



## TABLET INITIATIVE ASSESSMENT RESULTS

Spring 2015

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## Introduction

In fall 2014, Crafton Hills College in collaboration with the Academic Senate, the Office of Instruction, the Education Technology Committee, and the Table Initiative Taskforce initiated a pilot program to place tablets in the hands of students enrolled in three sections. Results from the first semester may be found on the Office of Institutional Effectiveness, Research, and Planning (OIERP) [website](#). The tablet initiative was expanded in spring 2015 to seventeen sections. The belief is that integrating this technology into the learning experience for Crafton Hills College students will help them learn more effectively. Other goals include:

- Increasing Book Availability
- Decreasing Overall Student Expenses
- Enhancing Learning Environment
- Adding Teaching Resources
- Expanding Communications with Students
- Integrating Assessment & Testing
- Advancing Sustainability
- Reducing Digital Divide
- Reducing Busywork for Faculty

Faculty members of the three pilot courses are exploring a general set of questions with regard to incorporating tablets into the CHC classroom.

- Teaching: Explore possible ways a tablet can enhance the faculty member's teaching experience.
- Learning: Explore possible ways a tablet can enhance the student's learning experience.
- Sustainability: Explore the possibility of using tablets to sustain a paperless classroom environment.
- Professional Development: Explore professional development and technical support levels needed by faculty in the program.
- Student Support: Explore support levels needed by students in the program.
- Assessment: Assess each pilot course to identify effective tablet strategies.

To fulfill the assessment question, the pilot program faculty, in collaboration with the OIERP, developed a ten-question online evaluation instrument utilizing both qualitative and quantitative methods for students to assess the use of tablets in their learning. Additionally, a seven-question online evaluation instrument utilizing both qualitative and quantitative methods for faculty to assess the use of tablets in their teaching. This report provides the findings of the student and faculty evaluations, and compares student performance in tablet initiative sections with students enrolled in the same course taught by the same faculty members in the same term.

## Summary of Results

### Student Progression

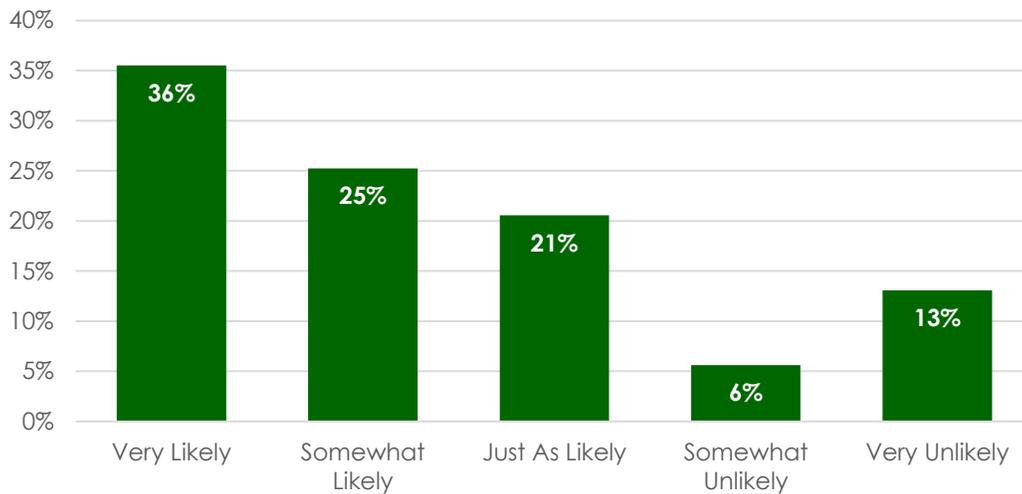
- The success rate of students in a tablet initiative section (75%) was statistically identical ( $d=-0.01$ ,  $p=0.937$ ) to the success rate of students in a comparison group section (75%).
- Generally, the demographics of students earning a grade on record in a tablet initiative section were statistically similar to the demographics of students earning a grade on records in a comparison group section.
- Although Hispanic students were more likely to earn a grade on record in a tablet initiative section (48%) than in a comparison group section (40%), the differences are not substantial ( $d=0.16$ ).
- Male students in a tablet initiative section are slightly more likely to successfully complete the course (75%) than male students in a comparison group section (69%) although the difference is not substantial ( $d=0.15$ ).
- Female students in a tablet initiative section are slightly less likely to successfully complete the course (74%) than female students in a comparison group section (81%) although the difference is not substantial ( $d=-0.15$ ).
- In CIS, students in a tablet initiative section are substantially ( $d=0.70$ ) and statistically significantly ( $p=0.018$ ) more likely to successfully complete the course (88%) than students in a comparison group section (54%).
- In philosophy, students in a tablet initiative section are substantially ( $d=0.22$ ) more likely to successfully complete the course (74%) than students in a comparison group section (64%).
- In art, ASL, biology, EMS, and psychology, students in a tablet initiative section are substantially ( $d<-0.20$ ) *less likely* to successfully complete the course than students in a comparison group section.

### Evaluations

- 89% of students and faculty respondents recommend that Crafton Hills College continue the tablet initiative.
- A large majority of student and faculty respondents were positive about their overall opinions of the tablet initiative often using adjectives such as “good,” “great,” and “going well” to describe their experiences.
- A majority of student respondents prefer e-textbooks over traditional textbooks, because e-textbooks typically cost less, are more convenient, and are environmentally sustainable. A sizeable minority of student respondents prefer traditional textbooks to support their learning preferences, and some faculty respondents are sensitive to these students.

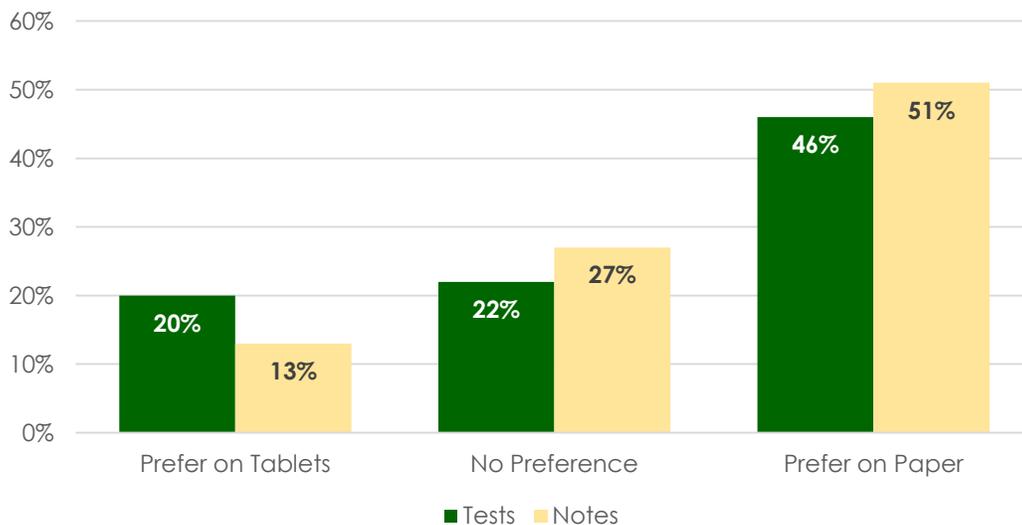
- 61% of student respondents stated they were very likely or somewhat likely to purchase an e-textbook, 19% stated they were very unlikely or somewhat unlikely to purchase an e-textbook, and 21% stated they were just as likely to purchase an e-textbook as they were to purchase a physical textbook.

**Figure 1. Likelihood of purchasing an e-textbook instead of a traditional textbook in the future.**



- 20% of student respondents preferred taking a test on a tablet, 46% preferred taking a test on paper, and 22% didn't have a preference. Also, 13% of respondents preferred taking notes on a tablet, 51% of respondents preferred taking notes on paper, and 27% didn't have a preference.

**Figure 2. Preference for taking tests and notes.**



- Student respondents who preferred paper tests mentioned apprehension regarding the use of technology for tests. Student respondents who preferred tests on a tablet liked the immediacy of feedback they received on their tests. Interestingly, those on both sides liberally used the word “easier” to describe their preference. Faculty respondents were equally split on their preferences for giving tests.

- Student respondents who preferred paper notes overwhelmingly identified a lack of proficiency in typing skills. Conversely, student respondents who preferred notes on a tablet identified advance proficiency in typing skills.
- 31% of student respondents stated they spent more time studying, 14% stated they spent less time studying, and 55% stated they spent about the same amount of time studying. **The percentage of students stating they spent more time studying increased by 14% from fall 2014 to spring 2015.**
- A large majority of student and faculty respondents did not experience technical problems using tablets. However, those who experienced technical problems mentioned weak or inconsistent Wi-Fi and software incompatibility as the most common issues.

### Implications

- Students and faculty respondents have conflicting views on how tablets and mobile devices impact their learning. Most respondents believe tablets positively impact the learning environment, while some believe tablets negatively impacted their learning and others believe there was neither a positive nor negative impact on learning.
- Student and faculty respondents appear to favor making tablets “optional” in the classroom. Other respondents want the option of bringing their own device, whether the device be a tablet, phone, laptop, or other mobile device.
- Some student and faculty respondents believe faculty should receive additional professional development on how to better integrate mobile technology into the learning environment.
- Student and faculty respondents contend the largest barrier to success are competency in the use of technology, such as typing speed and familiarity with device functionality.

### Methodology

#### Student Performance

The retention (earning a grade of A, B, C, D, F, P, NP, or I) and success (earning a grade of A, B, C or P) of students in tablet initiative sections were compared to students earning a grade on record in the same courses taught by the same faculty during the same terms (comparison group section). In some instances, controlling for faculty and term were not possible. For ART-126, MUSIC-101, MUSIC-102, and MUSIC-195, a comparison group was identified from the same course taught by the same faculty in the most recent spring term. For EMS-156, a comparison group was identified from the same course taught by the same faculty in the most recent summer term. For ART-226, a comparison group was identified from the same course taught by different faculty in the same term. LRC-900X8 was excluded from the analysis, because students could not earn a grade on record in the course.

