

Apple iOS 9.3 in Education: Assessment and Evaluation

Commissioned by Dell™, Inc.

Table of Contents

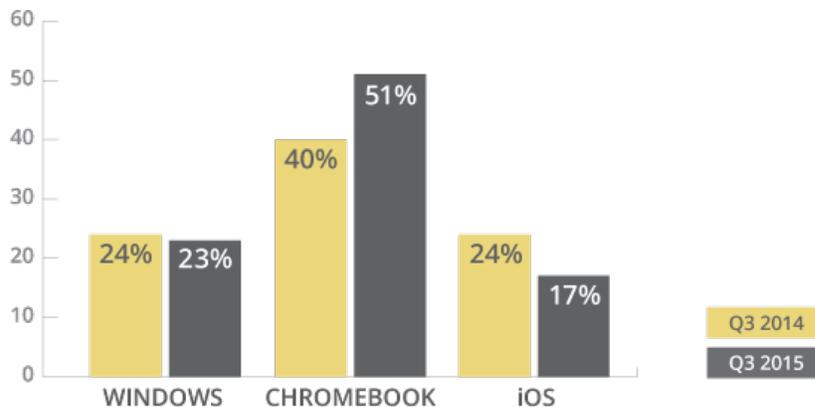
Executive Summary	3
Apple School Manager	6
Apple School Manager Requirements	6
Managed IDs	7
Shared iPads	8
Shared iPad Requirements	8
Classroom Limitations of Shared iPads in Practice	9
Classroom App	11
Features	11
Requirements	12
Using Apple Classroom	13
Starting Class	13
Creating groups	13
Conducting Class	14
Ending Class	14
MDM or Apple Classroom: Comparison to JAMF Casper Focus	15
Assessing Apple Classroom	15
Conclusion	17

Executive Summary

Apple’s new education features included with iOS 9.3 attempt to address some of the most challenging issues surrounding iPad® deployments in schools. Apple® School Manager unifies users, devices, and content purchasing in one portal and promises to enable “zero-touch” iPad deployment and configuration across large districts and allow them to create education specific Managed IDs for students and staff. Shared iPads enable schools to use iPads in non one-to-one deployments and the Classroom App empowers teachers to more closely manage student iPad use in the classroom.

The obvious question is why now? For one, Apple’s position in education is increasingly under stress. Google Chromebook™ notebook computers, with their easy management, powerful learning tools, and budget-friendly price tags, have taken the U.S. education market by storm; in the third quarter of 2015 Chromebooks surpassed the 50 percent threshold and now represent the majority of devices sold to schools. Out of the big three — Apple, Microsoft®, and Google — Apple’s market share has taken the most substantial hit, dropping from 24 percent to 17 percent over the course of one year.¹ Apple’s new education features position iPads to more directly compete with Chromebooks both in terms of management and setup and for use as shared devices between multiple students.

THE OS FIGHT



“Out of the big three — Apple, Microsoft®, and Google — Apple’s market share has taken the most substantial hit, dropping from 24 percent to 17 percent over the course of one year.”¹

¹ <http://www.futuresource-consulting.com/2015-12-K-12-Google-Chromebooks-2983.html>

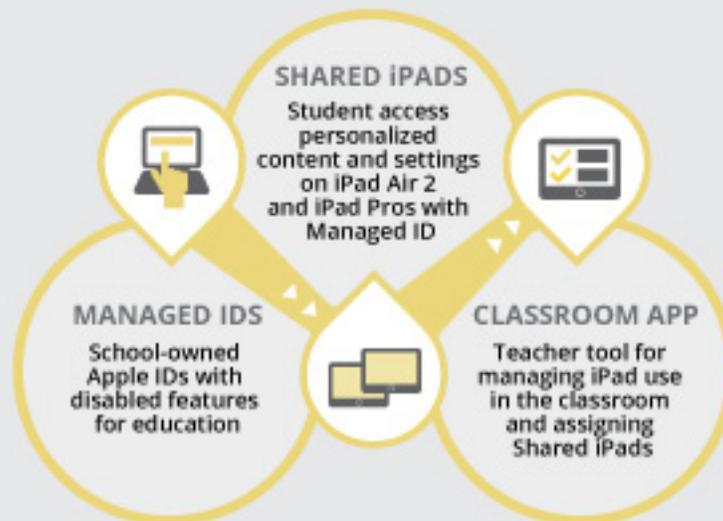
Like in the consumer market², Apple likely also wants to encourage school districts to upgrade to its latest tablets. The new features require iPads to not only run the latest operating system, iOS 9.3, but they also must meet strict memory and model requirements. In this way, Apple seems to be forcing districts to replace the outdated, yet still functioning, iPad 2s with its latest models (including the iPad Air 2 and iPad Pro).

