>
<td>QuickVoice &amp; Talking Tom</td>
<td>Fluency practice</td>
</tr>
<tr>
<td>Free</td>
<td>Scan - QR and Barcode Reader</td>
<td>Accessing photos, word building (based on images)</td>
</tr>
<tr>
<td>Free</td>
<td>Pages</td>
<td>Informational writing</td>
</tr>
<tr>
<td>Free</td>
<td>Keynote</td>
<td>Slideshow, presentation of content information</td>
</tr>
<tr>
<td>$4.99</td>
<td>Popplet</td>
<td>Brainstorming, organizing ideas, prewriting, main idea and details</td>
</tr>
<tr>
<td>$4.99</td>
<td>Book Creator</td>
<td>Writing, content knowledge</td>
</tr>
</tbody>
</table>
Students can easily access albums and import photos to their Educreations projects. Students can then record vocabulary definitions that match the appropriate photos or supply information about the assigned topic of study.

This year, we are concentrating our technology action research on increasing the quality of story retelling and the quantity of words spoken, particularly among our population of English learners. Each week, our students create a project on Educreations to demonstrate their comprehension of our weekly big book story. Students import photographs of the retelling cards supplied by our reading curriculum, which we have preloaded on their iPads, and they record their description of what happened in the story using the photos as prompts. The following is an example of an Educreations project that was created about a story called *Move!*, which described different ways that animals can move: [www.educreations.com/lesson/view/leo/14052224/?s=vEcvcw&ref=link](http://www.educreations.com/lesson/view/leo/14052224/?s=vEcvcw&ref=link)

We use projects in Educreations as an alternative to “turn and talk” or partner sharing because when students record their ideas, we have the ability to go back and listen to what every student has recorded in order to better monitor comprehension and the quality of the retell. Clark and Luckin (2013) note that portable individual devices, like iPads, “are not only a window for learning, but also a window through which invaluable data about the learner and their interactions can be captured, stored, and analyzed” (p. 10).

Educreations offers similar functions to StoryKit; however, it allows for only one recording per project rather than multiple recordings. Students can stop and start recording as needed and they can simultaneously record as they add photos, add pictures they’ve drawn, or draw new images on the page. The recording keeps time with any adjustments students make on the page, which allows students to highlight particular details of the images while narrating. Educreations is not as flexible as StoryKit when students make mistakes because they either have to keep going or start over rather than being able to delete one specific part of what they recorded.

**Pic Collage**

Pic Collage is an app that allows students to import pictures and design projects by arranging photos, adding text, and incorporating other design elements such as stickers, borders, and frames. Students are highly motivated by having the opportunity to select their own photos and have a lot of fun creating visually appealing projects. We often pair the use of Pic Collage with teacher-created QR codes that give students access to a bank of photos related to content topic for their Pic Collage project. Students have time to view and select the photos they want to include, which results in end products that are unique. Students that attend our reading intervention program created a Pete the Cat project to demonstrate their understanding of rhyming words. First they browsed through photos of the beloved Pete the Cat and then used the stamp feature to decorate the image they selected. Finally, they practiced keyboard skills by typing the word *cat* and then typing another word that rhymed with *cat* (see Figure 4).

When using QR codes, it is particularly important to preview all of the photos for that given code in order to prevent students from having access to any inappropriate photos. When doing reports on various jungle animals, we found that we had to create a specific Google image search such as “lion sleeping” in order to weed out the multitude of images of animals killing or eating prey and images that included violence or blood. Even though quite a few images will be linked to any given QR code, it is likely that students will look at every single one before selecting their favorite; therefore, it is important to do due diligence and tweak the Google search until all the images yielded are appropriate. When we learned about butterflies, students used a QR code to access many photos of butterflies. They selected three favorites, saved them to their iPad, and then imported

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**FIGURE 4. Pic Collage Example**

![Pic Collage Example](http://www.educreations.com/lesson/view/leo/14052224/?s=vEcvcw&ref=link)
students in upper grades could certainly elaborate and include a number of sentences about a given photo or photo collage, therefore increasing the complexity of the project.

**Moving Forward**

This year is our second year using 1:1 iPads in our classroom. We feel more confident about using 1:1 devices, yet we also push ourselves to continue thinking of new ideas and activities that will challenge our students and provide them with opportunities to demonstrate their understanding of content knowledge in creative ways. Although they are young, our students continue to impress us with their mastery of iPad navigation, their creative projects, and their enthusiasm for opportunities to express themselves through customization of their work.

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**References**


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**ABOUT THE AUTHOR**

Kathryn Toppel is a kindergarten teacher in the Tigard-Tualatin School District, Tigard, Oregon. She has taught preschool, kindergarten, and first grade in addition to working as a K–12 Support Services teacher in Germany. Kathryn earned a doctorate degree in Curriculum and Instruction with a research focus on how teachers can incorporate culturally responsive instructional strategies while implementing scripted curricula.