



Tablet Initiative Proposal

To: Academic Senate
CC: Dr. Cheryl Marshall
From: Education Technology Committee
Date: May 7, 2014
Topic: Education Technology Initiative Proposal (Need Better Name)

1.0 Introduction

In the fall 2013 semester, Dr. Reece approached the Academic Senate and Education Technology Committee (ETC) with an idea: Put a tablet (or similar device) into the hands of every student and employee at Crafton. The two groups embraced the idea. The ETC has been developing a proposal since the late fall semester of 2013. This document outlines the ETC's proposed approach.

1.1 Development Team

The work associated with this proposal has been significant and required a range of expertise. Much of the work was done by a taskforce, some was done the ETC members and some done by various College or District individuals. The individuals who participated in the development of this proposal include:

Wayne Bogh
TL Brink
Kelly Boebinger
Joe Cabrales
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Gloriann Chavez
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Cyndi Gundersen
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Snezana Petrovic
Bryan Reece
Steven Rush
Mike Sheahan
Mike Strong
Jimmy Urbanovich
Margaret Yau

1.2 Requested Action

We are requesting that the Academic Senate endorse this proposal and task the ETC with the following:

- Continue developing the proposal;
- Start implementing initial work associated with this proposal;
- Provide updates to the Academic Senate each semester or more frequently if necessary.

2.0 Why Do This?

The Committee spent a considerable amount of time considering why this proposal should be implemented at Crafton. Some of the main reasons we are pursuing this initiative are as follows:

- Increase Book Availability—The fee structure we plan to use will allow for free or nearly free ebooks for all students. Books will be ubiquitous with this approach.
- Improve College Readiness—We will integrate basic skills content across the curriculum by developing a seamless integration between the classroom and the Tutorial Center (e.g., contextualized DLAs).
- Enhance Learning Environment—We will immediately bring the entire learning environment up to 21st century technology standards. This will change the in-class and out-of-class experience for students.
- Expand Communications—We will be able to leverage the contemporary communication systems (e.g., social media) students use in their personal lives.
- Track Academic Progress—With this approach, we will be able to maintain a dynamic and current student profile for each individual student. The profile will indicate levels of engagement, learning and advancement.
- Reduce Busywork—This infrastructure will allow us to automate many of the tedious activities that currently burn time—test score input, attendance records, Scantron scoring, etc.
- Integrate Assessment & Testing—We will integrate student learning assessment into the testing already used in the class. This will streamline work for faculty and generate better learning measurements from students.
- Advance Sustainability—We will be able to drastically reduce (maybe eliminate) paper-based handouts. Syllabi, agendas, minutes, reports, activities, etc. will be saved to shared drives for all to read via tablet. Much of this is already done through Blackboard, but the tablet will allow for all materials to be accessed directly in class.
- Build Campus Community—We will be able to build greater knowledge of campus activities and tighter relationships between members of our community.
- Eliminate Digital Divide—The majority of Crafton students are low income. These students are often at a digital disadvantage in comparison to middle and upper income students. This initiative evens the playing field.

3.0 Infrastructure

For this initiative to be successful, there are infrastructure issues that need to be addressed. These issues are discussed below.

3.1 Wireless Campus

For this initiative to be successful, Crafton must be a wireless campus. Every space (except for parking lots and similar areas) needs to have 24/7 wireless access. The campus has significant wireless access already, but it is not at 100% build out. To expand wireless to full capacity, we will need to spend an estimated \$50,000 upfront and will need to support the systems with an estimated annual cost of \$15,000.

3.2 Smart Classrooms

To realize the classroom potential associated with this initiative, we need all instructional spaces to be “smart.” To begin, we will need to reach an agreement on the technology standards that define a “smart” classroom? For example, some classrooms may already have computer stations with Internet access and projectors, but they don’t necessarily work with tablet technology. And once we have reached consensus on the standards for “smart,” we will need to recognize that our classrooms have varying degrees of technology. Some may be at an acceptable standard. Some may be close. Some have no technology integration at all. To reach 100% smart, we will need to spend an estimated \$100,000. Once we have achieved the 100% level, we will need to maintain each classroom at an estimated cost of \$350-\$400 per year, per classroom. As new classrooms come online with new construction, it is estimated that we will need to spend about \$35,000 per year to maintain our smart classrooms.

3.3 *Tablets*

There are three dominant operating systems that largely define the tablet market: IOS, Android and Windows. These operating systems are developed and supported by Apple, Google and Microsoft respectively. Each operating system offers a tablet experience with smart phone and pc interoperability. In developing this proposal, we have considered three approaches:

- Adopt one tablet and one operating system as our standard.
- Adopt one operating system but allow for a range of device choices, as long as they are specific to the standardized operating system.
- Allow for all three operating systems and a range of device choices.

We generally prefer the most flexible approach and recommend Crafton move in this direction; however, there are financing restrictions and implementation details may require that we do this in a phased approach.

Phase One—Students and employees will be provided with a common tablet (e.g., Dell Latitude). The tablet will operate on a Windows platform and come fully loaded with MS Office, Blackboard Mobile (or browser based equivalent) and other software deemed important for a successful implementation of this initiative.

Phase Two—Once we have resolved the initial costs associated with the startup of this initiative and have mastered the systems and support associated with phase one, we will develop a plan for moving to phase two. During phase two, Crafton will add support for Android, IOS and related devices.

If we are able to resolve the upfront financing issues (see budget section), we may be able to skip phase one and start immediately with phase two.

4.0 *Services*

Several services will need to be developed and in place for this initiative to be a success. These issues are discussed below.

4.1 *Training*

In the spring 2014 semester, CHC will be selecting a Professional Development Coordinator. The Professional Development Committee is taking the lead on the selection process. The position will be funded at 0.5 if a fulltime faculty member takes the position and equivalent pay will be provided if a part-time faculty member takes the position. An initial responsibility of the Coordinator will be to develop a comprehensive PD plan, including all employee training needed to support this initiative.

The Bookstore may provide an online web tool via the store website that gives students a step-by-step process for starting up and using their tablet. In addition, the Bookstore will provide one-on-one service at store counters.

4.2 *Technical Support*

Technical support for all tablets will be provided via phone and online through the manufacturer(s). Costs associated with this service will be built into the cost of the device. Similar support will be offered to all employees; however, they will also have the ongoing technical support customarily provided by the Technology Services department.

4.3 *Warranty Support*

Warranty support will be built into the purchase price of all tablets. Students will be able to process the warranty through the Bookstore. Employees will process their warranties through the Technology Services department.

4.4 Distribution of Tablets

The distribution of tablets to employees will be handled the same way all other computing technology is distributed. Equipment will first arrive in the Technology Services department for processing. From there, equipment will be delivered to employees.