Drawing on available information from Apple, the assessment of educators, and hands-on experiences with the Classroom app, this paper attempts to discern the reality from the promise in each of Apple’s new education features. While Apple is solving many pain points, they are likely creating new challenges to overcome. Some anticipated challenges include the following:

- Stringent device requirements to manage Shared iPads and access the Classroom App
- The comparatively high cost of iPads compatible with new iOS 9.3 features
- The limits of iPad local storage and iCloud storage
- Infrastructure and bandwidth stress with increased data syncs between cloud and devices

APPLE SCHOOL MANAGER

Portal for zero-touch deployments manages users and devices, purchases content, and connects to MDM solution



² <http://www.fool.com/investing/general/2015/12/01/more-evidence-that-apple-incs-ipad-upgrade-cycle-i.aspx>

iOS 9.3

Apple announced iOS 9.3 in early January, 2016. After a quick succession of developer beta versions, Apple released the full version of the new OS on March 21st. In the past, Apple has tended to release major updates to its OS in early fall to coincide with the launch of new products. The off-cycle release of an OS with substantial new features may seem strange to the general market, but it makes more sense to Apple’s education market.³ While iOS 9.3 included a handful of new interface features for consumers, most notably Night Shift, the most significant announcement was the series of highly requested features specifically directed at education users discussed in this paper. By releasing the new features in spring, Apple is giving educators a chance to experiment and subsequently deploy the new features in time for the 2016-17 school year. At the same time, Apple is giving its own developers time to troubleshoot and improve the features based on the feedback they receive from educators testing the initial versions.

COMPARING iPADS COMPATIBLE WITH NEW iOS 9.3 EDUCATION FEATURES, A POPULAR DELL CHROMEBOOK, AND DELL WINDOWS LAPTOP

	iPAD AIR® 2	iPAD PRO™	DELL™ CHROMEBOOK 11**	DELL LATITUDE™ WINDOWS® LAPTOP**
MDM system required	Yes	Yes	No	No
Local storage	64GB	32GB	2GB	250GB
Cloud Storage	5GB (iCloud)	5GB (iCloud)	Unlimited (Google Drive)	Unlimited (OneDrive)
Keyboard	Additionally purchased peripheral	Additionally purchased peripheral	Included	Included
Touchscreen	Yes	Yes	No	Yes
Number of users*	8	3	Up to 18	Undefined
Cost	\$479	\$579	\$219	\$449

*Assuming 7GB per user and 10GB for apps and OS

** Prices from Dell.com

³ <https://www.macstories.net/stories/ios-9-3-and-education/>

Apple School Manager

Apple School Manager brings the company's existing programs for education, including Volume Purchasing Program (VPP) and Device Enrollment Program (DEP) together in a single web-based portal. With Apple School Manager, IT staff can automatically enroll devices in an MDM and purchase apps, iBooks, and other educational content. In addition to managing devices and content, districts can now manage users by using Apple School Manager to assign Managed Apple IDs to students, teachers, and other district staff. Managed IDs allow schools to administer and supervise student accounts while also giving students access to a personalized iOS experience through Shared iPads. Apple School Manager is central to Apple's goal of attaining zero-touch deployments in schools, allowing IT staff to centrally manage users, devices, and content, all from within one portal.

School districts new to Apple can enroll in Apple School Manager via school.apple.com. However, schools that are already using DEP or have existing VPP accounts can sign in with their current account information and choose to automatically migrate their credentials over to the new program.