Analysis of variance tests and effect size (calculated using Cohen's *d* methodology) were used to measure the strength and relationship of the various factors with student performance. Effect size is calculated by dividing the difference of the two means by the pooled standard deviation. Jacob Cohen developed one method of interpreting effect size (*d*) where an effect size of .20 can be considered small, an effect size of .50 can be considered medium, and an effect size of .80 can be considered large. Accordingly, using Cohen as a guide, a substantial effect would be .20 or higher. The number of students in each group does not influence effect size making ES; whereas, when statistical significance is calculated, the number of students in each group does influence the significance level (i.e., “p” value being less than .05).

Table 1 disaggregates the ethnicity, gender and age of students earning a grade on record in a tablet initiative section in comparison to students earning a grade on record in a comparison group section. Generally, the demographics of students earning a grade on record in a tablet initiative section were statistically similar to the demographics of students earning a grade on records in a comparison group section. Although Hispanic students were more likely to earn a grade on record in a tablet initiative section (48%) than in a comparison group section (40%), the differences are not substantial ( $d=0.16$ ). Similarly, although Caucasian students were *less likely* to earn a grade on record in a tablet initiative section (36%) than in a comparison group section (44%), the differences are also not substantial ( $d=-0.16$ ).

**Table 1. Demographics of students in tablet initiative sections in comparison to control sections.**

Demographic	Comparison Group Section		Tablet Initiative Section		Effect	
	#	%	#	%	d	p
<i>Ethnicity</i>						
Asian	33	6.9	25	6.3	-0.02	0.741
African American	40	8.4	29	7.4	-0.04	0.582
Hispanic	191	40.0	189	48.0	0.16	0.018
Native American	3	0.6	7	1.8	0.11	0.130
Caucasian	211	44.1	143	36.3	-0.16	0.018
Missing	0	0.0	1	0.3	0.07	0.318
<i>Gender</i>						
Female	261	54.6	202	51.3	-0.07	0.327
Male	217	45.4	191	48.5	0.06	0.365
Missing	0	0.0	1	0.3	0.07	0.318
<i>Age</i>						
19 or younger	82	17.2	86	21.8	0.12	0.085
20-24	277	57.9	209	53.0	-0.10	0.148
25-29	72	15.1	51	12.9	-0.06	0.369
30-34	27	5.6	16	4.1	-0.07	0.275
35-39	7	1.5	16	4.1	0.16	0.023
40-49	8	1.7	10	2.5	0.06	0.381
50 and above	5	1.0	6	1.5	0.04	0.538
<i>Total</i>	478	100.0	394	100.0		

Note: '#' refers to the number of responses, and '%' refers to the number of responses divided by the total number of responses.

## Student Evaluations

Faculty, the Office of Instruction, and OIERP collaboratively designed an online evaluation for students. The evaluation instrument included ten qualitative and quantitative questions. The first question allowed respondents to select the tablet initiative course in which they were enrolled. Table 2 disaggregates the number of responses by course. In total, 110 responses were received from 9 of the 17 sections offered. With 394 earning a grade on record in these sections, the response rate was 28%. **Accordingly, the results of the evaluations are only applicable to the following courses: ANAT-101, ART-126, ART-226, ASL-102, CIS-101, MATH-095, MATH-102, MICRO-102, and PHIL-102.**

**Table 2. Evaluation responses by course.**

Course	#	%
ANAT-101	19	17.3
ART-126	9	8.2
ART-226	4	3.6
ASL-102	19	17.3
CIS-101	9	8.2
MATH-095	20	18.2
MATH-102	20	18.2
MICRO-102	5	4.5
PHIL-102	5	4.5
<i>Total</i>	<i>110</i>	<i>100.0</i>

The second question was open-ended and asked respondents to describe how using a tablet has impacted their learning. The third question asked respondents which qualities of e-textbooks respondents liked and disliked and the likelihood they would purchase an e-textbook. The fourth and fifth questions asked respondents whether they preferred taking tests and notes, respectively, on paper or on a tablet. The sixth question asked respondents to scale how the tablet has impacted the amount of time they spend studying. The seventh question asked respondents to describe how classroom instruction had changed as a result of the tablets. The eighth question asked respondents to describe their overall impression of the tablet initiative, and the ninth question asked respondents to report any technical issues they faced using a tablet for learning. Lastly, question ten asked respondents whether Crafton Hills College should continue using mobile devices in the classroom. Additionally, questions 3-6 and 10 were open-ended questions asking for additional input regarding their selections. A hyperlink to the evaluation was provided to students directly by the instructors around May 4, 2015, and the survey concluded on May 24, 2015.

## Faculty Evaluations

The Office of Instruction and OIERP collaboratively designed an online evaluation for faculty. The evaluation instrument included seven qualitative and quantitative questions. The first question was open-ended and asked respondents to describe how using a tablet has impacted their teaching. The third question asked respondents whether they used e-textbooks in their classroom, which qualities of e-textbooks respondents liked and disliked, and the likelihood they would use an e-textbook in a future course. The fourth question asked respondents their preference for providing tests on paper or on a tablet. The fifth question asked respondents to describe their overall impression of the tablet initiative, and the sixth question asked respondents to report any technical issues they faced using a tablet for learning. Lastly, question seven asked respondents whether Crafton Hills College should continue using mobile devices in the classroom. A hyperlink to the evaluation was provided to faculty around May 4, 2015, and the survey concluded on May 18, 2015. In total, 9 responses were received from the 12 participating faculty members for a 75% response rate.

## Findings

### Student Performance

Table 3 illustrates the retention and success rates for students in a tablet initiative section in relation to students in a comparison group section. The retention rate of students in a tablet initiative section (93%) was slightly yet not statistically higher ( $d=0.06$ ,  $p=0.360$ ) than the retention rate of students in a comparison group section (91%). The success rate of students in a tablet initiative section (75%) was statistically identical ( $d=-0.01$ ,  $p=0.937$ ) to the success rate of students in a comparison group section (75%).

**Table 3. Overall retention and success rates.**

Measurement	Comparison Group Section		Tablet Initiative Section		Effect	
	#	%	#	%	d	p
Retention Rate	436	91.2	366	92.9	0.06	0.360
Success Rate	359	75.1	295	74.9	-0.01	0.937

Table 4 disaggregates the success rate by demographic for students in a tablet initiative section in relation to students in a comparison group section. Male students in a tablet initiative section are slightly more likely to successfully complete the course (75%) than male students in a comparison group section (69%) although the difference is not substantial ( $d=0.15$ ). Similarly, female students in a tablet initiative section are slightly *less likely* to successfully complete the course (74%) than female students in a comparison group section (81%) although the difference is not substantial ( $d=-0.15$ ). There appear to be substantial differences in success rates for Native American students and students between 30 and 39 years of age; however, **these differences should be treated with caution due to a low number of records in each of these demographics.**

**Table 4. Success rates by demographic.**

Demographic	Comparison Group Section		Tablet Initiative Section		Effect on Success	
	#	%	#	%	d	p
<i>Ethnicity</i>						
Asian	26	78.8	20	80.0	0.03	0.912
African American	28	70.0	22	75.9	0.13	0.593
Hispanic	144	75.4	136	72.0	-0.08	0.448
Native American	3	100.0	4	57.1	-0.89	0.067
Caucasian	158	74.9	112	78.3	0.08	0.452
Missing	0	0.0	1	100.0		
<i>Gender</i>						
Female	210	80.5	150	74.3	-0.15	0.117
Male	149	68.7	144	75.4	0.15	0.131
Missing	0	0.0	1	100.0		
<i>Age</i>						
19 or younger	64	78.0	60	69.8	-0.19	0.224
20-24	200	72.2	157	75.1	0.07	0.470
25-29	60	83.3	41	80.4	-0.08	0.681
30-34	19	70.4	13	81.3	0.25	0.424
35-39	6	85.7	12	75.0	-0.25	0.561
40-49	6	75.0	7	70.0	-0.11	0.826
50 and above	4	80.0	5	83.3	0.08	0.901

Table 5 disaggregates the success rate by academic discipline for students in a tablet initiative section in relation to students in a comparison group section. In computer information systems, students in a tablet initiative section are substantially ( $d=0.70$ ) and statistically significantly ( $p=0.018$ ) more likely to successfully complete the course (88%) than students in a comparison group section (54%). In philosophy, students in a tablet initiative section are substantially ( $d=0.22$ ) more likely to successfully complete the course (74%) than students in a comparison group section (64%). In art, ASL, biology, EMS, and psychology, students in a tablet initiative section are substantially ( $d<-0.20$ ) *less likely* to successfully complete the course than students in a comparison group section. However, **the differences in art, biology, EMS, and philosophy should be treated with caution due to a low number of records in each of these disciplines.**

**Table 5. Success rate by academic discipline.**

Discipline	Comparison Group Section		Tablet Initiative Section		Effect on Success	
	#	%	#	%	d	p
Anatomy & Physiology	19	63.3	18	62.1	-0.03	0.922
Art	26	86.7	19	79.2	-0.20	0.481
American Sign Language	50	79.4	43	69.4	-0.23	0.203
Biology	24	92.3	18	75.0	-0.47	0.105
Computer Information Systems	13	54.2	14	87.5	0.70	0.018
Emergency Medical Services	21	100.0	17	94.4	-0.35	0.324
Mathematics	76	76.8	41	82.0	0.13	0.453
Microbiology	23	47.9	8	53.3	0.11	0.723
Music	49	83.1	43	81.1	-0.05	0.794
Philosophy	18	64.3	26	74.3	0.22	0.403
Psychology	40	80.0	48	70.6	-0.22	0.240

Overall, additional data is needed in order to draw more precise conclusions regarding student performance in tablet initiative sections.

### Student Evaluations

A majority of respondents identified positive impacts of using a tablet in their courses. For example, respondents noted that access to course materials and notes was easier and that the integration of technology into the lessons was well done. Other respondents reflected on their ability to further research concepts as the professor was lecturing, which helped students comprehend and apply the concepts. One respondent noted that it was **“incredibly faster to iterate work, to experiment, and most importantly do proper research.”** A few respondents discussed the successful use of QR codes in a laboratory exploration assignment in which students would scan a QR code in order to access additional information regarding the laboratory station they were observing. Additionally, other respondents stated that having their notes and textbooks organized in a single, lightweight, portable device was beneficial. Responses to question 2 are provided in Appendix A.