With regard to students, the Bookstore will most likely be responsible for the distribution. This will be done by an online or printed verification process at the Bookstore Service Counter. The students will be responsible to have their online/printed verification of payment; they must present ID and will sign some type of release notice stating they received their tablet. The Bookstore will not handle any type of payment; they are just the distribution center. The operational costs of this process are essentially the same as the current costs associated with selling textbooks.

4.5 Peripherals

Peripherals are electronic accessories for computers, laptops, tablets and cell phones, including items like: keyboards, headphones, chargers, mice, printers, printer cables, scanners, cameras, flash drives, stands, etc. These items (especially those associated with tablets), may be sold through the bookstore at retail to students. This is similar to how the Bookstore sells school supplies. The Bookstore already carries an assortment of cell phones and tablet accessories, but will likely expand in this area.

5.0 Agreements/Partnerships

For this initiative to be successful, Crafton will need to develop contractual partnerships or negotiated partnerships with two key industries. These issues are discussed below.

5.1 Tablet Partnership

Our goal is to operate as a platform neutral campus. We want faculty and students to have the option to choose from the three dominant operating systems that largely define the tablet market: IOS by Apple, Android by Google and Windows by Microsoft. Under this approach, we will negotiate with three hardware manufacturers to offer the best price possible for our students. We will need to negotiate with Apple for the iPad—Apple is the only manufacturer of an IOS tablet. We may be able to negotiate with one manufacturer for the Windows and Android platforms. Dell for example offers a tablet product for both platforms. Samsung and others do the same.

5.2 eBook Partnership

To provide ebooks for free (or nearly free) to students, Crafton will enter a contract with an eBook vendor or negotiate directly with publishers. The idea is to purchase all ebooks directly from a vendor or publishers and use the approach to negotiate deep discounts for Crafton. Instead of having students purchase books individually, faculty will order ebooks and the College will pay for books in a single payment model. These partnerships will need to include the supplemental materials many faculty use in conjunction with their books (MyMathLab, MyProgrammingLab, Aplia Economics, etc.). We will also need to provide a solution for faculty that use materials that do not have eBook versions or come from very small publishers (e.g., Zyante.com). This may require an e-publishing service offered through the Bookstore in a similar way that custom publications and course packets are provided.

6.0 Teaching-Learning Apps

This initiative is intended to enhance the teaching and learning experience by automating labor intensive processes or adding solutions that do not currently exist. Mobile app development costs have many variables including complexity of the app and whether it is single or multi device compatible. Simple apps (lists, tables using extract data) could take minimally 6 months and cost minimally \$50,000. More complex apps that integrate with enterprise systems will take considerably more

time and minimally cost \$150,000. Additionally, there will be on-going costs to update and maintain a custom application. Considering the district does not currently have the personnel resources for mobile app development, contracted services would need to be considered based on project needs and financial resources. (Resource: <http://www.formotus.com/14018/blog-mobility/figuring-the-costs-of-custom-mobile-business-app-development>) Apps that will be developed or acquired during the initial phase include the following.

6.1 Blackboard Mobile Learn

Since the Blackboard Learning Management System is a web-based platform, any computing device that has an internet connection and browser will be able to access the District's Blackboard site (<http://sbccd.blackboard.com>). The compatibility of Blackboard features and web-browser varies according to the browser and current version of the District's platform. Current information of browser compatibility for our version (Bb 9.1.10) can be found here: https://help.blackboard.com/en-us/Learn/9.1_SP_10_and_SP_11/Administrator/003_Browser_Support_SP_10 The Blackboard Mobile Learn application extends the Blackboard Learning Management System platform by providing access to some course features on mobile devices. The app is natively available for iOS and Android devices. The Blackboard Mobile Learn App natively supports the following features: Announcements, Blogs, Content, Discussions, Student Gradebook Views, Journals, Mobile Tests, Roster, and Tasks. Students and faculty are able to view and/or create items for natively supported features within the app. Non-native features, such as Assignments, GradeCenter, and Email are displayed via the device browser. Currently, the District enables the Personal License of the Blackboard Mobile Learn App. The Personal License requires the institution to enable a free building block and users are required to purchase a one time fee of \$1.99 if they choose to use the app. Blackboard Mobile Learn also offers an institutional license. The institutional license would be an annual cost based on total student FTEs. The institutional license would eliminate the fee for users and make the app available to Blackberry and WebOS users.

6.2 Student Profile App

Research and Planning is developing a student profile tool which will present students with their academic profile at Crafton. This will include an assessment of the student's engage, learn and advance levels. This tool will need to be further developed for delivery to/through the student's tablet. This will require custom app or web-based product development.

6.3 Class/Event Attendance Solution

Blackboard does not currently have an in-system automated attendance solution. There are work-around solutions for faculty to take attendance by setting up a grade center item and giving credit to students who are present in class (in face to face settings) or creating an online assessment item (test item, assignment, etc.) and have students complete the assessment to receive attendance credit. There may be free building blocks for the Blackboard system but they would need to be tested for compatibility with our current setup and additionally most customized, free building blocks are generally "as-is" and most do not provide support and technical assistance. There are classroom attendance tracking systems, such as AccurClass (<http://www.engineerica.com/accuclass>) but these systems are stand-alone and do not integrate with learning management systems. Thus, there would be additional costs to try to integrate/automate the process to the Blackboard system and train faculty and instructional support staff.

6.4 Contextualized DLA App

The Tutorial Center, Math, English and Reading Departments are developing contextualized DLAs (directed learning activities) to integrate basic skills instruction across the curriculum. The solution will allow faculty to assign basic skills assignments that are specific to their courses but administered through the Tutorial Center. Students should be able to complete these assignments on their tablets. Tutorial Center staff should be able to process the DLAs from tablets and communicate results/completion of the DLAs back to faculty. Blackboard's mobile tests are limited in the types of questions that can be answered through the Blackboard Mobile Learn App. However, full feature tests can be taken through Blackboard via a web browser. Testing through Blackboard would allow the students' results to be recorded in the course grade book area. Time and personnel resources will be needed to create the DLA tests and develop and maintain the Blackboard course. Time and costs would be similar to development and staffing for an instructional class.

6.5 Assessment/Testing Solution

With tablets in class, a comprehensive testing solution needs to be available to faculty. The solution should allow for tablet based testing with automatic grade uploading to the Blackboard gradebook. The solution should integrate with publishers' exam banks and the solution should process backend assessments and analytics that allow for embedded SLO assessment. Most computer-based testing solutions are standalone-systems. Additional costs that may be incurred include development of a building block to allow for Blackboard integration and SLO mapping. Additionally, acquiring a computer based testing solution would require training of faculty and staff support on using the software.

