White Paper

iPads Support 21st Century Curriculum

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Abstract

Technology has revolutionized today’s classroom, whether we like it or not. Teachers are no longer the go to and end all for their students. Computers are increasingly found in secondary and even primary schools, and are also commonly found in the home. Notwithstanding the increased access to technology our schools are still tunnel-visioned in their focus on teaching critical thinking, problem solving, and other related skills, with creativity, collaboration, leadership and other valuable skills treated as an afterthought. This white paper will examine the use of iPads in education and its potential benefits when implemented successfully within a 21st century curriculum.

Successful communication of information is the hallmark of communities that need to instruct successive generations in the norms of the community as well as in the skills that are necessary for survival. Schools evolved as mechanisms of transferring knowledge to a large number of students at one time. For most of history, instructor-led training consisting of an instructor teaching a group of students, has been the norm. As technology advanced, however, it became possible for instructor-led training to be augmented by technological tools. Today’s learner is living in a digital world, and schools must incorporate the digital world as part of the daily routine, not simply view it as something that happens beyond the school. Teachers are no longer the single source of information available to students: this directly defines a 21st Century Education. The 21st Century Educator must be a facilitator, a co-captain offering guidance from experience and providing a moral compass that contributes to sound decisions. Teachers need to be cognizant of the fact that it takes time and flexibility to develop knowledge and skills. At the same time, they must consider the other pieces that include learning how to learn, interdisciplinary skills, character and personalization. Mobile devices are making great strides in providing this personalization to learners, Dr. Elliot Soloway of the University of Michigan has been very vocal about mobile devices in education and predicts that “within 5 years, every student, in every grade, in every school... will be using a mobile learning device” (GoKnow, 2010). Technology has changed today’s classroom, whether we like it or not. In my experience, a device that can assist teachers in transferring knowledge more effectively already exists. It is growing deep roots in 21st Century Education and is deemed one of the most innovative products available today. It is the iPad.

The Twenty First Century Curriculum

In recent years, the proliferation of computers in the home and the introduction of smart phones and tablets have facilitated access for many individuals. Access to a computer is now required for most college students in the same way that a typewriter was required a generation ago, and most college students—and many younger students—now have internet access through their smart phones. Computers are increasingly found in secondary and even primary schools, and are also commonly present in the home. Students now have greater access to computer
software and the opportunity as well as the need to learn various computer programs from a very young age (de Haan, 2012).

However, even with the increased access to technology our schools are still tunnelvisioned on teaching critical thinking, problem solving, and other related skills, while creativity, collaboration, leadership and other valuable skills are afterthoughts. While the hope is that, as students progress up the academic ladder, they would acquire these other skills, a recent study has shown that in the post-secondary education environment students continue to expect to learn the same skills taught in their primary and secondary schools. As a result, this places them at a disadvantage due to the fact that they may have never been exposed to some of the other skills that are crucial in forming a well-rounded individual.

Source:

Post-Secondary Education in the 21st Century: Students and Institutions, a study conducted by the Atlantic Media Company, Inc.

The Technology Integrated 21st Century Curriculum

A technology-integrated twenty-first century curriculum allows schools and teachers the ability to incorporate core skills such as critical thinking and inquiry with new global skills of collaboration and innovation. The 21st century curriculum is first and foremost interdisciplinary. It connects the local and global community and incorporates authentic, meaningful learning and assessments, engages high order thinking skills, stimulates the multiple intelligences, and uses technology as a tool to support and sustain a challenged-based classroom. “Effective technology integration is achieved when the use of technology is routine and transparent and when technology supports curricular goals” (Edutopia, 2008).

Another key component for a technology-integrated classroom is the ability to provide
differentiation, so that the 21st century educator now has the ability to equip his or her students with the resources they need to either learn more or remediate a specific lesson or skill set. It also enhances the teacher-student relationship. When technology is effectively integrated into subject areas, teachers grow into the roles of adviser, content expert, and coach. Technology helps make teaching and learning more interactive and meaningful. When offered technology tools, students are “intellectually challenged while [provided] with a realistic snapshot of what the modern office looks like” (Edutopic, 2008).

The curriculum is not textbook-driven, it is thematic. Skills and content are not taught as ends in themselves, but acquired through research, self-discovery, and application in challenge-based learning. The textbook is now considered just one of the other resources in the student’s toolkit.