Simultaneously, many respondents identified negative impacts of using a tablet. Some respondents mentioned an implementation issue where the college **“took our tablets.”** These students mentioned being **“distracted”** and having an extremely negative impact on their learning environment. Other respondents mentioned that using a tablet made their learning more difficult because the respondents were unfamiliar with using a tablet or using the tablet increased the amount of work. A few of these respondents stated they used laptops instead of

mobile devices, and they appeared to have similar positive impacts on their learning as other respondents.

A few respondents noted that the tablet did not substantially impact or change their learning.

Table 6 identifies the qualities of e-textbooks which respondents liked. Seventy-six percent of respondents identified the ease of carrying a tablet and 68% of respondents identified the low price of e-textbooks as qualities they liked about e-textbooks. Similarly in fall 2014, respondents identified the low price (76%) and easier to carry (52%) as the two top qualities they liked about e-textbooks.

**Table 6. Qualities respondents like about e-textbooks.**

Quality	#	%
Easier to carry	80	75.5
Price is usually less	72	67.9
Available immediately	57	53.8
Multimedia used while reading	34	32.1
Reading experience is better	20	18.9
<i>Total Responses</i>	<i>106</i>	<i>100.0</i>

Table 6a identifies the qualities of e-textbooks which respondents disliked. Sixty-two percent of respondents identified the lack of a physical book the quality they disliked about e-textbooks. Similarly in fall 2014, 66% of respondents identified the lack of a physical book as the quality they disliked about e-textbooks.

**Table 6a. Qualities respondents like about e-textbooks.**

Quality	#	%
Lack of physical book	54	62.1
Computer or tablet reader needed	30	34.5
Reading experience is worse	24	27.6
Difficult to keep up in class	17	19.5
Difficult to study	25	28.7
<i>Total Responses</i>	<i>87</i>	<i>100.0</i>

Responses to question 3c are bulleted in the list below. Respondents mostly reiterated qualities already provided in Tables 6 and 6a. Most respondents reiterated their preference for e-textbooks. A few respondents specifically mentioned their preference for the tactile familiarity provided by physical books.

Q3c. What are other qualities of e-textbooks that you like or dislike?

- Although cheaper than textbooks I still felt it was far too expensive. Cost is very prohibitive.
- Does not always match physical information of textbook
- E-Textbooks work efficiently, very stable program.
- Easier and faster to make a design with trail an error without wasting supplies.
- Easier to take notes
- Highlighting and writing notes in sections, flipping from page to page much easier in an actual book
- I don't know much of the e-books thing because I have never actually use it before.
- I don't like having the class solely centered on them. I believe it is a person to person tool
- I like how I was able to highlight and even add my own notes to better understand a term.
- I like that it is cheaper but access to recharging tablets are necessary.
- I like to physically have a book in front of me, but this hybrid class was excellent.
- I prefer e text
- I prefer the e-textbook because it saves money and is better for environmental purposes
- I prefer to use a physical book, something about touching and turning the pages helps retain info.
- I simply prefer e-books over normal books in almost every way.
- Internet capability
- It's simple to use and great for references!
- Lack of physical work
- Less space is taken up
- Less wasteful of paper.
- Tablets have a battery life, while books do not
- The media tools were a great help
- The size of the e-book seems smaller reading on a screen.
- When the battery doesn't stay charged you are screwed
- Writing has helped me remember things ever since elementary school, typing just isn't the same
- You can take notes easily and find quotes at a touch of a button, but the screen lags sometimes.

Table 6c and Figure 3 illustrate the likelihood of respondents purchasing an e-textbook. Nearly 61% of respondents stated they were likely to purchase an e-textbook, and 19% of respondents stated they were unlikely to purchase an e-textbook. Twenty-one percent stated they were just as likely to purchase an e-textbook as they were to purchase a physical textbook.

**Table 6c. Likelihood of purchasing an e-textbook instead of a traditional textbook in the future.**

Quality	#	%
Very Likely	38	35.5
Somewhat Likely	27	25.2
Just As Likely	22	20.6
Somewhat Unlikely	6	5.6
Very Unlikely	14	13.1
Total Responses	107	100.0

**Figure 3. Likelihood of purchasing an e-textbook instead of a traditional textbook in the future.**

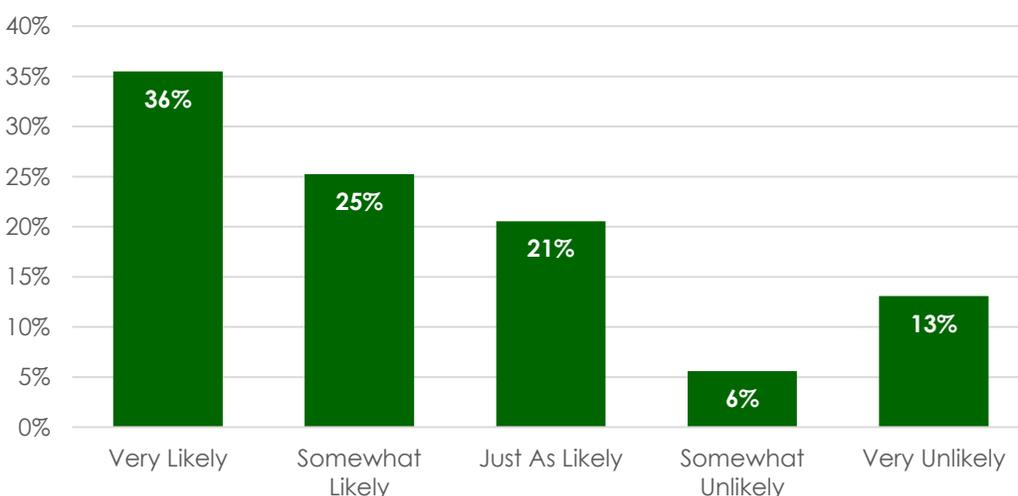


Table 7 illustrates respondents' preference for taking tests on tablet or on paper. Twenty percent of respondents preferred taking a test on a tablet, and 46% of respondents preferred taking a test on paper. Twenty-two percent didn't have a preference. These responses are similar to fall 2014.

**Table 7. Preference for taking tests.**

Response	#	%	Fall 2014 %	Δ in %
I prefer taking tests on a tablet	22	20.2	29.0	-8.8
I don't have a preference	24	22.0	22.6	-0.6
I prefer taking tests on paper	50	45.9	45.2	+0.7
I haven't taken tests on a tablet	13	11.9	3.2	+8.7
Total Responses	109	100.0	100.0	0.0

When asked to describe their preference, respondents who preferred paper tests mentioned apprehension regarding the use of technology for tests. One respondent lamented that they have **“lost points on quizzes because I’ve entered in a period instead of a comma,”** and another respondent contended that **“often times there are problems with the server or tablets and work is lost or received wrong.”** Respondents who preferred tests on a tablet liked the immediacy of feedback they received on their tests and claimed that composing an essay response was more convenient. Respondents on both sides liberally used the word **“easier”** to

describe their preference. Responses were similar to fall 2014. Responses to question 4c are bulleted in Appendix B.

Table 8 illustrates respondents' preference for taking notes on tablet or on paper. Thirteen percent of respondents preferred taking notes on a tablet, and 51% of respondents preferred taking notes on paper. Twenty-seven percent didn't have a preference. A smaller majority of students prefer taking notes on paper compared to fall 2014.

**Table 8. Preference for taking notes.**

Response	#	%	Fall 2014 %	Δ in %
I prefer taking notes on a tablet	14	12.8	12.9	-0.1
I don't have a preference	29	26.6	19.4	+7.2
I prefer taking notes on paper	56	51.4	64.5	-13.1
I haven't taken notes on a tablet	10	9.2	3.2	+6.0
Total Responses	109	100.0	100.0	0.0

When asked to describe their preference, respondents who preferred paper notes overwhelmingly identified a **lack of proficiency in typing skills** or lack of personalized organization schema. A second reason for preferring handwritten notes was improved cognition and memorization. Respondents stated that organized and searchable notes were the reason for preferring notes on a tablet. Some respondents who preferred note-taking on a tablet mentioned their **advanced typing skills** as the reason for their preference. One respondent stated that, **"I use both depending on the type of notes."** Responses were similar to fall 2014. Responses to question 5a are bulleted in Appendix C.

Table 9 illustrates the impact using a tablet has had on the amount of time respondents have spent studying. Thirty-one percent of respondents stated they spent more time studying, and 14% of respondents stated they spent less time studying. Nearly 55% of respondents stated they spent about the same amount of time studying. The percentage of students stating they spent more time studying increased by 14% from fall 2014 to spring 2015.

**Table 9. Change in time spent studying.**

Response	#	%	Fall 2014 %	Δ in %
I spend more time studying	33	31.1	16.7	+14.4
I spend about the same amount of time studying	58	54.7	56.7	-2.0
I spend less time studying	15	14.2	26.7	-12.5
Total Responses	106	100.0	100.0	0.0

When asked to describe how the tablet has impacted their studying, most respondents stated the tablet positively impacted studying. Respondents noted that they were able to access materials easier and more conveniently. One respondent stated that as a person with a disability, **"completing the work at my own pace made my learning easier, and better for recall on tests."** Another respondent noted that integration with other technology such as the **"Blackboard app made it much easier to access classroom information easier & more frequently."** A few respondents did not use the tablet for studying, because they exclusively used handwritten notes. Interestingly, the percentage of respondents reporting they spent more time studying increased significantly; however, most respondents did not discuss this as a negative adjustment. Responses to question 6a are bulleted in Appendix D.

When asked how using tablets has changed their classroom learning experience, many respondents discussed how they were more engaged in the learning process during class. For example, one respondent described how the class felt **“modern”** and openly wondered how their tablets could be connected to the professor’s tablet. Another respondent stated, **“I used to find it difficult to stay awake in most lecture environments but the tablet initiative I could be actively engaged following along on my laptop with the same material being presented on the projector.”** Other respondents noted that there was little change in the classroom learning experience, or that only one aspect was altered. For example, one respondent described that **“it was basically the same course with just a couple bar codes here and there.”** A few students discussed difficult changes experienced in their learning, which included technological inconveniences and undesired changes to learning habits. Responses to question 7 are bulleted in Appendix E.