6.6 Audience Response App

An audience response system should be available for all faculty. This will allow faculty to conduct polling in the class using student tablets. Many software exists to allow use of mobile devices as a response tool, including PollEverywhere, Socrative, and TurningPoint Technologies. It would cost \$2000+ for an institutional wide plan. Variables in the costs will include the Learning Management System integration, security features, device compatibility, and single sign-on functionality.

6.7 Document Sharing Solution

A cloud-based document sharing solution should be available for students and employees. Many solutions already exist here through Gmail, Google Drive and Blackboard. For additional storage space than what is available now, additional costs will be needed. Due to data management, and privacy issues discussed in section 8.3, document sharing solutions should be addressed at the district level and managed through the TESS and campus' IT departments. An analysis of current systems used by students and employees is needed to see if add-on document sharing solutions are available. Costs will include cloud and offline storage.

6.8 Classroom Specific Apps

Faculty will inevitably innovate with these devices in their classrooms. Some of these innovations will require apps that faculty and students need to download. How these costs are to be handled is still in discussion.

7.0 Cost and Savings Considerations

This initiative will redistribute a significant amount of money. The major areas of savings and revenue generation are discussed below.

7.1 Book Savings for Students

Cost of Books—To provide ebooks for free (or nearly free) to students, Crafton will enter a contract with an eBook vendor or with publishers directly. The contact(s) will require an annual fee. In exchange for an institutional payment, the vendor/publishers will provide textbooks to student and faculty tablets. The industry national average spending of a full time community college student on textbooks annually is \$700.00. If a student takes 3 years to complete their AA degree, they will have spent approximately \$2,100.00 on textbooks they purchased at retail prices.

- Estimated Annual Book Cost Savings per Student = \$700
- Estimated Annual Books Cost Savings for the CHC Student Body = \$4,200,000 (6,000 students x \$700)

7.2 *eBooks Costs*

The books savings to students is contingent on Crafton entering a contract with an eBook vendor or with publishers directly. Under this contract, Crafton will purchase all books with one payment per semester to the vendor/publishers. It is estimated that Crafton will be able to pay an average of \$50 per eBook with an estimated purchase of about 40,000 eBooks per year. This will carry a cost of about \$2,000,000 per year.

- Estimated Annual Expense = \$2,000,000

7.3 *Tablet Costs*

Tablets cost an average of \$500. If we purchase them in volume, we will pay less. To jump start the program, we will need to purchase and distribute about 6,000 tablets. To maintain the program, we will need to purchase and distribute about 2,000 per year.

- Estimated Initial/Startup Cost = \$3,000,000 (6,000 x \$500)
- Estimated Ongoing Annual Cost = \$1,000,000 (2,000 x \$500)

7.4 *App Costs and Royalties*

This program will require the purchase and development of tablet-based applications (see section 5.0 for details). These will be needed to realize many of the goals established at the top of this report. There are a few custom apps we will develop through this initiative (e.g., Student Profile). If these apps are developed with a larger higher Ed market in mind, we may be able to generate income through a royalty agreement. Many revenue models could be considered for mobile apps, including commissioned apps (made for hire), subscription based, and pay per download (one-off payment for app). Further research is needed to see what business model is appropriate for app royalties. Additionally, in September 2013, the California Community College Board of Governors voted to require any work created under contracts or through state grants will have to have a CC-BY creative commons license. This in effect enables material (including coding) accessible to the public for free and provides permissions to reproduce for any purposes as long as the original creator is credited. (<http://creativecommons.org/tag/california-community-colleges>). A better understanding of how this would affect this initiative is needed.

- Estimated Annual Earnings = \$TBD
- Estimated Start-up Costs = \$100,000
- Estimated Annual Costs = \$100,000

7.5 *Peripherals Earnings*

Tablets will not come with peripherals. These can be sold through the College bookstore. These may include digital pens, Bluetooth keyboards, audio equipment, carrying cases, etc. The Bookstore forecasts approximately \$250,000.00 a semester in peripheral sales, a total of \$500,000 per year if every student spends an average of \$50.00 a semester on electronic accessories through the bookstore.

- Estimated Annual Earnings = \$500,000

7.6 *Paperless Savings*

With tablets in the hand of every employee and student, we will be able to move in a more sustainable direction by reducing paper consumption. At a minimum, we should be able to eliminate most paperwork associated with committee meetings (agendas, minutes, handouts, etc.) and most paperwork distributed in classes (syllabi, assignments, quizzes, etc.). The college currently uses about 520 cases (6,200,000 sheets) of paper per year. At an estimated cost of 0.10/page

(delivery, storage, printing, filing, etc.), we could realize significant saving by utilizing tablets to reduce paper usage. For example, if we are able to reduce paper consumption by 50%, we will generate a savings of \$310,000 per year.

- Estimated Savings = \$310,000/year (see above)

7.7 Technology Fee Earnings

The legal permission to establish technology fees is new. The approval for this fee was established collaboratively between Butte College and the state Chancellor's office in 2011. The Crafton technology fee is proposed at \$250-\$300 per semester and \$100-\$150 per summer session. The fee will be used to offset costs associated with this initiative (tablets, ebooks, smart classrooms, wireless campus, etc.). It is estimated to generate between \$3,000,000 and \$3,800,000 per year. Many details need to be worked out with regard to this fee. It is intended to be a mandatory fee. It may include a reduction for part-time students.

The fee will be established as a mandatory fee for a few important reasons. As an optional fee, the fee would not be financial aid eligible. This would place an unfair burden on students of low income (a majority of Crafton students), veterans and other students receiving financial aid. In addition, the fee covers an infrastructure that will benefit all students—it is fair that all students share the payment. As with other fees, the technology fee will be fully refundable through the second week of the semester if all classes are dropped.

- Estimated Annual Earnings = \$3,000,000 and \$3,800,000

7.8 Bookstore Revenues/Loses

The Bookstore is an important part of the College. It is essential that they continue to realize a revenue stream as traditional book sales are replaced with this initiative. The Bookstore estimates it will generate approximately \$500,000 annually on the sales of peripherals and sales of other products by the increased traffic flow. Currently textbooks contribute \$1,140,000.00 in sales to the Bookstore; we would be losing an additional \$500,000. The \$500,000 may be augmented with a markup on tablets (similar to the markup on books), an augmentation from the student technology fee, or a reduction in operational costs by cutting staff, related directly to the decrease in operational work load with the loss of handling the textbook receiving/sales processes. The Bookstore would only be involved in the distribution of the tablets and support services for the program. We would/can still be the middle man in managing the course materials needs of the faculty and forwarding it to the eBook Vendor. The Bookstore would not have any financial accountability with the eBook vender (covered in the District contract and funded by the student technology fee). We would no longer be the purchasing agent for course materials, but more of a Campus Convenience Store.