Like in other management services such as the Google Admin Console, the administrator, in this case the individual who sets up the account with Apple School Manager, can share responsibilities within the portal by adding managers. Different managers have different privileges. For example a People Manager can create Managed IDs but may not be able to manage devices while a Device Manager may not be able to manage users but will be able to work with DEP and assign devices.⁴ Apple School Manager also integrates with Student Information Systems (SIS) to assign mass roles to all users within a school district including instructors, staff, and students. Each of these roles also has different privileges. For example, instructors have the ability to reset passwords for Managed IDs and sign into Apple School Manager.

APPLE SCHOOL MANAGER REQUIREMENTS

The basic requirements for enrolling in and using Apple School Manager are fairly minimal. Applicant schools must be a verified educational institution and administrators and managers need to use one of three supported browsers: Safari 6.0.3 or later on OS X, Internet Explorer on Windows, or Google Chrome 27.01.1 or later. At this time, Safari on iOS is not supported.⁵

However, requirements for devices eligible for enrollment in Apple School Manager are more stringent. Any iOS device with iOS 7 can be assigned to an MDM with Apple School Manager. However, according to Apple, devices must have been purchased after March 1, 2011 and "directly from Apple . . . with a verified Apple Customer Number" or "directly from a participating Apple Authorized Reseller . . . and linked to the reseller's DEP Reseller ID."⁶ Given these requirements, it is likely that in most schools or districts, some older iPads — whether they were donated, acquired before the cut-off date, or purchased through a different reseller — will not be eligible for enrollment through Apple School Manager, in effect rendering them "useless" from a management point of view.

⁴ <https://help.apple.com/schoolmanager/#/tes97dd59159>

⁵ <https://help.apple.com/schoolmanager/#/asm6d9dc7acf>

⁶ <https://help.apple.com/schoolmanager/#/tes26a97e177>

These device requirements are just to enroll devices into an MDM via Apple School Manager. To access many of the education features of iOS 9.3 such as Shared iPads or the Apple Classroom app, teacher and student iPads must meet additional requirements.

Given these requirements, it is likely that in most schools or districts, some older iPads — whether they were donated, acquired before the cut-off date, or purchased through a different reseller — will not be eligible for enrollment through Apple School Manager, in effect rendering them “useless” from a management point of view.

MANAGED IDS

The ability to create Managed IDs is Apple’s solution to the challenges schools faced with traditional Apple IDs owned by individual students (or unable to be setup due to Federal age requirements). Managed IDs are owned by the educational institution, not the individual user, thereby enabling school staff to oversee the account, limit activities such as using the App Store, and reset passwords. At the same time, students can still use their Managed IDs to log into Shared or 1:1 iPads and access their own personalized content and settings.

Managed Apple IDs disable many common services including the following:

- App Store® and iTunes Store® (purchasing restricted but browsing allowed)
- Touch ID
- Apple Pay®
- iCloud® Mail, photo sharing, Keychain®

FaceTime® and iMessage® are disabled by default for student accounts but can be turned on by the Apple School Manager administrator or manager.⁷

While this model solves many of the school or district-level management issues, it can hamper classroom flexibility. That is, Apple School Manager is intended to be used by IT or technology staff (not individual teachers) so teachers will have to follow school-based approval processes for apps — making just-in-time installation of apps more challenging.

At this point, Apple only includes 5GB of free storage in iCloud accounts. Especially considering the storage requirements for Shared iPads, this storage amount could be problematic. Apple has made no announcement yet, but cordoning off Managed IDs gives Apple a way to increase this storage limit for education users. Given that Google and Microsoft provide their educational users with unlimited cloud storage, Apple could follow suit, not only catching up with their competition, but also making Shared iPads a more workable feature for schools.

⁷ <https://help.apple.com/schoolmanager/#/tes78b477c81>

Shared iPads

One of the most compelling features in iOS 9.3 is the ability for schools to accommodate more than one user per iPad with Shared iPads. This has long been a glaring omission from the Apple ecosystem, especially considering the ease with which Apple's competitors, Google and Microsoft, handle multiple users on Chromebooks and Windows-based devices.