When asked to provide their overall thoughts and opinions regarding the tablet initiative, most respondents began their statement with the initiative being a positive experience overall. Respondents overwhelmingly stated the initiative was **“good,” “great,”** and **“going well.”** Many respondents followed up their initial praise with different concerns. One respondent contended that **“taking notes on a tablet, doing tests on a tablet, looking at lectures through a tablet wouldn’t be that great”** because it may be overwhelming for students who prefer tactile learning modalities. Yet another respondent felt the tablets were underutilized and recommended **“trying to offer more opportunities in which students could use them.”** A few students noted that students should be allowed to bring whichever device they preferred—be it tablet, phone, or laptop. Responses to question 8 are bulleted in Appendix F.

When asked about technical problems with their tablets, a large majority of respondents stated they did not experience any technical issues. Some respondents stated they had difficulty either connecting to consistently strong Wi-Fi or downloading and accessing necessary software. Respondents facing widespread technical issues appeared to be limited in comparison to fall 2014, however. Responses to question 9 are bulleted in Appendix G.

Table 10 illustrates respondents’ recommendations on continuing the tablet initiative. Eighty-nine percent of respondents recommended that Crafton Hills College continue using mobile devices in the classroom.

**Table 10. Student responses on whether CHC should continue the Tablet Initiative.**

Response	#	%
Yes	89	84.0
No	17	16.0
<i>Total Responses</i>	<i>106</i>	<i>100.0</i>

When asked to explain their recommendation, many respondents supported the initiative outright, because tablets enable **“convenient”** and **“cost-effective”** ways to learn. Some respondents contended that the tablet initiative aligns with changing learning modalities in the next generation of students. Another respondent found that a tablet helps with **“lab classes because I found it very helpful to take pictures and use them to study”** outside of class and open laboratory times. Some respondents who supported continuing the initiative also stated that students should have a choice between tablet-required and traditional sections. One respondent advocated a cautious expansion because **“not all students have easy access to mobile devices.”** Responses to question 10a are bulleted in Appendix H.

## Faculty Evaluations

A majority of respondents identified positive changes to teaching and learning in their classroom. Respondents discussed how they integrated technology (e.g. BlackBoard, instructional videos, and QR codes) and employed “flipped classroom” strategies better than in a traditional classroom. One respondent contended that the technology-enabled assignments appeared to help retention and completion, whereas another respondent noted that educational outcomes did not appear to be impacted. Another respondent advised that participating faculty ensure they are communicating with and supporting each other better in implementing tablets in the classroom. One respondent advised that CHC research a way for faculty to standardize the students’ view of course materials presented in class to provide for a consistent learning experience; additionally, the same respondent in-depth technology-related improvements and recommendations. Responses to question 1 are bulleted in Appendix I.

Table 11 illustrates how many respondents report using e-textbooks in their tablet initiative section. One-third (33%) of respondents reported using e-textbooks in their tablet initiative section.

**Table 11. Do you use e-textbooks in your class?**

Response	#	%
Yes	3	33.3
No	6	66.7
Total Responses	9	100.0

Two respondents provided input on qualities of e-textbooks that they like and dislike. Cost, convenience, and sustainability were three positive qualities mentioned. Negative qualities mentioned included a lack of permanency and functionality. Responses to question 2a and 2b are bulleted in the list below.

Q2a: What qualities of e-textbooks do you like?

- Cost, Easy access to materials
- They are cheap and easily portable. They save paper and you can get them right away.

Q2b: What qualities of e-textbooks do you dislike?

- Not paper, you don't get to keep them forever or sell them back
- Some do not offer search capabilities.

Table 12 illustrates the likelihood that respondents will choose to use an e-textbook rather than a traditional textbook in a future course if they reported using e-textbooks in their tablet initiative section in spring 2015. Of the three respondents who reported using e-textbooks in their tablet initiative section, two selected they would be very likely to use an e-textbook in a future class and one selected they would be very unlikely to use an e-textbook in a future class.

**Table 12. Likelihood of using e-textbook rather than traditional textbook in future class.**

Response	#	%
Very Likely	2	66.7
Somewhat Likely	0	0.0
Just As Likely	0	0.0
Somewhat Unlikely	0	0.0
Very Unlikely	1	33.3
Total Responses	3	100.0

Table 13 illustrates respondents' preferences for proctoring tests on either a tablet/mobile device or on paper. Three respondents (38%) preferred giving tests on a tablet/mobile device, two (25%) respondents had no preference, and two respondents (25%) preferred giving tests on paper.

**Table 13. Preference for proctoring tests.**

Response	#	%
I prefer giving tests on a tablet/mobile device	3	37.5
I don't have a preference	2	25.0
I prefer giving tests on paper	2	25.0
I haven't given any tests on a tablet/mobile device	1	12.5
<i>Total Responses</i>	8	100.0

Three respondents provided reasons for their preference in proctoring tests on tablet, and one respondent provided a reason for the preference for tests on paper. Respondents stated that the tablet supported the discipline-specific assessments (ASL) and were convenient and sustainable. Another respondent stated that proctoring controls in a BYOD (bring your own device) environment were limited. Responses to question 3a are bulleted in the list below.

Q3a: Reason for Test Preference

- ASL is very visual and allows me to have students sign and capture their assessments so we don't have to use valuable class time to do so. We are working to update all assessments for all levels of ASL to fit this same model of testing.
- Convenience. Capability to compare text answers, review quickly.
- Saves printing time and trees. Students could access it during a class or any other time.
- The ability to limit access to the web on the tablet was not there when student brought their own tablets. I've limited accessibility to the test only on my own tablet provided by the President's Circle mini grant.

Table 14 illustrates respondents' level of agreement on various statements regarding integration of tablets in the classroom. Responses are sorted in descending order by the average (mean) score. All respondents (100%) either agreed or strongly agreed with four statements: they require the use of a tablet in the classroom, the experience overall has been positive, they were properly prepared for using a tablet effectively for teaching, and they would choose to use tablets in their classroom in the future. Eight-nine percent of respondents either agreed or strongly agreed that tablets have enhanced the learning experience in their classroom. Respondents were least likely to agree (mean score = 2.89) that students were properly prepared for using a tablet effectively for learning.

**Table 14. Level of agreement on integration of tablets in the classroom.**

Statement	Strongly Agree		Agree		Disagree		Strongly Disagree		Mean
	#	%	#	%	#	%	#	%	
I require the use of a tablet and/or mobile device in the classroom.	4	44.4	5	55.6	0	0.0	0	0.0	3.44
Overall, using tablets and/or mobile devices has been a positive experience for me.	4	44.4	5	55.6	0	0.0	0	0.0	3.44
I require the use of a tablet and/or mobile device outside the classroom.	6	66.7	1	11.1	2	22.2	0	0.0	3.44
I was properly prepared for using a tablet/mobile device effectively for teaching.	3	33.3	6	66.7	0	0.0	0	0.0	3.33
I would choose to use tablets and/or mobile devices in my classroom in the future.	3	33.3	6	66.7	0	0.0	0	0.0	3.33
Tablets and mobile devices have enhanced the learning experience in my classroom.	2	22.2	6	66.7	1	11.1	0	0.0	3.11
Students are more engaged with the course material by using a tablet or mobile device.	3	33.3	4	44.4	2	22.2	0	0.0	3.11
Students participate more actively in the classroom by using a tablet or mobile device.	2	22.2	5	55.6	2	22.2	0	0.0	3.00
Students were properly prepared for using a tablet/mobile device effectively for learning.	1	11.1	6	66.7	2	22.2	0	0.0	2.89

When asked about their overall opinion of the tablet initiative, many respondents began their statements with positive notes stating the initiative was **“going well.”** One respondent stated that they **“enjoyed the experience and would participate again in the future.”** Four respondents noted that tablet technology could be a frustration for some of the students and detracted from their learning experience. A common recommendation was to allow tablets to be optional, so students could use the tools with which they're most comfortable. One respondent reflected **“perhaps I am not using the devices as well as I might”** and requested a **“[professional development] workshop on creative ways to use tablets in class.”** Lastly, one respondent

provided a lengthy assessment of technical issues that should be addressed. Responses to question 5 are bulleted in Appendix J.

When asked about technical problems experienced, three respondents stated they faced none. Two more respondents discussed issues with a weak, intermittent, or non-existent Wi-Fi signals. One respondent discussed issues of maintaining a charged battery, and another respondent referred back to their lengthy technical issues in a previous question (see Appendix J). Responses to question 6 are bulleted in Appendix K.

Table 15 illustrates respondents' recommendations on continuing the tablet initiative. Similar to the results of the student evaluation, 89% of respondents recommended that Crafton Hills College continue using mobile devices in the classroom.

**Table 15. Faculty responses on whether CHC should continue the Tablet Initiative.**

Response	#	%
Yes	8	88.9
No	1	11.1
Total Responses	9	100.0

When asked to provide a reason for why they support or don't support continuing the tablet initiative, three respondents questioned whether the tablet should be required; instead two recommend making courses "tablet optional," and one respondent recommended better advertising sections as "tablet required" to ensure students are fully informed of course expectations. Another respondent noted that "**some students find the use of devices**" [emphasis added] beneficial suggesting others may not. One respondent advocated for more coordinated professional development and collaborative inquiry for participating faculty. Lastly, another respondent referred back to their lengthy technical issues in a previous question (see Appendix J). Responses to question 7a are bulleted in Appendix L.

### **Conclusion & Implications**

The following implications emerge from the findings above:

- Students and faculty respondents have conflicting views on how tablets and mobile devices impact their learning. Most respondents believe tablets positively impact the learning environment, while some believe tablets negatively impacted their learning and others believe there was neither a positive nor negative impact on learning.
- Student and faculty respondents appear to favor making tablets "optional" in the classroom. Other respondents want the option of bringing their own device, whether the device be a tablet, phone, laptop, or other mobile device.
- Some student and faculty respondents believe faculty should receive additional professional development on how to better integrate mobile technology into the learning environment.
- Student and faculty respondents contend the largest barrier to success are competency in the use of technology, such as typing speed and familiarity with device functionality.
- Additional data is needed in order to draw more precise conclusions regarding student performance in tablet initiative sections compared to traditional sections.