7.9 Pilots Costs

To successful launch this program, Crafton will conduct a series of pilots in the 2014-15 year. To pay for these pilots, Crafton is leveraging some of the Basic Skills Initiative Grant, Foundation funding and Left Lane expansion funding. The total cost of the pilot program is estimated at \$100,000.

- Estimated Pilot Cost = \$100,000

7.10 Technology Infrastructure Costs

There are two major infrastructure costs associated with this program: smart classroom and wireless campus. The details associated with both are discussed in section 2.0. Both infrastructure pieces will require initial upfront expenditures and ongoing maintenance expenditures. We are not at a 100% wireless campus to date and need to spend an estimated \$50,000 to reach this requirement. We are also not at 100% with regard to smart classrooms/instructional spaces and will need to spend an estimated \$100,000 to reach 100%. Once we have made these initial investments, we will need to maintain the wireless campus and smart classrooms at an annual estimated rate of \$15,000 and \$35,000 respectively.

- Estimated Initial Wireless Campus Expenses = \$50,000
- Estimate Initial Smart Classroom Expenses = \$100,000
- Estimate Annual Ongoing Wireless Expenses = \$15,000
- Estimate Annual Ongoing Smart Classroom Expenses = \$35,000

7.11 Personnel Costs

To support this program, we will need to add two FT classified positions. One position will be for handling all the additional technology work/support that will come with this program. This position will likely need to report to Crafton’s IT department. The second position will be for handling the coordination associated with this program. The position may report to the Instruction Office. Both positions will need to be in place before the inaugural fee is assessed. This leads to start-up costs and annual ongoing costs.

- Estimated Start-up Cost for FT IT Classified = \$100,000
- Estimated Start-up Cost for FT Program Coordination = \$100,000
- Estimated Annual Cost for FT IT Classified = \$100,000
- Estimated Annual Cost for FT Program Coordination = \$100,000

8.0 Policies and Procedures

A few policies and procedures will need to be developed around this initiative.

8.1 Expand Academic Freedom

Nothing in this initiative restricts the academic freedoms stipulated by Board Policy #4030 (lines 38-46). The policy defines faculty freedom in determining how a course is to be taught and this initiative maintains that freedom. On the other hand, this initiative may actually expand those freedoms by reducing the clerical and busy work that so often crowds the faculty member’s experience. Faculty will not only maintain freedoms to teach according to their professional discretion, but will find an expanded set of teaching tools available. Textbook selection will continue to be in the complete domain of faculty; but now with tablets, faculty may opt to require more internet exercises and/or expand readings, knowing that textbook costs are no longer a prohibition to students.

8.2 Establish Tablet Ownership Parameters

Students—All students attending Crafton will receive a new tablet at the beginning of their first semester and will own the tablet outright after three consecutive terms. If a student only attends for one semester, the student may return the tablet or pay for the remaining balance and own the tablet outright. Students are eligible for a new device after six terms.

Fulltime Employees—All fulltime employees will be issued a new tablet every 30 months. Tablets remain the property of the College (similar to pc policy). If a fulltime employee leaves the college, the tablet will remain with Crafton.

Part-time Employees—All part-time employees (including adjunct faculty) will be issued a tablet while they are employed with the College. They will receive the same tablet considerations as fulltime employees. When a part-time employee leaves the college, they will be required to return the tablet to the College. If a part-time employee has been employed during the spring semester and can verify that they are slated for ongoing employment in the fall semester, the employee may keep possession of the tablet throughout the summer.

8.3 Protect Privacy

Tablets on campus will require a review of current policies and most likely create additional ones related to data and asset management, security, employee and student privacy rules, and labor relation concerns regarding hours and conditions of employment. Additionally, notice of policy and training of personnel and students will be required.

9.0 Social Justice Solutions

Community colleges are great resources for addressing social justice issues. This initiative will provide the college with a new set of tools and solutions that speak directly to these issues.

9.1 Expand DSPS Accommodations

With a tablet in every hand, Crafton's capacity to accommodate students with disabilities will expand. Students with visual challenges will be able to hear text read back to them with digital audio solutions and fonts can be increased to extremely large sizes. Students with disabilities related to hearing can consume material with embedded annotations. This section needs further development from DSPS.

9.2 Enhance ESL Related Services

Translation tools for eBooks are now very strong. As we move into an eBook environment, students who speak English as a second language will be able to consume course materials in their first language.

9.3 Lessen the Digital Divide

The majority of Crafton students are low income. These students are often at a digital disadvantage in comparison to middle and upper income students. This initiative evens the playing field.

9.4 Broaden Distance Education

Many residents in our service area would like to attend college online, but often find themselves without the basic technology needed to take online courses. With a tablet in hand, more students will be able to pursue online instruction. Throughout this initiative, we will monitor tablet technologies to assure compatibility with the requirements of our Learning Management System (e.g., Blackboard).

9.5 Leverage Financial Aid Opportunities

This fee is eligible for financial aid as long as it is a required fee. The actual money financial aid students do receive allows them to purchase peripherals, applications and anything that is considered contributing toward their education. The student budgets consist of fees, books, supplies, food, housing, personal, and transportation. With a minimum 6 unit load (per semester), the items listed above can be paid with funding received through the Department of Education.

10.0 Roles and Responsibilities

Once we have this initiative up and running, we need to institutionalize it by embedding support across various departments. Essential departments/committee in this effort include the following.

10.1 Ed Tech Committee

The ETC will play a primary role in the ongoing evaluation and development of the program. This program will need regular assessment and corresponding recommendations for improvement as it develops. The ETC will play a fundamental role in this capacity.

10.2 Financial Aid Office

The fee (as long as it is a required fee) is eligible for financial aid; however, there are a few complications to consider. Students who register are immediately assessed the fee; however, students do not receive their financial aid money until the first week of class. We need to come up with a strategy to address this.

10.3 Technology Services

Technology Services will provide the backbone support for this initiative. They will maintain the wireless infrastructure, support smart classrooms and assist all employees with technical issues related to their tablets. Contracts/negotiations with hardware manufacturers will be handled through this office. This office will monitor, track, collect and distribute tablets for all employees.

10.4 Bookstore

The Bookstore will continue to be responsible for the collecting of course material needs from the faculty and forwarding that information to ebook vendors. Distribution of the tablets will be an ongoing process along with the sales of electronic accessories. Customer service/training will be an ongoing activity. Because the bookstore will not be responsible for any of the maintenance/upgrading of equipment, they do not see as significant change in their role after implementation of the tablet initiative. The Bookstore will monitor, track, collect and distribute tablets for all students. Tablet usage training will be provided through the bookstore.