Previously, districts that weren't deploying one iPad to each individual student, set up their iPads generically to be used by multiple users. However, this created many challenging issues:

- Filling local iPad storage with files from multiple students
- Providing students access to the iPad where their work is stored
- Logging in and out of account-based apps like Google Drive
- Setting up Apple's productivity apps like Mail and Notes
- Deciding whether or not to allow students to log in with Apple IDs

With the new Shared iPad feature, students can log into any supervised iPad with their Managed Apple IDs. They will immediately have access to their own files, apps, and personalized settings. While students work, the iPads "silently sync data to the cloud from apps that support cloud storage."⁸ When students log out, data will also be stored locally, making it instantly available the next time students uses the same iPad. If the same iPad is not available, students can log into any available iPad and continue where they left off.

SHARED IPAD REQUIREMENTS

An iPad needs to be set up as a Shared iPad when it is prepared and enrolled in an MDM. IT staff can define the number of students that will be able to log in and cache their data. After accounting for the size of the OS and installed apps, available storage space is equally divided between the number of users.

Based on Apple's current requirements, one could imagine that in a 32GB iPad with 10GB reserved for the OS and any installed apps, the remaining 22GB of storage would be divided by the number of defined users. With 2 students, each student would have 11GB of storage. Individual students can not surpass their allotted local storage. Meaning that in the above example, if the first student had more than 11GB of data, they would be notified that they were out of storage. If a third student signs in, the student with the oldest data is removed from the iPad.⁹

Due to the storage requirements, Apple requires Shared iPads to meet the following specifications:¹⁰

- iPad Pro, iPad Air 2 or later, iPad Mini 4 or later
- At least 32GB of device memory
- Supervised by MDM

⁸ Apple Education Deployment Guide <https://itun.es/us/fTEibb.l>

⁹ Apple Education Deployment Guide <https://itun.es/us/fTEibb.l>

¹⁰ <http://help.apple.com/deployment/ios/#/iordf071898b>

Device model requirements may make the Shared iPad feature irrelevant to many education institutions.

In order to use a Shared iPad, students need to be assigned a Managed Apple ID via Apple School Manager. At this point, access to Shared iPads is only available in education even though its utility would be appreciated in other settings including enterprise and family use.

Apple also recommends schools use Caching Server to expedite the syncing of data as students sign in and out of iPads to preserve bandwidth.¹¹

CLASSROOM LIMITATIONS OF SHARED IPADS IN PRACTICE

According to Apple, “Shared iPad offers an elegant solution for sharing devices when a 1:1 student-to-iPad ratio isn’t possible.”¹² Indeed, it does. Apple has done a good job of delivering a solution to one of education’s biggest pain points with iPad deployments. Unfortunately, its stringent device model requirements may make the Shared iPad feature irrelevant to many education institutions, at least in the near term.

In addition to the iPad model requirements, the 32GB local storage requirement can also be problematic to many education institutions. Because Apple charges a premium for extra iPad storage, schools may have historically saved money by deploying 16GB iPads.

There is also the question of which full-sized iPad to purchase if you are a district interested in leveraging Shared iPads. Unfortunately, the iPad Air 2 only has 16GB and 64GB versions. So the most economical full-sized choice is the 64GB Apple iPad Air 2, currently being sold to U.S. education customers for \$479.¹³ However, to future-proof devices, it may be wise to consider the iPad Pro 9.7” with 32GB of storage, available in education for \$579. Although districts will be compromising on storage, they will be purchasing devices with the latest Apple chipset. For comparison purposes, both of these iPad models are more than twice the price of many Chromebooks.

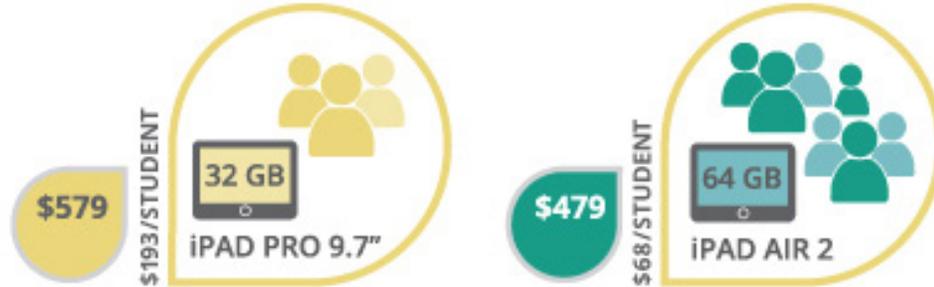
¹¹ Apple Education Deployment Guide <https://itun.es/us/fTEibb.l>