## Appendices

### Appendix A

Q2: Please describe how using a tablet has impacted your learning.

- (I am using my own device) The program is a great resource.
- Although it was required to have a tablet, I did not use it once throughout the entire course.
- Aside from learning to better utilize my laptop, I am able to access classwork etc. from anywhere which is a major convenience.
- At first I hated this program. I was confused as to what I was supposed to do and it took some getting used to but now I love it! Using my device is so much more efficient than what we used to do. I feel like I can stay on top of what is going on and what I need to be doing.
- At times the use of the tablet was very beneficial and others it felt unnecessary. I liked using it for research and deciding on color comps for some of my paintings. On the other hand, when I was required to do sketches that would be much quicker to thumbnail on paper it seemed unnecessary.
- Easier to view PowerPoints. Other than always looking up at the screen. I found that doing polls in class was a great way to do examples. I would take more classes like this!
- Easy to access notes posted to blackboard to keep up in class and see sample test solutions when studying alone.
- Great experience. I am able to use many other resources
- Having homework questions and being able to pull up the question on your account for face value help.
- Helped to manage my notes and to keep track of assignments
- I brought in my own laptop.
- I brought my own laptop into class.
- I can take notes and look up whatever I need to during class. It helps me when I don't know or can't remember something from a previous lesson.
- I didn't really use my tablet but my laptop or smartphone.
- I didn't really like it because you mostly had to do your homework on your own my ASL 1 was a lot better because hands on learn made me learn more
- I found it more difficult
- I found it to be a useful tool. I think that the school should actually provide the tablets. It would provide more uniformity so instructions on how to enter formulas and answers would all be the same.
- I found that it helped by having most of the content I needed study aids etc., research available at all times, quizzes much easier to take.
- I liked using the tablet for researching the artist and seeing their works in comparison on how to do my project and being inspired by theirs.
- I spent a lot more time studying.
- I used a laptop. If taken literally, the tablet initiative failed because I started the class with a tablet, a Samsung Note 10. Nothing worked for me on the tablet so I gave up on it and brought my laptop from home, with which I completed the course. On the POSITIVE side I believe a traditional lecture with classroom but with all homework and classwork done on electronic devices and turned in online is a brilliant idea, definitely works and should be the standard for most classes. I enjoyed taking this class, I enjoyed having all classroom materials readily available to me anywhere I had access to the internet.
- I was able to scan QR codes that were on models in lab which were easy to study.
- Impact of using tablets would be great if we would have got them! ;) It would save some space in backpacks and wouldn't be so heavy to carry around the campus I think.
- In terms of hardware, coming to this class I wanted to use my Samsung Series 3 Chromebook, but experienced issues with completing SAM assignments without teacher intervention to force the assignment to complete correctly due to theme and color palette changes between a Windows native Office Suite and Office 365 running strictly online without a native install on Chrome OS. Due

to this problem I went out and purchased a less powerful and smaller Asus Transformer running Windows 8.1. After several weeks of going back and forth with Microsoft about setting up OneDrive and at one point threatening to drop the course due to a slight dependency on Windows products that was negatively impacting my wallet (almost 300 dollars out of pocket for a low end tablet with a keyboard dock) and my patience I finally had Office 365, Microsoft Office Suite, and OneDrive setup on my Asus Transformer. After all that hassle everything was smooth and I am able to complete SAM exams on my Chromebook and do other coursework on my Asus. That being said, I prefer the privacy of using a personal computer and not a lab computer that may have been tampered with by another student prior to my arrival to class. I enjoy the ability to take my work with me without being loaded down by textbooks and being able to pick up and go if necessary while doing schoolwork. I felt my instructor made himself more than adequately available for assistance at any time and was always helpful with coursework. This is a much more comfortable style of learning for me.

- It allowed me to go back and see my growth within the course.
- It did not help my learning at all.
- It did not impact the way of learning for art.
- It has allowed me to see how I sign with a perspective that I wouldn't be able to see without the tablet.
- It has help me research, allow me various attempts on a single piece in a short amount of time as well as documenting what I did.
- It has helped me a lot, it helps to change and alter what you want to make with trail an error without wasting supplies. It's lighter to carry then a text book, cheaper to buy apps then buying programs for the computer.
- It has helped me see what I am doing wrong. With sign language it is easy to mess up and not realize it or not notice your facial expressions, but since everything is on video it's made it easier to fix mistakes and overall improve
- It has helped to increase my grade, great for taking pictures in lab, but most of all it helped a lot with lecture notes.
- It has helped with learning and completing homework.
- It has impacted my learning because everything is at easier access
- It has impacted my learning by being able to remember what I need to complete and being able to submit assignments online which are much easier than to be wasting paper and turning them in during class
- It has made doing homework in class very easy and allowed me to ask the teacher questions on my homework in class.
- It has made doing homework very easy and asking questions very easy too.
- It has made it easier. I had quicker access to things such as assignments, power points, and my grades.
- It has made me able to better utilize my Surface pro.
- It has shown the improvement of my signing from the beginning of the semester to the end of the semester.
- It helped
- It helped me plan and get the colors and ideas together and to bring my art work together.
- It helps a lot , i got my new tablet for this class and in lab time i used it a lot
- It let us do homework in class and take note with it if we want and access to everything is fast
- It makes it a little more interactive. But I think it takes away from the personal connection with the teacher and other students.
- It was a struggle at first but I got used to it, I don't really like using tablets
- It was simple to scan a QR code and then have it pop up on the screen. It just made accessing notes easier and more organized.
- It works better than spending money on paper and it is more efficient
- It's a computer class and having access to a computer or tablet was expected, so it hasn't changed my approach to learning so much as it was required in order to learn the course material.

- It's amazing. Something all art students should have
- It's nice to be able to have some form of aid while doing homework.
- Makes it incredibly faster to iterate work, to experiment, and most importantly do proper research.
- Easier, I can do my homework on my phone.
- More involved, and easier to plan homework and study times.
- [Professor] is very organized and taught the class efficiently.
- My homework was easy to access quickly outside of class. I work both full time and go to school full time. So easy quick access is what I needed to get my homework done.
- No tablets were giving
- Notes were easy to access, reviewing was better with visual aids for lab practices. Being able to review at home was easier too.
- Professor's utilization of tablet device allowed group participation in a positive manner. Did a wonderful job relating course material covered in lecture to student survey participation. Also, made it more convenient to bring tablet to class for classroom/group discussions in form of e-paper (instead of hard copy).
- Since all we used the tablet for was for videos, I thought it helped a lot. It also helped spread out the work instead of cramming it into one small period of time.
- Some things are easier with a tablet but it is really expensive.
- Tablet make me easier than before, I do not have to carry a book and it help a lot for me.
- Tablet was user friendly. Material in class was difficult to understand.
- Tablets change all that by arming teachers with an array of teaching tools, including interactive games, video presentations and more. Tablets are capable of holding upwards of 1,000 books, depending on their individual storage space.
- Tablets were way too small for my older, vision challenged eyes. Therefore I used a laptop.
- The devices allowed to move more at my own pace and if I ever find the text hard to understand on its own, I can easily look up further information to help understand the material while still having the ability to contact the instructor. While in class, the tablet allowed higher and easier class participation than what would otherwise be obtainable and made the lectures more enjoyable and easier to follow as a result.
- The fact that I can have my tablet in front of me following along with the PowerPoint while the professor lectures was very helpful. It's helped during studying when I can pull up the same PowerPoint while studying has been completely indispensable.
- The QR codes made it easy to access the notes for the class.
- The school has taken our tablets out of our classroom. I was under the impression that they would be provided for use, which is why I signed up for this class. But the school took the tables out of the classroom so they can rent them out to make money. So I had to go off and buy my own even though i have a computer at home.
- The school took our tablets!!!!!!!!!!!!!!!!!!!!!!
- The tablet class forced me to study since a video was due every class instead of once a week, which was good for me in the beginning of the course. However it got to be harder towards the end of the course where I also had daily assignments due in my other classes.
- The tablet initiative detrimentally impacted my success in learning ASL. I would never recommend a tablet class or take another one again. HUGE mistake!
- The use of a tablet in the art environment was quite helpful. The tablet was very useful in composing the first renderings that would later be a model for the painting to come. They also allowed us to teach our progress and notate easily as we went.
- This saved money on paper and expanded our research and resources. This also helped us make ref's as well and editing programs where fun to use
- Unfortunately, my class was not given the tablets to use due to a shortage.
- Used it to make preliminary sketches instead of using a sketchbook (saved money), and made three full digital drawings.

- Using a tablet has been very beneficial to my learning. I feel that it has been much easier to stay organized as well as a breeze to stay up to date with assignments. It has also benefitted me by making it easier to stay in contact with my professor.
- Using a tablet has made it easier for sketches and references that I can use for my painting and research!!
- Using a tablet has really helped with my learning process by the accessibility of having my homework online.
- Using a tablet made it easier for me to take down notes. I liked how I didn't have to go on Blackboard to get the notes.
- Using a tablet makes it more convenient to do homework, however not having a physical textbook makes it more difficult to find what I am looking for when I go to study.
- Using a tablet/laptop, has been okay for me. Using it at home or work is great. I am able to be mobile and do work while I wait for class or in the library. Using it in class specifically has made it kind of pointless. Pointless because there isn't a way to conveniently charge my tablet/laptop, the screen are a little small for when I ask for help or want to display something to [the professor], and lastly, I cannot print from my tablet/laptop. I understand this is a "new" way for the class to be taught but changes are always necessary for success :\*)
- Using my tablet was very useful, but I prefer to use paper and pencil. I like turning in paper worksheets then turning assignments in over the Internet. It is difficult to turn in assignments in or to take a quiz over the computer, because a lot of problems can occur, such as the power going out, when taking a quiz your computer or tablet will kick you out and you will not be able to start over because if the quiz was already submitted.
- Using the QR codes have made it quicker and easier to get the information I needed
- Using the tablet became very helpful as a study tool for our labs.
- Using the Tablet Device is not a good idea during class time because it is too small and hard to see compare to the Laptop or a Desktop Device. I prefer to use a Laptop myself.
- Very easy to record lectures and pull up PowerPoint slides during lectures
- We never got the tablets because the college could not fund them for us, so we used our own laptops and tablets and if it did work we enjoyed it a lot and it helped a lot.
- We were given the opportunity to take quizzes on a tablet/mobile platform. I brought in my computer most class periods so I never personally used a tablet.
- When the school took away our tablets, I was distraught, I don't understand why they did that but I feel that it ruined my learning environment.
- With a tablet, I feel more organized with how I do my work.
- You can access it wherever you're at, whatever time you got.....So it is very handy on my point of view.