10.5 Teaching and Learning Center

The Teaching and Learning Center will assume primary responsibility for employee training. This will include training for existing services and solutions. The TLC will also explore new practices that emerge and wrap the most promising into the Center's professional development programming.

10.6 Technology and Educational Support Services (District)

The Distributed Education Department will work with the campus' professional development department to support the training of faculty and employees. Information Technology will work with the campus' Technology Services to manage the core technology infrastructure and ensure the campus' technology and services are compatible with the district systems and policies. This office will assist with app integration and development.

10.7 Instruction Office

The Instruction Office will oversee the development, implementation and ongoing operations of this program. Contracts/negotiations with publishers will be handled by the Instruction Office.

11.0 Approval/Decision-Making Process

This initiative is big. It touches all aspects of the campus and includes a series of technical and complex implementation challenges. To get this right, we need to use our collective expertise; we need to use a shared decision-making process. Groups that will weigh in on this proposal include the following.

Decision-Making Calendar			
Office/Committee	Action	Date	Outcomes
Tablet Initiative Taskforce	Finish Writing Initial Plan	4/21/14	Submitted to ETC on 4/21
Ed Tech Committee	Comment/Accept/Reject Initial Plan	4/25/14	Submitted to Senate on 5/02
Academic Senate	Comment/Accept/Reject Initial Plan	5/7/14	

Executive Cabinet	Comment on Proposal		
Managers	Comment on Proposal		
Classified Senate	Comment on Proposal		
Student Senate	Comment on Proposal		
CTA	Comment on Proposal		
CSEA	Comment on Proposal		
DAWG	Comment on Proposal		
Crafton Council	Comment on Proposal		
District Cabinet	Comment on Proposal		
Academic Senate	Incorporate Comments into Final Proposal		
CHC Student Body	Accept/Reject Proposal		
CHC President	Accept/Reject and Forward to Chancellor		
District Chancellor	Accept/Reject and Forward to Board		
SBCCD Board of Trustees	Accept/Reject		

12.0 Budget

The estimated budget associated with this program is summarized below.

Expenses			
Item	Discussion	Start-Up Costs	Annual Costs
Tablets	Put a tablet in every hand	\$3,000,000	\$1,000,000
eBooks	Deliver ebooks at no cost to students	\$0	\$2,000,000
Apps	Need a suite of apps to realize the program goals	\$100,000	\$100,000
Wireless Campus	Establish wireless in all areas except for parking lots	\$50,000	\$15,000
Smart Classrooms	Equip every instructional area with smart equipment	\$100,000	\$35,000
Pilot Projects	Conduct pilots in 14-15 year	\$100,000	\$0
Program Coordinator	Add 1 FT employee	\$100,000	\$100,000
IT Support	Add 1 FT employee	\$100,000	\$100,000
<i>Subtotal</i>		\$3,550,000	3,350,000

Income		
Item	Discussion	Annual Income
Technology Fee	Mandatory student fee	\$3,500,000
Paperless Savings	Go digital with paper (realize 50% reduction)	\$310,000
App Royalties	Custom apps may have market potential	TBD
<i>Subtotal</i>		\$3,810,000

13.0 Implementation Timeline

We will not be able to implement all of this proposal out of the gate. A tactical plan is in development modeled around a phased approach. For example, during year 1, students and employees get devices with books; year 2, we roll out the academic tracking; year 3 etc. This will be thoroughly developed during the fall 2014 semester. General implementation milestones include:

- 2014-15: Conduct Pilots, Run Focus Groups, Do Research and Secure Approvals
- 2015-16: Roll Out Phase One
- 2016-17: Roll Out Phase Two
- 2017-18: Roll Out Phase Three
- Etc.

14.0 Common Concerns and Questions

14.1 *If a student already has or doesn't want a tablet, do they still have to pay the fee?*

Yes. The fee covers the tablet and all the infrastructure around this program including book fees, app costs, smart classrooms, wireless campus, support, faculty training, etc. In other words, the fee covers much, much more than just a tablet.

14.2 *How does this apply to a student takes only one class? Part-time?*

We are looking into a smaller fee for part-time students. We need to run the numbers on the smaller fee and how this impacts the overall budget.

14.3 *Can we chose IOS, Windows or Android?*

Yes. This program is designed to be platform agnostic.

14.4 *What if the faculty member does not want the tablet in class?*

We suspect no faculty member will do this because of all the benefits to the classroom; however, the classroom is the domain of the faculty member. If a no-tablet policy is in place for the classroom, students will not be allowed to use the tablet in that class period. They will be of course permitted to use it as much as they want outside the classroom.

14.5 *Will there be restrictions on the books faculty adopt?*

Faculty will have the same freedom of choice they currently enjoy. If they are using a book with no ebook option (this is highly unlikely now), the program will provide a way to create an eBook from the traditional copy. This will include required publisher negotiations.

14.6 *How are we going to secure \$3.5M in start-up costs?*

TBD

14.7 *Do part-time employees receive tablets?*

The intention is "yes." We are still working on the implementation details.

14.8 *What happens if a student loses or damages the tablet?*

All tablets will come with warranties (e.g., 2-year warranty). Any damages or loses that happen outside of the warranty coverage are the students' responsibility. This is the same that applies to all other materials students own. If students lose a book, bag, folder, calculator, etc., the College is not liable.

14.9 *What happens if it is required for class (e.g., exam) and the battery goes dead?*

This is the responsibility of the student. Many classes required the use of materials (calculators, art supplies, instruments, etc.). If a student does not meet this responsibility, the faculty members has the academic freedom to apply any reasonable penalty/consequence.

14.10 *What is the name of this initiative?*

This is something we need to give serious thought and focus group attention to. The name should explain the full range of the project and capture imagination, especially student imagination.

15.0 Initiatives at Other Colleges and Universities

While this initiative will be a first of its kind for California Community Colleges, Crafton will be following in the footsteps of other education institutions that have successfully implemented similar initiatives. Examples are included below.

Baltimore County Public Schools

Information about this initiative can be found at <http://www.bcps.org/academics/devices/>. The goal is to equip every student with the critical 21st century skills needed to be to be globally competitive; BCPS must ensure that every school has an equitable, effective digital learning environment. All students will have access to a digital learning device and personalized, blended, interactive curriculum.” The initiative started at 10 schools. Students do not take the device home. They standardized on an HP EliteBook Revolve 810 G2 (combination Laptop/tablet). The device comes with accidental damage warranty. The program offered ample training for staff, students, school community, parents and caregivers.