Often times knowledge is perceived as a set of facts and figures that must be memorized. However, when substantial learning is occurring, knowledge must be connected to previous knowledge, to current events, life experiences, interests, passions. Knowledge must be relevant to the learner’s life or their education:

A student asks the teacher, “Why do I have to know this?” The teacher responds:

A) I have to teach to a test just memorize my outlines and you’ll pass.

B) Remember last year when you learned about ... This is the next piece and in the coming year the information you are learning today will help you in ...

The answer to the student’s question may not resemble exactly either answer choice but you grasp the general point of the problem. Often times teachers find themselves so pressed for time due to impending standardized tests or the need to satisfy knowledge goals that the connections and relevancy are lost. In a 21st century classroom a teacher would not only be able to respond with words to the student’s question but with a plethora of online resources that would enable them to see, hear and - on the iPad - touch the content allowing them to make a deeper connection.

1:1 Programs

One-to-one, or 1:1, programs are designed to provide one computer for each student in the classroom, to enhance traditional classroom curriculum, and to build computer literacy. Such programs can be expensive but offer greater accessibility than can be provided through computer labs where students must share relatively few computers. With 1:1 programs, each student gains equal time and access to additional resources not traditionally available through instructor-led and textbook supplemented learning programs (Trucano, 2010).

If implementation is planned properly, it does not dramatically increase budgets. In order to use 1:1 programs effectively, it is essential that educators set forth the objectives of their 1:1 programs. Building the computer into the curriculum and using it as a pedagogical tool is critical if the program is to be successful. It is not enough merely to provide access to students; instead, educators must recognize ways in which the computers can supplement traditional teaching
techniques through the use of hyperlinks, for example, or multimedia presentations that support the delivery of other types of information (Trucano, 2010).

**How the iPad Changed Computers in Education**

The iPad was not the first computer to be introduced into the classroom, or even the first that was put into 1:1 programs. However, the iPad's portability and ease of use has proved effective at improving information delivery. To illustrate this, one study evaluated how high school students retained information about the attacks of September 11 using traditional resources compared with students who received information presented on iPads. Once home, the students who used the iPads still had access to the multimedia sources, whereas students using traditional resources had limited access to theirs. The study showed that those students who used the iPads tested better about the event than those who relied on traditional resources, thus demonstrating that the iPad can be an effective teaching tool through its portability and accessibility (Garcia, 2011).

**iPads Support 21st Century Curriculum**

When used in a pedagogically consistent manner with the rest of the education strategy, iPads provide a significant opportunity for an enhanced educational experience. Even those learners who work well with traditional textbooks can continue to use texts on the iPad as well as supplement these with multimedia presentations, access to the Web, and the ability to collaborate with other students in order to facilitate the learning process (Valstad, 2010).

Moreover, students have shown that they themselves will develop new ways of using the iPads to expand their educational experience. iPads enable students to take charge of their own learning, and as they discover new resources and new ways of engagement, they take the lead on projects and lessons sometimes even teaching the teacher as much as the latter instructs the student. In addition, the iPads have the ability to move the educational process from the classroom so that remote learning and distance learning can take place more readily. This can be particularly helpful for students who are not able to attend traditional classrooms for whatever reason, such as those students who are injured and must spend their recovery time in the school library or off campus. As the iPad is implemented across a broad spectrum of environments, it is likely that new areas for engagement will emerge (Valstad, 2010).

iPads respond more quickly than laptops, allowing crucial additional minutes for teaching. Educational apps access to research will assist students in meeting the Common Core Standards by moving assessment from memorization of facts and disconnected processes to demonstration of understanding through application in a variety of contexts. Students find their voice as they create projects using the iPad, they learn what it is to be a contributing member of society, and carry these citizenship skills forward throughout their lives by connecting through social media with local, state, and national government and student organizations. Students acquire skills and content in a meaningful, connected way and deeper understanding is created. In fact, they grasp the content on a much higher level of understanding, and they have developed
their basic skills by constant application throughout the duration of a unit. As a result, classrooms that have implemented these kinds of programs find that their students standardized test scores have risen.

**Examples of iPad 1:1 Programs**

In 2010, the University of California at Irvine issued iPads to each of its incoming medical students. Textbooks and other tools were loaded on the devices when they were handed out. The students were able to access anatomy information that included videos and photographs providing greater accuracy than traditional textbooks, and offered supplemental information packaged in a way that was previously unavailable. When introduced, the iPads were envisioned to supplement traditional instructor-led learning and to make it easier for students to study and collaborate in groups (Murphy, 2011).