¹² Apple Education Deployment Guide <https://itun.es/us/fTEibb.l>

¹³ http://images.apple.com/education/pricelists/pdfs/us_education_institution_price_list_03_21_2016.pdf

iPAD OPTIONS COMPATIBLE WITH SHARED iPADS*

*Assuming 10 GB for OS and apps, and 7 GB of data per student



In addition to the dilemma of local iPad storage, Apple’s current 5GB of iCloud storage will also be problematic. According to Scottish education technologist, Frasier Speirs, “The more I think about it, the less Shared iPad makes sense to me unless Apple is going to provision students’ Apple IDs with much higher storage quotas than they have right now.”¹⁴ Shared iPads rely heavily on cloud storage for backing up and syncing student data between devices. If students have more than 5GB of data stored locally on a iPad, they would be unable to sync all of their data to iCloud so it is available when they sign into a different iPad. As mentioned earlier, Apple has a path to increase storage for education users, so it will be interesting to see what they decide.

According to Scottish education technologist, Frasier Speirs, “The more I think about it, the less Shared iPad makes sense to me unless Apple is going to provision students’ Apple IDs with much higher storage quotas than they have right now.”¹⁵

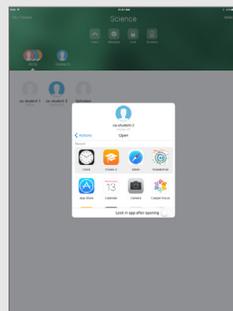
¹⁴ <https://www.macstories.net/stories/ios-9-3-and-education/>

¹⁵ Apple Education Deployment Guide <https://itun.es/us/fTEibb.l>

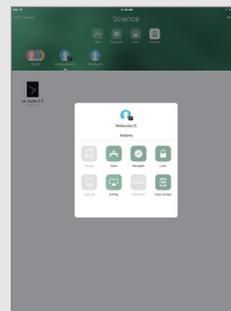
TEACHER SCREENS FROM THE CLASSROOM APP



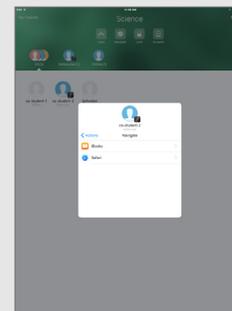
Choose between classes



Teacher actions



Control student iPads



Open websites on student screens

Classroom App

From its name, it is easy to assume that Apple's new Classroom app would be Apple's answer to Google Classroom. However, the purposes and functions of the two applications are entirely different. Google Classroom¹⁶ is a lightweight learning management system (LMS) that teachers can use to manage discussions and push out, collect, and grade assignments. Apple's Classroom app functions mostly as a classroom management tool, giving educators new tools to closely manage and control student behavior on iPads in either shared or one-to-one iPad environments.

Using Bluetooth and WiFi to maintain an open line of communication between teacher and student iPads, the Classroom app's responsiveness and intuitive user interface are impressive. Teachers will definitely appreciate the increased visibility and control. However, the lack of any meaningful attempt to include learning management features or to integrate with other learning management systems such as iTunes U[®] make the Classroom app, on its own at least, seem somewhat underwhelming.

FEATURES

The Classroom app gives teachers a variety of new controls to help them passively monitor students at work and guide them throughout class time. Some of the specific teacher actions include the following:

- View student iPad screens
- Open apps on student iPads
- Lock students into specific apps
- Navigate student iPads to a website or iBook chapter
- Lock iPads to give instructions or refocus students
- AirPlay[®] (project) student iPad screens to an Apple TV[®]

¹⁶ <https://classroom.google.com/>

The above features do not require Managed IDs setup with Apple School Manager. However, if schools are using Managed IDs, teachers can also reset student passcodes from within the Classroom interface.