Boise State

Information about this initiative can be found at <https://www.youtube.com/watch?v=iE3mLZ9Hedo> In the Spring 2012 mLearning Scholars, 8 faculty, and 168 students received iPad or iPod touch for the semester. Major school/faculty/student involvement – YouTube

CSU Northridge

Information about this initiative can be found at <http://sundial.csun.edu/2014/03/mycsuntablet-initiative-more-like-mycsunipad/> But what if a student has or wants to use a device apart from the iPad that has the functionality and capability to complete all the necessary course work? Why shouldn't he or she be able to use it? The simple answer for requiring the iPad is that it's safer for the university to say “if you buy this tablet, you'll be able to use it in every class.” This way, there is some uniformity for students that take multiple courses in the initiative. The iPad, however, represents only one of the four major tablet OS ecosystems, with Android, Windows and Kindle being the other three. While Apple does represent the highest market share in terms of brand in the tablet industry, it's worth noting that the research firm International Data Corporation forecasted iOS market share to decline from 45.6 percent to 35 percent over the 2013 fiscal year, and forecasts it decline further to 30.6 percent by 2017. *Students can check out iPads at the library for free, not rent them. The iPad initiative is trying to connect to the e-text initiative, not e-tech.*

Elon University

Information about this initiative can be found at <http://www.elon.edu/e-web/academics/teaching/tablets.xhtml> Smaller than a laptop and larger than a smartphone, tablet devices are used to access and display content via a WiFi or 3G connection, capture video and images, and provide easy access to software (called “apps,” short for “applications”). Tablet screens are touch sensitive, which allows users to input information using their fingers and interact with apps using gestures. Apps included with tablets allow you to browse the web, respond to email, and read books. Optional apps, some free and some for purchase, allow users to compose and annotate documents, project presentations, post blog entries, record audio, and take and organize notes. Content on your tablet can be synced with your computer via a USB cable or wirelessly via cloud technology. The ability to sync your content allows users to always have the most up-to-date versions of their files.

Fresno State University

Information on this initiative can be found at <http://www.ecampusnews.com/technologies/tablet-adoption-university-117/> 1,000 Apple iPads distributed by 40 Faculty to prepare for local K-12 student when they arrive at the University. Fresno is preparing for the iPad roll-out with an **intensive** ONE-WEEK training course. The Campus is going to sure up wireless to prevent bogging down NW, and in contradiction to survey results where only 22% said they opt for a tablet or computer (see also: Wakefield Research survey: half of students said they would be more likely to complete required reading if it was available on their phones.

Goshen College

Information about this initiative can be found at <http://campustechnology.com/articles/2013/02/13/standardization-is-a-driving-factor-behind-goshen-colleges-1-1-ipad-initiative.aspx> "Everybody needs the same pedagogical device" Also, standardized apps: Notability, Evernote for notetaking, GoodReader as a media viewer & file browser, and Quickoffice Pro HD as productivity suite. iBooks Author for interactive-multimedia books, and AirWatch Mobile Device Management to register and control the iPads, distribute application codes, and direct everybody to the free software the college wants downloaded. Feel that standardization is important in devices and in software. Using Splashtop for remote access to computers through iPad, and for instructors to control the projection computer remotely while walking around the room. Students don't need more than 16 GB (apps take up little space/files are stored in the cloud or college's file server)

Hopkinton High School

Information about this initiative can be found at <https://sites.google.com/a/hopkinton.k12.ma.us/1-to-1-laptop-initiative/> The program was introduced at the secondary level starting with students in grade 9 during the 2012-2013 school year and additional 9th grade classes will be added moving forward. The cost of the program for the students is approximately \$300 per year over 4 years. This includes the device, software, and AppleCare for the student device. The district will assume all costs for network and server infrastructure, technical support, integration support, and ongoing professional development.

Long Island University

Information about this initiative can be found at <https://webapps.liu.edu/ipadeligibility/StudentLogin.aspx> Undergrad Terms/Conditions: Newly register/maintain FT status (12+credits) for semester; make payment arrangements with Bursar; submit vaccination records to Health Services/provide all docs to Admissions/and clear all holds and make apt within first semester. New part-time undergraduate students (6-11 credits), as well as new graduate students taking at least 6 credits, can purchase an iPad at the reduced rate of \$250. The school's student iPad program will provide all eligible new undergraduate students enrolled in 12 credits or more a free Apple iPad within their first semester. The school initiated the program, according to its website, to ensure that students will develop the relevant technological skills, create real-time learning environments, stay in touch with faculty, advisers and classmates, research topics at any time, and engage in blended and fully online courses."

Mayville State University

Information about this initiative can be found at <http://www.mayvillestate.edu/prospective-students/tablet-pc-specifications> Mayville State was the first university in the nation to become a Tablet PC campus. Every student and faculty member on campus uses a Tablet PC. All students receive an Information Technology certificate for completion of an IT core of classes. In addition, all classrooms, the library, and residence halls have internet connections and wireless network areas.

North Canton Schools

Information about this initiative can be found at <http://www.youtube.com/watch?v=YM5pyBQIQKY> and <http://youtu.be/YM5pyBQIQKY> Tablets in Schools – The State of Tech Video Podcast (3/11/2012) <http://www.thestateoftech.org> - "We talk about tablets in education, iOS compared to Android, roll-out plans for schools, useful tablets..."

Northern Michigan University

Information about this initiative can be found at <https://www.nmu.edu/laptopinitiative> Since fall 2000, through its TLC Laptop Initiative, NMU has been supplying all full-time undergraduate and graduate students (enrolled in 12 or more credit hours) with a general purpose laptop computer on a three-year replacement cycle. TLC participants receive either a ThinkPad or a MacBook (for art and design majors, who pay a fee of \$250 per semester to cover the MacBook's higher costs). According to the university's website, more than 9,000 students, faculty and staff are participating in the school's TCL (Teaching, Learning, and Communication) initiative.

Northwest Missouri State University

Information about this initiative can be found at www.nwmissouri.edu/Admissions/laptop/index.htm Not only does the school provide full-time undergraduate students (taking 12 or more credits) and graduate students (at least 9 credits) the use of a laptop while enrolled at Northwest, the laptops come fully loaded with all the software students will likely need in order to complete assignments, including Microsoft Office. In addition, the university offers a textbook "rental" program through which students pay a per-credit hour fee to use the textbooks, which they then return on the last day of finals of

the trimester. According to the school's website, Northwest students save an average of almost \$5,000 over a 4-year period, or \$1,168 each year, compared with students attending other universities.

Oakland University William Beaumont School of Medicine

Information about this initiative can be found at <https://www.oakland.edu/?id=13191&sid=340> The computers will be used, according to the school website, for virtual microscopy, for gathering evidence during small-group learning exercises, and for accessing the online learning system Moodle. Upon graduation, students have the option to purchase the laptop at minimal cost.