In the three years since the university began its 1:1 program, students and faculty have developed new ways of using the iPads that were not foreseen at the program's inception. Students are now regularly seen with the devices in their lab coats as they make rounds. They use the iPad to access patient records through the hospital's WiFi network and make notes and update patient information via the iPad, as well. In addition, students as well as staff physicians have noted that they are able to look up information without having to leave rounds; this enhances the level of service that the students are able to provide to patients, and improves their knowledge base, as well. In addition, students are using the iPads to explain and demonstrate diagnosis and drug protocols to patients, a feature that enhances the quality of care and extends the learning experience from teacher to student to patient (Hamilton, 2012).

iPads have also been successfully implemented in 1:1 programs in secondary schools. When Burlington High School in Burlington, Massachusetts decided to implement a 1:1 iPad program, it provided iPads to each student with the intention of having teachers create content rather than hiring professional developers. Students generally took adequate care of the iPads, with few instances of misuse, and the program was largely viewed as successful. The school did determine that electronic textbooks were viable alternatives to printed texts, but that maintaining textbooks was still an important part of the learning experience. Although the school initially believed that even electronic textbooks would be unnecessary, it quickly came to realize that the iPad offered a unique way to deliver textbooks and that these were valuable and in some cases critical to the educational experience (Marcinek, 2012).

The Westside School in Washington introduced a 1:1 iPad program for middle school students. When this program was introduced, the school focused first on identifying objectives for the program, and then on involving parents as well as students from the earliest stages. Students thought about how technology might be incorporated in their educational experience. Parents were involved in setting expectations about how the devices would be cared for while in the hands of students. Initially, students used the iPads only in class, and they were handed out and returned at the beginning and end of each class period. As students gained familiarity and proficiency with the iPads, and demonstrated that they could use them without mishandling them, the devices were handed out at the beginning of the school day in home room. Eventually, students were allowed to take the devices home with them to complement their in-class
experience. There were only a few incidents of lost or mishandled devices, and parents, teachers and students expressed satisfaction with the program (de Haan, 2012).

Conclusion

The ultimate goal is to offer meaningful opportunities to our learners as they continue on their journey towards readiness for our digital age. As with other new technologies, educators and students have embraced computers in the educational process. Students have progressed well beyond using computers simply as word processors and now depend on their computers to write papers, perform research, and extend the learning experience outside the classroom. While computers were initially experienced on a 1:1 basis by college students who had greater resources available to them, this technique is increasingly being used at the secondary and primary school level.

The iPad, in particular, offers significant advantages to schools and students in that it provides an easy-to-use device that can be preloaded with academic software and that can offer multimedia tools to achieve pedagogical objectives. The resources that are supplied for that price are far less expensive than if the school were to try to duplicate the same option without the iPad. Care must be taken, however, to ensure that the iPad is incorporated into the curriculum as part of a larger learning strategy and that students understand their responsibilities both with respect to caring for the device and the ways in which it is used. In addition, financial provisions are made for the repair and replacement of the devices.

The ways in which iPads are applied in education are still evolving, but little doubt remains that iPads will continue to be an effective educational tool. If, as Jean Piaget asserts, “The principle goal of education is to create men and women who are capable of new things, not simply repeating what other generations have done,” then it is vital that educators actively promote the use of technology in the 21st Century Curriculum. Our future requires it and our students deserve nothing less.

REFERENCES


Mr. Federico “Fredy” Padovan is a tech-savvy educator with a passion for his craft. He began working in the high school setting in 2006 and has worn many hats - teacher, moderator, musical director, to name a few. He is currently Executive Director of Development & Technology for Immaculata-LaSalle High School in Miami, Florida. He has developed effective Annual Appeals and Campaigns. He has most recently developed a 1:1 iPad program, which has been recently named an Apple Distinguished Program, to enhance the student/teacher experience. Fredy began Edjuvinator, an education, technology, innovation, and fundraising consulting group comprised of skilled educators with various realms of expertise. Edjuvinator's purpose is to offer solutions in today's rapidly changing world. Fredy holds a B.S. in Business Administration: Management, a graduate certificate in Educational Technology, and an M.Ed: Organizational Leadership and Communications. He is also an Apple Distinguished Educator. Fredy's advanced understanding of technology combined with his experience as an educator allows him to implement practical e-solutions for a student, teacher or institution.