In shared iPad environments setup with Managed IDs, teachers have additional capabilities. Teachers can use Classroom to assign iPads to particular students and subsequently log students out of iPads at the end of class. As students are logged out, their work is stored to the cloud, and the data will be available to

students the next time they sign in, regardless of which iPad they use. Once students have been logged out, teachers can reassign the iPads to new students.¹⁷

REQUIREMENTS

The Classroom app has slightly different iPad requirements for shared and 1:1 iPad deployments because the two types of deployments use the iPads in different ways.

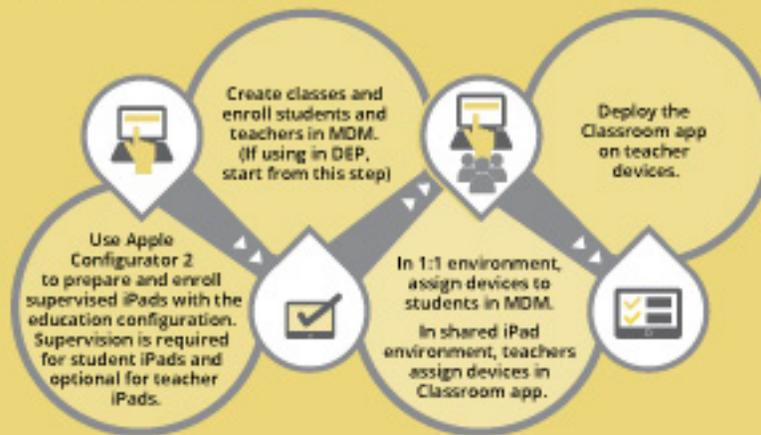
	SHARED iPADS	ONE-TO-ONE iPADS
iPad version	iPad Air 2 or later (at least 32 GB of memory) iPad Mini 4 or later (at least 32 GB of memory)	iPad 3rd generation or higher iPad Mini or later
iOS version	iOS 9.3 or later	iOS 9.3 or later
Bluetooth and WiFi enabled	Yes	Yes
Supervised by MDM	Yes	Yes
Managed Apple IDs	Yes	Optional

Because Apple Classroom requires Bluetooth 4.0 in addition to WiFi for communication between teacher and student devices, only 3rd generation iPads or iPad Minis meet the minimum device requirements. iPad 2s, which remain common in schools, are not compatible.

Shared iPad environments require iPad Air 2s or iPad Mini 4s or later with a minimum of 32GB of local storage. As student data is stored locally on iPads and in iCloud, 16GB iPads are not practical for storing data for multiple students. The minimum storage requirements will further eliminate iPads that schools previously purchased and deployed from being able to leverage the utility of the Classroom app, at least in shared iPad environments.

¹⁷ <http://help.apple.com/deployment/education/#/iorbece7afd7>

SETTING UP APPLE CLASSROOM APP



USING APPLE CLASSROOM

Apple has made the Classroom app very intuitive for teachers to quickly learn how to use effectively once it has been properly set up by IT staff in an MDM.

Starting Class

When teachers first open Classroom, they select a class from a pre-populated list of all their classes. In the case of elementary school where teachers may only have one classroom of students, Classroom will immediately open their class. Once a class has been launched, teachers see the status of students and their iPads.

Note that classes must be created and assigned to a teacher through the MDM. There is no way to create or manage classes through the Classroom app.

Creating groups

Although classes have to be configured in an MDM, teachers can keep their classes organized with groups. Once groups have been created, teachers can use the action shortcut icons at the top of the interface monitor to guide entire groups of students at one time. Classroom provides the following group options:

All

This group automatically includes every student enrolled in a class.

Dynamic

Classroom creates dynamic groups based on which apps students are currently using. For example, if half the class is using Safari and the other half is using iTunes U, two groups, "Safari" and "iTunes U" will automatically display at the top of the screen. Classroom also automates the creation of a "Low Battery" group. This is particularly useful as there is no other mechanism within Classroom for obtaining battery information without using the View Screen action to look at the battery display on iPad screens.

Manual

Teachers can create their own custom groups by selecting desired students and then adding a group.

Conducting Class

Teachers have a variety of actions to use with groups or individual students.