## Appendix B

### Q4a: Reasons for Test Preference

- Accuracy. I am able to focus. No pressure
- Although it is nice to be able to take a test online, I prefer taking tests on paper because it is less likely for error. If it's done on a computer or tablet, it's easy to forget a space or to hit a wrong key.
- Answering questions on a tablet can be really tricky. I have lost points on quizzes because I've entered in a period instead of a comma, this should be auto corrected and shouldn't be worth valuable test points.
- Because as technology rises, paper becomes less of a commodity and is a waste of money.
- Because I am able to work them out on paper and when I get my results back, I am able to see the teacher's correction in red ink. I like this a lot better because I know exactly what I did wrong and what to study.
- Because I can go back over my work to see if it's right.
- Because you see the question you are answering, paper and Scranton is easy to lose place.
- Because, taking tests on paper is much easier than taking it through a tablet. If you are taking a test on the computer, there may be a problem with the Internet and it will shut off, or kick you out of the test. Unlike taking a test on paper there are no problems.
- Better understanding on paper.
- Both of them have their good and bad, paper you need to insure that you always have it along with pen but tablet needs network also it might freeze or loose an internet connection.
- But it saves paper on tablet
- By "tablet" I mean my laptop. Saving money on pencils and Scantrons is welcome. With tests taken on a "tablet" I like the fact that I receive the results immediately.
- By doing tests online, one small mistake leads to an entire answer wrong.
- Call me old fashioned but my brain just works better when I take a test on paper. Just more used to learning and taking tests that way.
- Cheaper
- Convenience, commonly instant feedback.
- Depending on the type of test it is easier to make mistakes and not be able to go back and change the answers.
- Easier to access
- Easier to concentrate.
- Easier to write paper doesn't fail in the middle and lose all of the progress
- Easier, and saves the trees.
- For some odd reason I feel more confident when tests are written out on paper rather than electronically. Paper leaves less room for simple mistakes.
- For writing a paper, it's almost a necessity to write on a tablet or computer device compared to paper--my thoughts formulate much easier behind a computer screen and keyboard. Would rather prefer taking tests on paper, however, in [one professor's] course, having the freedom to take exams on Blackboard was much more convenient!
- Having the physical copy of the test is better than an online copy.
- Holding a tablet makes me feel more comfortable and at ease than looking down at a sheet of paper.
- I can adapt to taking a test on a tablet or on paper.
- I can fix my mistake
- I don't have to remember to bring a number 2 pencil, and mistakes are easier to fix
- I don't like to write on anything like a paper I prefer to use perhaps a Tablet only the bigger version.
- I don't like watching the computer screen, holding the paper is a lot calmer for me.
- I have a Kindle, but not a tablet because of performance issues and expense. Test taking on paper removes that problem entirely and is incredibly user friendly.

- I like being able to have the physical paper form before me. I feel like there is more room for unintended mistakes when using a tablet.
- I like being able to see all of my work laid out in front of me
- I like both. Tablet is clearer to where I don't get sloppy on paper and confuse my work.
- I like having the work right in front of me at all times and also because I do not have to type in the answer to a bar and put the correct answer in but in a different format and have them count it as wrong.
- I like taking a test on paper because test taking is already stressful. paper feels more organic
- I like that i get my results back with my teacher actually marking my mistakes. That way I know next time what I need to work on.
- I prefer taking tests on paper because for me personally, it is sometimes difficult to type in the answer online. I may have a correct answer, but if I forget a space it is considered wrong online.
- I prefer tests on paper because they allow me to look back and forward on the test to make sure I answered everything correctly. My experience with tests on the tablet has been that once an answer is inputted, it is no longer viewable or changeable which makes tests frustrating.
- I prefer to take a test on paper because I feel like it helps me recall the things I learned when I can physically see and hold the paper. Homework and everything else online is fine
- I think on a tablet you would lose track of time and or your place. Paper makes it easier to go back, check answers, etc.
- I used good old paper my entire life. Writing out helped me pay attention better.
- I wasn't given a test on a tablet
- If you type in the answer a different way, you are marked wrong on the test, even though the answer is the same
- Instant results, it's more convenient, and tests can be better customized I would think
- It is easier to work out the problems on paper
- It's easier than on tablet
- It's more convenient. Taking a test on a device makes everything more difficult.
- It's less stressful feels more like a text message then an exam.
- It's the times we live in
- Just the timing is what is a little stressful about taking test on a tablet.
- Less hassle turning it in, save money
- Less waste.
- Less writing and less room for error.
- Mistakes are easier to correct
- Mistakes are easily made when inputting answers. Other than a variance for small punctuation, this is a very user friendly and stable program.
- Often times there are problems with the server or tablets and work is lost or received wrong.
- On paper I would have to wait for it to be graded to see how I did. On a tablet it lets you know right away.
- Paper is safer.
- Paper or tablet test they both seem the same.
- Paper so it easier to fix my mistake.
- Paper tests only if punctuation is involved.
- Physical interactions
- Physically having to write my answers to a problem help me to remember it better than just typing an answer.
- Sometimes a tablet doesn't do the trick like a paper test does. I like paper tests much better
- Tablets can glitch or have trouble loading at times. Some answers can possibly not be processed.
- Taking a test on paper is easier to write notes on and make little notation near a question
- Tests should take place in the classroom
- They are the same
- They both are multiple choice only difference is I don't get marked down for erase marks
- They both have their advantages and they both have a time where there more advantages

- Usually tests on tablets are timed, which make me feel rushed and makes me do worse. So I would much rather take a test on paper, so I am not quite so rushed.
- You can't go back to change an answer if you need to
- You don't have to worry about filling all the bubbles.

## Appendix C

### Q5a: Reasons for Notes Preference

- All notes are on paper.
- All of my notes are in one place and I could always print the notes out if I wanted to have a physical copy.
- Because I am not that good when it comes to computers.
- Because I have to write it to remember it, or do the problem physically step by step to do it correctly.
- Because it is easier for me and also faster. I can personalize them myself in ways a computer can't.
- Because writing it down helps me remember the material rather than typing.
- Better to follow along when actually writing notes.
- Both are the same
- Both have their ups
- Both the same
- But it might be easier and faster if it were on tablet
- Clean. My writing is garbage.
- Depends on the class
- Doesn't matter for the most part. But, depending on if professor speaks too quickly, tablet with a Bluetooth keyboard would be best due to keeping up with lecture @ hand.
- Easier to keep up
- For me personally it is easier because I can use symbols and certain note taking techniques that electronics don't have. There is just something special about writing it down and your brain analyzing it that also helps me remember the information better.
- Helps me remember better
- I am a very slow typer but can write very fast. I also like to draw pictures that remind me of things. I can't do that on a tablet.
- I am more likely to understand and remember things if I write them down.
- I can type faster than I can write.
- I can write faster and improvise more while using paper.
- I can write faster than I can type on tablet, so I can be more specific in my note-taking and keep up with the professor's lecture.
- I can write faster than I can type.
- I can write what I want and its faster and discreet
- I does not really matter to me. I think both are efficient and get the job done.
- I don't like MY tablet for note taking only because I haven't had the time to learn how to use it. Therefore my notes on paper are more organized for me.
- I don't like write with electronic stuff
- I learn easier when I handwrite something because I am more physically involved.
- I like both. Tablet is easier than carrying papers. And paper is nice to write on.
- I like having the PowerPoint at hand, but on paper writing takes more brain usage and sticks better when writing out... At the same time they could be considered a form of studying as well.
- I like to color code my notes.
- I like using my tablet for notes because they stay more organized and I can search for specific things within the notes.
- I prefer to do notes on paper.
- I prefer to have the notes in front of me on a PowerPoint during class so that I can add in extra notes whenever I need to without having to lose out on class discussions. However if I actually need to take notes down during class I prefer to write them because I write faster than I type and I can write anywhere on the page.
- I prefer writing notes on paper because for me personally, the actual writing is what helps me remember material.
- I prefer writing notes on paper because it is the actual writing that helps me remember material. Plus, if I were to have to take notes online, I would need to take a class to polish my typing and computer skills.

- I use both depending on the type of notes.
- I used good old paper and pen. Writing out what was being said helped me pay attention better and also by physically writing things out it helped me remember the material better.
- I usually take notes on paper
- I write faster than I type also I want to feel the pen in my hand not the key board
- I write much faster than typing on a Tablet
- I write much more quickly than I type
- I'm not very good at typing, but if it comes to essay i rather type then write by hand because it can point out spelling errors.
- If I have to choose between the two, I'd rather use paper. But overall I'd rather use a computer. It also depends on the material and if I'd like to sketch drawings or not.
- Information is easier for me to recall when I write it rather than type it
- It allows you to save and type easily, whereas freehand can take a while.
- It is easier to reference and correct notes on paper.
- It is faster for me to jot down my thoughts on paper than type it out on a screen.
- It is physical and you retain information more efficiently, it is science fact.
- It is simple
- It is what I am used to, and I remember more efficiently.
- It's easier for me to go through my notes and type on paper than switch between windows on my computer.
- More options of color and space available.
- No reason notes are notes as long as they are studied
- Notes are already posted by the teacher so I don't have to try to hurry and take notes in class and not really listen to what's being taught
- Only because I am so used to taking notes on paper
- Really depends on the class I'm taking
- Same as above.
- Taking notes are easy whether using paper or a tablet. I personally don't have a preference.
- Taking notes on paper helps retain the information better.
- Then I can follow along on the board and not have to worry about scrambling to write down notes to keep up with the teacher.
- There are multiple ways I can take notes with a tablet. I can simply type them out on the spot, use a stylus as if it were paper, or have the tablet record audio so I can listen to the lecture later.
- There's just something about being able to flip back to my notes in my binder and not having to scroll up or down. It's all right there in front of you.
- They are the same
- Typing skills lacking
- Way faster and has the ability to save and email.
- When writing down information I retain it better.
- Writing down the notes helps with following along.
- Writing helps me understand better.
- Writing my own notes down helps my memorization of the notes.