Regis Technology

Information about this initiative can be found at http://www.regiscollege.edu/administration/iPad_Initiative.cfm 1,250 iPads, for all FT students, and all FT and ½ time faculty. Students will receive their iPads during mid-August. All students need to use the college-provided device to ensure consistency in the technology and the classroom. Students will still need a computer because iPads are not good for productivity like writing papers, doing complex homework assignments, and creating resources. Students may continue to bring their own computers to campus.

Seton Hill University

Information about this initiative can be found at http://www.setonhill.edu/academics/mobile_learning In 2010 Seton Hill University gave every faculty and full-time student iPad – 2013 – new students receive iPad Mini, FT freshmen-13" MacBook Air. University owns – Students take the laptop and both iPads at graduation. iTeach 2013: Univ showcases courses designed by faculty that incorporate mobile learning tools (see: iTunes U)

Southern Nazarene University

Information about this initiative can be found at <http://snu.edu/laptop-center> At Southern Nazarene University, all full-time undergraduate students receive a laptop during its New Student Institute. And, as the school points out, the laptop is *not* a rental, and students don't pay any additional fees to receive it. Student testimonials on the university's website attest to the significance of an institution providing laptops for students in school: One student writes: "The laptop program was one of my deciding factors in coming to SNU." Teachers seem pleased as well: Dennis Williams, director of general education, stated: "Knowing that every student has a laptop has created opportunities to redesign what can happen in class."

St. John's University

Information about this initiative can be found at <http://www.stjohns.edu/about/administrative-offices/operations/information-technology/laptop-program> Of its laptop program, the school's website touts, "Computers land in every freshman and transfer student lap at St. John's." Specifically, all full-time freshman and transfer students receive a wireless laptop to use for the duration of their college career at St. John's. The program dates back to fall 2003 and was expanded a year later to include transfer and readmitted students in addition to full-time freshmen. The objective of the ahead-of-its-time program was to provide all students with equal access to technology, as well as to provide the school's faculty with a mobile computer option.

Stanford University

Information about this initiative can be found at <http://med.stanford.edu/student> In 2010 - Stanford University School of Medicine – iPads to incoming students. The goal was to explore paperless course content delivery and mobile access in clinical environments. Early planning, training, support services were KEY to success of tablet initiative. Students favored iPad to laptop or paper for note-taking & reviewing

University of Maryland

Information about this initiative can be found at <https://mobility.umd.edu/> The University's Mobility Initiative began in fall 2008 as a pilot program examining "the role that mobile Internet access devices might have in the future of instruction, learning, and the social growth of students on campus," as stated on the school's website. Here's how it works: Each year, freshmen in the Banneker/Key Scholarship and Maryland Incentive Awards programs are provided an iPod touch free of charge or, for additional fees and costs, an iPhone 4 to test both inside and outside of class. Beginning in fall 2010, students enrolled in the Digital Cultures and Creativity Program participated in the initiative using iPads. Requirements for participation in the program include taking part in a small number of pilot group meetings during the fall semester for students to share feedback, as well as the potential for focus group interviews and/or the opportunity to work on projects in order to develop tools and applications for the devices.

University of Minnesota – Rochester

Information about this initiative can be found at <http://r.umn.edu/campus-resources/it/computer-support/laptop-program/> The University implemented the UMR Laptop Program for undergraduate students in the health sciences and health professions programs. The laptops - Lenovo T430 ThinkPads - are distributed to these students upon entering the program at orientation and come preloaded with the necessary software for students in the program. The laptops also complement the UMR curriculum management system (iSEAL), the school's online initiative that makes readings, quizzes, exams, student papers, faculty notes, podcasts, videos and other relevant information readily available to students.

West Liberty University

Information about this initiative can be found at <http://www.westliberty.edu/it/student-technology-serv/student-laptop/> All first-time, full-time freshmen registered for 12 or more credit hours are eligible for West Liberty University's Laptop Program (the program is mandatory for business majors). In addition to providing students with a Windows-based notebook with a 14-inch or larger screen, the program offers two options: Students enrolling in communications and graphic design (which includes the digital media design major) receive the Adobe Creative Suite Master Collection software and must have either an Apple or Windows-based computer that meets the software's requirements, and students entering the art education, music education, or music performance programs will be issued an iPad 2.

Pepperdine University

In 2010, Pepperdine University's Information Technology staff members worked with Pepperdine faculty to assess the effectiveness of the iPad as a learning tool. Exploratory research began in fall 2010, and continued in spring 2011 and ended with a quasi-experimental design in fall 2011. The study compared student learning outcomes in the control and experiment sections for each course. The iPad research team reviewed feedback from faculty and students involved in the study and assessed the impact the iPad has on learning. This article can be found at <http://magazine.pepperdine.edu/index.php/2010/11/taking-a-byte/>

Indiana University

Information about this initiative can be found at <http://uits.iu.edu/page/azxr> The primary goal of a faculty learning community (FLC) is to explore a specific topic area or theme as it relates to best practices in teaching and learning. This goal is achieved by providing safe, supportive communities wherein members can engage in research, scholarship of teaching and learning, and service to explore new approaches to teaching. Faculty learning communities will convene during the fall 2010 semester on both the IUB and IUPUI campuses to explore innovative uses of the Apple iPad to address these diverse goals.

George Fox University

George Fox students put iPads to the test Candidates in the university's Master of Arts in Teaching program – offered at the school's Newberg, Portland, Salem and Redmond locations – receive the iPad mini as part of their tuition. The decision reflects a national trend toward using more electronic devices in the classroom.

Oberlin College

Information about this initiative can be found at [iPad Pilot Program @ Oberlin](#) Although there is tremendous value for what the iPad can contribute to the teaching and learning process, it can only do so in the hands of an individual--owned, operated, and managed by a single person. We found that it was not practical to manage the device as a "shared" resource because it would go against the very design of the product. The ultimate power of the device rests with the user, not with the technologist or faculty who led the user to the device. We also discovered early on in our project that our distribution method was not scalable for a campus-wide deployment. These devices are too expensive for an instructor to require students to purchase for a course. Furthermore, it is also unlikely that the College would purchase the devices for students because of the budget problems experienced over the last few years as a result of the poor economy. After exhausting all of the options, the path was clear; the project would end and the iPad cart would be retired. It was a difficult decision, but the right one to make under the circumstances. The iPads were distributed to groups across campus for continued academic use at: the Cooper International Learning Center, the Oberlin Center for Technologically Enhanced Teaching, & the Digital Arts Media Checkout.

Oklahoma State University

Information about this initiative can be found at [Oklahoma State University to launch Apple iPad student pilot initiative](#) Oklahoma State University will pilot an Apple iPad initiative during the Fall 2010 semester with select courses in the School of Media and Strategic Communications and the Spears School of Business at both the Stillwater and Tulsa campuses, announced OSU President Burns Hargis.