Open an app

Teachers select an app from a small window that displays all the apps on the teacher iPad. Teachers can choose from a “recent” section which displays the four apps teachers opened most recently; otherwise, teachers have to scroll through a list of all the apps on their iPad displayed in alphabetical order. At this point, there is no way for teachers to identify a set of favorite or most commonly used apps. Also, teachers need to have the app installed on their iPad to be able to open it on a student iPad. Conversely, if students do not have an app installed on their iPads, a fail message will display on the teacher iPad.

Lock an app

Teachers can choose to “Lock students in app after opening”. Although this will keep students in a desired app, it is not a replacement for Single App Mode (SAM) used for testing, because other assessment restrictions such as spell-checking and dictionary look up will not be disabled.

Navigate to a website or iBook

Teachers can launch a website or iBook on student iPads with the Navigate action. Unlike the Open action, teachers do not have an option to lock students into a particular iBook or website (although they do have the option to lock students into either iBook or Safari). Teachers need to create bookmarks to websites in Safari prior to launching a website in Classroom; there is no way to enter a URL directly within the app.

Lock screens

When teachers choose this action, selected student iPads display a lock message and the Home button is disabled. Students can still sleep their iPads, but upon being woken up, iPads will still be locked.

View screens

Teachers can select the Screen icon at the top of the interface to view small thumbnails of all student iPad screens. When turned on, student iPads display a blue status bar inferring that Apple is using AirPlay to share student screens with the teacher iPad. The thumbnails, while continuously updating, are not resizable and are really too small to be useful. Teachers can monitor individual student screens more closely by selecting a student and then selecting “View Screen.” Students receive no additional notification that their screen is being closely monitored.

Ending Class

In a shared iPad environment, teachers use the Log Out action to sign students out and sync student data to the cloud. Student work will be stored locally on the iPad and in the cloud, making it available to students the next time they sign into that particular device or any other supervised iPad in the school ecosystem.

In a one-to-one environment, because iPads are assigned to individual students, there is no need and no way for teachers to officially end a class. One possible consequence of this is the extra bandwidth and bluetooth usage effects of multiple teacher devices communicating with whole swaths of student iPads within range for long periods of time through the school day.

MDM or Apple Classroom: Comparison to JAMF Casper Focus

The ability to observe student screens is unique to the new Classroom app, however, many of Classroom's other features have been available to teachers using Casper Focus.¹⁸ Casper Focus is a free iPad app for districts using JAMF Casper Suite as their MDM solution.

	APPLE CLASSROOM	CASPER FOCUS
Lock screens	Yes	Yes
Launch apps and websites	Yes	Yes
Create groups	Yes	Yes
AirPlay student iPads	Yes	Yes
View battery life	No	Yes
View student screens	Yes	No
Device requirements	Shared: iPad Air 2 or iPad Mini 4 or higher One to one: iPad 3 or iPad mini or higher	Any iPad running iOS 6 or higher

On the whole, Apple's Classroom app has a more attractive user interface, and is easier and more responsive for teachers to use. But Casper Focus does have its advantages, most notably, its less stringent device requirements. In districts with iPad 2s still in circulation, Casper Focus may be the only viable option.

ASSESSING APPLE CLASSROOM

Classroom delivers what many educators have been wanting for a long time in iPad environments: the ability to more closely monitor what students are doing on their iPads. Given the mobile nature of tablets, students are likely using iPads away from the desks — reading a book in a quiet corner, snapping photos of science experiments, or collaborating with others, maybe even in a hallway. The ability to view student screens can help teachers keep tabs on all students no matter where they are, identify students in need of help, improve lesson timing, and keep students on task.

In addition, teachers will discover a variety of creative uses for Classroom's other tools. Beyond using features for their obvious purposes, such as locking iPads during instructional time, teachers will likely start applying features to streamline workflows and improve lessons. For example, teachers may save time by launching all the websites students will need during the course of a lesson at the beginning of class. The AirPlay feature will also simplify sharing student work to the Apple TV. As opposed to students having to initiate AirPlay, the teacher is now in complete control of which students present and when.