## Appendix D

Q6a: Please describe how the tablet has impacted the way you study.

- A tablet is hard to use when studying, I would rather study on paper, I find it that I can retain more information if I study on paper and pencil.
- Convenient to pull up PowerPoint directly from Blackboard. Utilization/implementation of Blackboard app made it much easier to access classroom information easier & more frequently.
- Did not help me or hurt me with studying
- Easier
- Easier to carry with me, but I still like to highlight in the tangible book.
- easier, there is more resource
- Everything I need is on the tablet, so I could take it anywhere to study.
- Everything is located all in one place. From the notes posted to Blackboard, to my homework online, to videos of how exactly to do the problem again and the internet are all right there.
- Has been useful but had also made my study habits worse.
- Helped me with the research
- Honestly, it has not impacted my way of study at all. All I use my laptop for (in terms of [my course]) is to do my homework on MyMathLab.
- I am able to review old videos in a very user friendly way.
- I am using my own device.
- I can do my homework everywhere and I can copy everything in it and study when I'm not at home
- I can set reminders on it.
- I can study everywhere at any time
- I chose to stick with my book and paper while studying
- I could easily study the PowerPoints online
- I do have everything I need in one spot, which is helpful.
- I do more research
- I do not need to have many books and notebooks out as I can have different windows open while studying
- I get distracted easier
- I have my computer with me so I am able to see homework and be up to date on events without feeling lost
- I haven't really used it to study, ASL is the only tablet class I have
- I loved that I could study the material at home. I am a disabled student, so completing the work at my own pace made my learning easier, and better for recall on tests.
- I only use the table to record our daily homework, not to study
- I spend more time studying
- I studied mostly from notes and the lab manual so it didn't change my study habits much.
- I think it makes me a little lazier.
- I use my hand written notes more
- I use my tablet (nook) more.
- Information all in one place is nice, at the same time sometimes I'd like to physically have separate i.e. 2 screens rather than switching back and forth between windows.
- It didn't really have a greater impact on my studying.
- It gave me a better understanding of my homework and my life.
- It had a negative effect because I couldn't afford to buy one.
- It has been very good.
- It has given me faster access to research
- It has helped me study better because everything I need is on one device and if I have questions all I have to do is search the question.
- It has made it easier as I can study just about anywhere without having to carry a load of materials with me.
- It has made it overall better.
- It has made it so much easier to study.

- It has not impacted my way of study.
- It has not.
- It hasn't
- It hasn't impacted the way I study.
- It helps me a lot with homework
- It helps me get my work done because of how easy to use it is.
- It is very hard to see or read words or standing properly.
- It keeps notes more neat
- It made it easier to study because I had quick access to what I needed rather than having to go on a separate computer and looking up what I needed.
- It makes the words easier for me to read. Text books in paper books or hardcover are printed on paper that makes my eyes tired. But the ability to alter the light to read helps my eyes when reading.
- It seems as if the information is easier to access. If there is a certain section I want to study, it is easier to find it.
- It's available always
- It's easier and there's so much info online, instant success
- It's easy to have my written notes in front of me as I practice homework problems and quizzes to improve my understanding
- It's made doing research very easy and to make references
- It's nice to do color experiments before painting.
- like i said in the previous question i believe hands on learning is better
- Made it easier to look up references and research in a digital format.
- Made me more efficient. Not with everything, but some things are done much faster, like notes and research.
- Makes it convenient to pull up lectures while I study
- Many resources are available for me
- Maybe study more often because I have everything I need handy
- More easier, I can review homework and test on my phone and tablet or laptop
- No tablets were giving to us
- Not at all
- Not much because i like to scratch on my notes when I study
- Not restricted to study at home. Easier to study.
- Notes are easier to manage
- Notes were easier to study and carry around. Can study at any time with the downloads.
- Study habits got worse.
- Studying with MyMathLab is great when it can walk you through steps on homework, but sometimes it provides too much information that isn't relevant to the question.
- Tablets have not significantly affected the way I study.
- Tablets make me feel more organized and less overwhelmed in my study habits. It makes a huge difference to me having one clean workspace (computer) than a pile of books and notepaper.
- The tablet has impacted my life.
- The tablet helped a lot with labs when it comes to studying models. You take pictures that you can print out and study or just study off the tablet when you're at home or don't have access to lab during the week.
- The tablet make it harder to find things due to slow internet connection.
- This was an art class, there was not so much studying as much as there was changing and rendering of the process
- Using a device allows me to have every tool I need in the same place. I don't have to look for 20 different things in 20 different places.
- Using a tablet allowed me to keep my notes and information in a much more organized and easily accessible way than paper notes could and if I feel like i should look over the book or look something

up on the internet, I already have access to both, allowing the time I spent studying to be much more effective.

- Using the tablet can make it harder to find what you are looking for. Most of the time it is easier to look through a book and not have to worry about things like slow connection.
- Very good resource tool and easy to navigate.
- We used our own laptops and tablets, but it did help a lot because there was little help features to tell one what to do and how to do it.
- We were not given tablets to use
- Well my "laptop" was a great help. I like all the help features in MyMathLab
- With a tablet it helps me overview everything and make adjustments correctly.
- With Control F and Google.com researching can be made for efficiently if not always faster.
- With tablet I can study anywhere where is an internet connection and don't really need a table to write on.

## Appendix E

Q7: Using tablets in the classroom allows professors to change how course material is presented to students. Please share your thoughts on how using tablets has changed your classroom learning experience in relation to other traditional lecture courses.

- A better understanding of what the class entails
- Able to use tablet to research and see what the teacher has assigned or expected from me.
- Again, we only used the tablets to make short videos. It was helpful to have them in class in case you wanted to review real quickly or have your own PowerPoint in front of you.
- Allows more space and different ways of teaching
- Allows the students to spend more time figuring out how to do it than to wait for some students to finish writing everything down.
- Because half of the class did not need a tablet, I felt I did not one as well. I learned the same without it
- Class experience is much better. Prefer to have the material altered in a way I can learn.
- Course was much easier with the notes modified to the way I learn.
- For Professor [name], GREAT course material presentation. I had no issues and while it was my first time enrolled in a hybrid course, it was a very pleasant experience with no issues.
- Hasn't impacted lecture materials
- Have more access to everything.
- I am more able to focus on the coursework because my hand eye coordination is better while typing and typing keeps my hands busy which helps me concentrate on the work and not get distracted.
- I am more engaged by the lectures. I used to find it difficult to stay awake in most lecture environments but the tablet initiative I could be actively engaged following along on my laptop with the same material being presented on the projector.
- I can easily access the notes posted by the teacher online all the time. Any notes I would take, I would have had to be sure to carry all my homework, notebooks, everything everywhere just to be able to do homework wherever whenever I had a spare moment. With both work and school full time, good use of my personal time and every spare moment counts.
- I do like having ready access to the PowerPoints and documents on my computer. I think more teachers should make getting these resources easier.
- I don't think it has changed. The tablets were really only useful for taking pictures of the models in our labs.
- I enjoy having a copy of the PowerPoint in front of me as well as on the screen.
- I feel like the flow of our learning experience is much faster but you still cover all that you need.
- I felt like it was basically the same course with just a couple bar codes here and there
- I have become lazier with studying and more forgetful on when stuff is due.
- I have enjoyed the tablet experience in that it allows me to look back at my professor's lecture.
- I like being able to see material and notes right away
- I liked how we worked problems out using his tablet projector interface. It made the class seem more modern. It would be nicer if the class could get tablets provided that would interface with the instructor's tablet as well.
- I love that my teacher is able to use a tablet because it saves time for him to write notes, which in return gives more time and attention towards our questions.
- I personally do not like it. I find it harder to focus. And a lot harder to study. I get distracted easily when on electronics. When I just have my book, it's only my book and I and it is a lot easier to focus.
- I think it has both positive and negative effects on my experience. But I think as time goes by it will go smoother.
- I wouldn't know, since this is a computer class and having access to a computer, laptop, tablet, etc. is required.
- I'm able to follow along with the lectures
- If I can't see something on the projector, I could always zoom in on my tablet to get a better look.

- If there is a change in the schedule it's easy to notify everyone
- In the long run all I need is my tablet to get along. Less clutter and less to try and remember to bring to class
- In this type of class, I am able to look at PowerPoints to follow along during class and look ahead to what we will do. Then I am able to go back and review outside of class.
- It felt a little disorganized and that we were just using it because we were required to most of the time. It was good to force students to do research for their concepts, though.
- It gave me more insight on what I needed to study
- It had many negative effects.
- It has made notes readily available and homework at the ready.
- It has not changed my experience at all.
- It has pros and cons regarding when to use it, but it's cool.
- It hasn't changed my experience
- It helps to look at the power point on the tablets when it is unclear to see in person
- It is easier for students to keep up to date with scheduled days because the teacher can just edit or leave an announcement.
- It is kind of a pain having to bring it everywhere but accessible to get information.
- It keeps you engaged
- It made it easier to gain access to different materials such as models that we were learning about rather than having to look them upon a computer or in the book.
- It makes it easier to focus and to stay organized.
- It makes it easier to get help with homework.
- It really hasn't, we only used the tablets the first 5 minutes of class and that's it
- It was a nice way to get information.
- It was easier to carry it all with me in the tablet, HOWEVER, it was also more difficult to use other machines available if I didn't have the tablet WITH ME ELSEWHERE.
- It's easier and quick
- It's easier being able to look at a slide that's being presented on a projector.
- It's helpful for my teacher to use the tablet. I wish the class was given some to use.
- It's just different.
- It's new and way better than notes on paper.
- It's faster to access
- Just made certain steps easier, but didn't change how I learned.
- Links to videos and other material was useful, and being able to use a tablet to assist me was incredibly fun and useful.
- Made study habits worse because I didn't need to write everything down.
- More a part of the lecture, not just listening
- More easier, less work.
- More interesting and interactive class.
- My professor and I were having a little trouble finding functions at one time.
- My thoughts are that it is very inconvenient to charge my tablet or laptop. I find it better that carrying paper and pencils are easier and is much more convenient.
- No hands on learning
- None.
- Not much of a difference
- Notes are posted and homework is right there without carrying your notebook and textbook everywhere just to do homework on the go.
- Nothing in the classroom has changed much other than daily videos, the teaching methods are still the same I feel like
- People don't really pay attention
- Prior classroom notes are available and I'm able to save current notes at push of button
- QR codes make navigation easy
- Tablets did not change the way I learn.