Trinity College

Information about this initiative can be found at [Trinity College iPad Pilot](#) After two pilots in 2010 and 2011, we are now firmly invested in continuing to be a fully 1:1 iPad college, and have seen the benefits of it for both students and teaching staff.

University of the Incarnate Word

Information about this initiative can be found at [iPad Pilot Project](#) The program's goal is to evaluate the iPad's usefulness in the classroom setting and its place as a research and mobile productivity tool for the MBA students, who are studying international business.

University of Minnesota

Information about this initiative can be found at [College of Education and Human Development to provide iPads to all freshmen in largest research-based iPad pilot project in the nation](#) [The University of Minnesota](#) College of Education and Human Development (CEHD), in partnership with the University's Office of Information Technology, will provide its entire freshman class of about 450 students with iPads, in the largest pilot of its kind at a major research university. The cost of less than \$216,000 is being funded entirely by private donations and will have no bearing on tuition.

University of Notre Dame

Information about this initiative can be found at [Notre Dame launches eReader study, creates first paperless course](#) A member of Notre Dame's ePublishing Working Group, Angst is debuting the University's first and only class taught using Apple's new wireless tablet computer to replace traditional textbooks. The course is part of a unique, year-long Notre Dame study of eReaders, and Angst is conducting the first phase using iPads, which just went on sale to the public in April. [Study results: Students benefit from iPads in the classroom](#)

University of Southern California

Motion Math in Class: An assistant professor of education at USC's Rossier School oversaw this study looking at whether having students play a learning game to teach them fractions increased their knowledge. Just five days of playing Motion Math for 20 minutes each day raised fifth graders' fractions test scores 15%, and also raised their "liking" of fractions by 10%.

California Public School Districts

HMH Fuse Algebra 1: In September 2010, textbook publisher Houghton Mifflin Harcourt packaged its Algebra 1 book as an iPad app called HMH Fuse Algebra 1. The company donated 400 iPads loaded with the app to schools in four California school districts. After a full school year of study, the results showed nearly 20% more iPad users than non-iPad users scored "proficient" or better on the district algebra exam.

Abilene Christian University

ACU Connected: Abilene Christian University is on the forefront of experimentation with technology in their college classrooms. Through the ACU Connected program, they have conducted several studies on the iPad. Among their results: students who annotate text on the iPad score 25% higher on questions involving transferring information. Researchers have also learned using an iPad raises student satisfaction levels because of the ease of use and varied features.

Virginia Public Schools

In late 2010, Virginia's education department began an experimental program of giving iPads to social studies students in grades four, seven, and nine to test its viability as a learning tool. They found that the technology increased both student independence and collaboration, and allowed teachers to be more facilitators than fact-deliverers.

Pepperdine University

Although the study won't conclude until the end of 2011, preliminary findings of experimental iPad programs at Pepperdine have echoed the findings of increased student engagement, as the college kids with iPads became more involved with the material and with each other. But they have also found students will not make use of apps unless they are required to by an instructor.

Reed College

Reed's iPad experiment was a follow-up to a test-run of using Kindles in the classroom, partly to see if the iPad better met students' needs. Students approved of the iPad's portability and readability, but admitted the many features were a tempting distraction in large classes. They also strongly favored the iPad for annotating text and referring to notes for in-class discussions.

Trinity College

Step Forward iPad Pilot Project: Researchers at Trinity College tested the iPad in the classroom along with netbooks, e-readers, and an Android tablet. They found 80% of students preferred the iPad, but that the devices are not adequate replacements for laptops or desktops, but rather a supplement. The project was enough of a success that the school opted to provide all students with iPads in 2012.

University of Minnesota

In the largest pilot program in the country, in 2011 U of M handed out iPads to every incoming freshman to the College of Education and Human Development. Students liked the tablets overall but like those at Trinity felt laptops work better for homework. African-American students reported the highest improvement in their learning experience by using the iPad.

Notre Dame

Educators at Notre Dame have been focusing on creating an environment for simple, free creation and sharing of e-materials. Their experience with loaning students iPads has led them to believe its greatest strength is its ability to aggregate information and lead students to more knowledge than a textbook could. The iPad's portability allowed for spur-of-the-moment research and discussion that wouldn't be possible with traditional media.

Oklahoma State University

OSU experimented with iPads in five classes in the fall of 2010. Students here expected to use the e-reader function much more than they actually ended up doing so. Three-fourths of the participants agreed the devices enhance their learning experience, and even felt iPads trumped laptops for certain professional uses.

University of Cincinnati

Cinci's Faculty Technology Resources Center was tasked with loaning iPads to instructors who requested them. The Center's findings from the program led them to believe that although the iPad "is not destined to change the face of education" in the science, math, and technology fields, instructors with a clear objective for iPads can derive benefit from incorporating them into their teaching.

Cleveland School

Unlocking Literacy with iPad: James Harmon, an English teacher in Cleveland, split up the students from three classes into two groups, one with access to iPads and one without. He discovered the students with access were more likely to pass reading and writing standardized tests, had more motivation to learn, and wrote longer essays on the iPad than they would on paper.

Gibbon-Fairfax-Winthrop High School

This school in Minnesota distributed 375 iPads to students and counted the experiment enough of a success to continue. Something they learned that they did not expect was the way students would become so used to having teachers respond to emails sent from their iPads. The school had to set up boundaries for protecting the teachers' personal time.

University of Toronto

Dr. Rhonda McEwen of the University of Toronto has been using touch-screen technology since 2009 to teach autistic children how to communicate. While she admits the science has a long way to go, she and others in the field have found the iPad's ability to swipe and click and manipulate the screen is improving the communications skills of non-verbal kids.

Zeeland Public Schools

The experimental program to give every student in grades three through 12 in Zeeland, Mich., an iPad produced similar results to other programs: teachers raved about its ability to engage students and let them focus on teaching, not managing. But the issue of child safety came up with this program. One parent questioned if giving kids the mobile devices violates the Child Internet Protection Act, and the question is still up in the air.

Canby School District

This Oregon school district gave out 25 iPads to teachers and 300 to students of all grade levels to weigh the pros and cons of the technology. Officials were more unfavorable than most, citing many students' dislike of using the touch screen for extended periods, their so-so rating of satisfaction with the overall experience, and unavailability of digital textbooks to replace hard-copy materials.

Vassar College

The Educational Potential of Mobile Computing in the Field: Researchers studied the use of mobile devices, including iPads and HP tablet PCs, in the field with students in three different classes at Vassar College, Trinity University, and Lawrence University. They felt the fragility of the iPad, the lack of a pen for annotating, and the fact that the apps are not intended for data creation prevented the iPad from being suitable for an educational tool outside.

16.0 Annotated Literature Review

An annotated literature review is in development and will be incorporated into this proposal soon.