¹⁸ <http://www.jamfsoftware.com/products/casper-focus/>

One of the most impressive aspects of the Classroom app is how well it works. The combination of Bluetooth and WiFi ensures fast communication between teacher and student iPads. Teacher actions generally take less than two seconds to manifest on student devices. The Screen View feature appears to update at one to two frames per second. While this refresh rate is not sufficient to watch students perform intricate tasks in real-time, it is more than enough to give teachers a quick update on what students are working on.

Apple has also designed the Classroom app to be easy for teachers to learn without much instruction or a lengthy user manual. Once teachers' classes are correctly configured in an MDM, teachers will be able to immediately begin using the app effectively.

Even though the Classroom app works well, it is not without faults. There are a handful of small but still significant UI weaknesses. For example, when opening apps, teachers with lots of apps installed on their iPads will be frustrated by searching through a long alphabetical list in a small pop-up window. Also, when using the Navigate icon, teachers are unable to insert a URL directly, meaning they have to start the process by first bookmarking a webpage in Safari. Teachers who prefer the Chrome™ app will feel further alienated.

Another missing feature is the ability for teachers to send custom messages to student iPads. It would be useful for teachers to be able to quickly provide feedback on student work, words of encouragement, or instructions on the next steps in a lesson.

The potential for students to appear "offline" by turning off Bluetooth is also problematic. According to Frasier Speirs, "The Achilles heel of Apple Classroom right now is its total reliance on Bluetooth. If you are a student, the simple way to hide from Classroom is simply to turn Bluetooth off. This results in a total defeat of the system and is clearly something that needs to be addressed in future configuration profile options."¹⁹

Another missing feature is the ability for teachers to send custom messages to student iPads. It would be useful for teachers to be able to quickly provide feedback on student work, words of encouragement, or instructions on the next steps in a lesson. Notably, the Classroom app is a one-way communication tool; teachers can control student devices but there is no way for students to communicate with the teacher. Because the actual app is only installed on teachers' iPads, students cannot message teachers or otherwise ping teachers when they need help.

More worrisome is Classroom's dependence on being setup by IT staff through an MDM. In small iPad deployments or pilots, individual teachers may be interested in trying out Classroom, but if they don't have the MDM infrastructure to set up supervised iPads or enough IT support, many will struggle to get it set up on their own. When Classroom is configured and running, teachers may be largely helpless when problems do arise. Issues such as students assigned to the wrong classroom can not be addressed in the moment and will require IT support.

¹⁹ <http://www.speirs.org/blog/2016/4/2/1cb6akn3q5848c03d488ly2qrg6kqe?rq=Classroom%20App>

Additional concerns about Classroom surround its overall utility. As slick and responsive as the Apple Classroom app is, it does not fundamentally change how teachers and students operate in the way that a more comprehensive learning management system does. With the exception of the ability to assign devices to students and enable shared iPads, Teachers cannot do anything with the Classroom app that they did not previously have some sort of solution for. Teachers posted shortened links to a website or discussion board to have students all open the same url. They walked around the room to look at screens and monitor student work. They asked students verbally to share their work with an Apple TV. While definitely making workflows more convenient, until the Classroom app integrates with a learning platform like iTunes U, its features seem underwhelming.

Conclusion

In reviewing the latest education features of iOS 9.3, Apple has raised the bar for themselves in terms of how useful and manageable iPads can be in the classroom. With features like Apple School Manager, Shared iPads, and Apple Classroom app, diehard Apple schools will find incremental improvements which will, no doubt, be appreciated by IT staff, teachers, and students. However, for schools that have an inventory of older iPads (not eligible for these new features), lack an existing MDM solution, or are comparing with Windows and Chrome devices for deployment in their school, we feel the added cost and limited functionality as outlined in this report mean that Apple has missed the mark in providing the best technology solution for schools.

About this Report

This report was created by Clarity Innovations. We are a mission-driven, educational technology professional services firm that uses our unique, classroom-experienced team and expertise in technology to deliver content and services to corporations and learning organizations.

In order to complete this report, we replicated an education iPad deployment using JAMF Casper Suite 9.9 to manage 64GB iPad Air 2s and 32GB iPad Pros running iOS 9.3. We were able to test the Apple Classroom app on both teacher and student devices. However, because we are not an educational institution, we were not able to log into Apple School Manager, create Managed IDs, or directly test Shared iPads.