- The lecture of my Professor is the best!
- The lectures are always at the tips of my fingers I like that
- The multimedia features allow better learning processes.
- The PowerPoints in class are what I am able to study when i am
- The professor is very consistent with updates. The system is very hands on and makes learning more efficient.
- The program is efficient and easy to navigate.
- The tablets have been nice in the classroom because we are able to view the lecture PowerPoints and go along with the professor.
- The use of tablets allowed the instructor to quickly and easily pose questions that could have a wide range of answers and get an answer from everyone in the class and discuss the answers given and allowed more breaks in the lecture as opposed to just giving a lecture for an entire class.
- There is more colors and pictures added to the lectures and they are not as boring as to just seeing black and white
- Using devices removes issues with vision, I don't have to strain to see the board because the material is directly in front of me and I can choose to manipulate it however I desire.
- Usually at the end of each lesson, our class was required to do a video about the lesson as if we were explaining it to a student that was not there. We sat in class received the lecture, then went home and did a video of us giving the lecture which allowed us to understand the lesson more.
- We are able to follow along on our screen with the projector, and I like that.
- We had more resources
- We used the tablet a lot more to create journals keep track of our research. And to create references
- Well to be honest, it was a little more difficult. Spending an average two hours on the computer and staring at a much smaller screen than the one provided in class was not so pleasant. Although using both was the advantage. Having a project on the class computer and the book open on the tablet was a plus.
- When the professor changes study notes in class I am able to change my notes right there.
- Yes
- You can easily look up the website needed.
- You get to know the materials early on. More involved and the labs could be studied at home better.

## Appendix F

Q8: We are interested in knowing your overall thoughts and opinions on the tablet initiative. How's it going for you? Tell us what is going well and what may not be going well.

- As long as my laptop is considered acceptable for the course I am all for it.
- Aside from a few struggles and a small investment I enjoy the tablet initiative as it gave me an excuse to explore an OS that I haven't touched in 7 years or so.
- Aside from inability to print and sometimes slow internet speed I haven't had other problems I can think of.
- Changes need to be made to perfect the tablet initiative. Same changes I mentioned in the earlier questions.
- Doing homework is easy, but if you don't understand the material then it is hard.
- E-text is nice but everything else isn't. Math Lab is garbage, and not having to write notes made it easier to not study.
- Everything about the tablet went well.
- Everything is going well. I find I'm keeping up in class and can follow along easily.
- Everything needed for the course is at your fingertips and all in one location makes it easier.
- Going ok
- Going well, more learning place.
- Good [expletive].
- Good, easy access to homework, notes, the internet, and even email the teacher if need be
- Good.
- Hasn't affected me really since I didn't take quizzes on a tablet. I also don't really like using a tablet except for recreation/media consumption.
- Having the tablet helps with accessing everything in very little time!
- I am doing better with these math courses than I have done in the past.
- I believe it works well with students
- I believe the tablet initiative is a great idea and should be continued. There are a lot of shortcomings that can be resolved and needs to continue to evolve to become a better system.
- I did not like how if we put the answer in a different format it did not count it, but I loved how much more time one would have to figure out how to do something in classroom then just writing down notes.
- I don't like the experience of my math lab. I think it takes too long and it is ridiculously too much to use.
- I don't like this type of class
- I enjoy being able to have my tablet to see my progress when I'm doing my homework and everything else. With a book you never really know how you're doing on your work unless your professor checks it and marks what you got wrong. Tablets are kind of like immediate results
- I enjoy using the tablet. my content is available and in order
- I enjoyed having my tablet for the reasons I have already stated above.
- I feel it should be something that's optional for the student rather than mandatory
- I have taken a math tablet class and loved it! However I found the ASL class to be more difficult, possibly because my life outside of school has been difficult this semester. I would take it again though.
- I like it. But in art I feel it's good to use the new but also the old.
- I like the fact that we do homework on an internet based site. I'm sure it is a lot easier for the students and for the teachers as well. But going full on tablet, for example taking notes on a tablet, doing tests on a tablet, looking at lectures through a tablet wouldn't be that great. I am a more of a hands on type of girl and having a physical book in my hand really helps me a lot more. But what can you do when buying a book is far more expensive than getting an E-book.
- I like the initiative and think that tablets should be included more in depth in classes that choose to use them.
- I like the tablet idea, it is a concern that other things may be more necessary to buy first, like parking spaces are needed at this school first more than anything.

- I like using a tablet. It keeps things easier and neater.
- I love tablet classes they are better and make school that much easier for me
- I overall like the tablet class. I used a computer and it was very heavy to carry around so if I take another tablet class, I will try to use a lighter device.
- I personally feel the tablet is a good source for education in the future.
- I prefer not using tablets, because they are hard to get use to and it takes away time that could be used for studying
- I really enjoy using a tablet because it makes my life easier and I seem to remember what my homework assignments are than to be carrying different books different binders and forgetting what homework assignments were due or needed to be done
- I think it is a good idea, but I think that you should still allow students to have physical textbooks and access through other materials, because some people prefer to study and learn that way.
- I think it is going well.
- I think it's a great idea and would have been very helpful if there was not a shortage.
- I think it's a great idea, I only wish I was able to use the tablet myself.
- I think it's good as it is because it will get better as it becomes more common to use tablets, and the only issue I see is compatibility and ease of communication with all the different types of tablets.
- I think it's a great start, but tech issues seemed to continue throughout the semester.
- I think it's a worthy program
- I think using technology as a tool is great if that particular student feels it's necessary. However not everyone learns this way in fact most need to write and retain information without technology for best results.
- I understand the material better than I would if I read it from a textbook.
- It feels good being able to use my tablet for class, as I would be using it to sketch on anyway.
- It has been an honor to us a tablet.
- It is a good program and should be continued it is very versatile
- It is going well because it is easy to keep track of notes.
- it is going well, but sometimes make me do it in last minute
- It is not going well.
- it is really expensive to maintain
- It needs to be more uniform and organized, but it could be useful if refined.
- It was difficult due to the 365 program not working correctly on my tablet. The appearance was different than on the instructions for homework or the instructor guided instructions. The plugs were to get to plug in. I could not print in class from my tablet.
- It was going well I understood how to use it
- It's an improvement in some areas, like reading e-books, but not much else.
- It's good.
- It's great.
- It's nice having all the notes worked out but completely hate MyMathLab.
- It's going good except for the fact that the school took out the classroom tablets without telling anyone. Acquiring a tablet last minute causes a lot of issues with bills and rent.
- Love it.
- My thoughts overall is that using paper and pencil are much more convenient and is easier for me to use and to study with. Taking tests on paper is better than taking it on the computer. Many more problems can happen when turning in assignments through the computer, than submitting it through the teacher in person.
- No thoughts
- Nothing went well.
- Overall I like the program. I was one of the first students the use the program last semester when we had to use what the school provided to us, however this semester we were able to use our own device which I thought made the whole program better.

- Overall I think the tablet program went well. I don't believe it helped or rendered me either way. I still write my notes out rather than using the tablet. I do like being able to toggle back and forth between diagrams easier.
- Positive, happy with the new direction with education.
- Something really needed all I can say.
- The fast track class is difficult, but manageable only if a student can manage their time.
- The main problem I had with the tablet initiative is that it is a hard transition at first. It would be nice to have all teachers on board so that I can have all my information and work in the same place. For now I absolutely love it.
- The notes went the best for me in lecture. Always had access. In lab the pictures and video were a lot of help. But the tablets can be expensive and could have errors that are annoying as well.
- The only problem I had was using different devices called for different ways to enter in answers.
- The only problem I have is sometimes I forget my tablet. Everything is working well for me.
- The overall tablet program is nice. I purposefully joined the class that has the tablet program because I enjoyed the pilot program introduced in ASL 101 that I took fall of 2014. I liked that this semester we were able to bring our own tablets or computers. The tablets given to us last semester were horrible for what we were using them for. Being able to use my own tablet has made worrying about losing work a thing of the past. I would definitely sign up for another tablet class if it was offered.
- The tables are a great tool for labs. I don't think they should be a requirement since they can be expensive and I know a lot of people who are not into using a lot of technology when it comes to their classes.
- The tablet I own is not as compatible with math lab. I like using my laptop better.
- The Tablet initiative is the best idea, because students can do their homework wherever they are and also easier to be up to date.
- The tablet is ok but i am using it with a painting class. I am more old school and hands on so I like to experience more with the paint. I do like the tablet for research.
- The use of tablets makes doing homework easier. My only problem is that sometimes the internet connection is slow or the tablet freezes and I have to try and reload the page and start over. It is also harder for me to learn when looking at the notes on a screen rather than physically writing them down.
- This was the first class I have taken that was a hybrid class and I really liked the combination of having a teacher and a tablet in front of me.
- Very well!
- We didn't use them much so I would recommend trying to offer more opportunities in which students could use them.
- We live in a world full of technology. It was a great experience to have that integrated in the classroom. It made our lives easier.
- Well - good professor/classroom incorporation of tablet that doesn't distract students from focus in class (i.e. being on social media on tablet instead of learning).
- Well I prefer not to use the Tablet Device at all.
- Whatever

## Appendix G

Q9: What kinds of technical problems have you had (if any) related to the use of your tablet?

- (1) Nothing worked on my tablet, I had to resort to using my laptop. (2) When I downloaded Office 365 I did not have all content available to me required by some assignments, I had to go through the tedious process of finding the content and downloading it from Microsoft office.
- 365 did not load correctly or work right on my devices. The toolbars were not the same as the book or instructor given, made it very difficult to do homework in SAM and to get correct. I spent many hours wasted trying to get through my homework due to these issues. Also not all content loaded from 365 as others had and so very confusing.
- Accidentally deleting important information that cannot be re written.
- Camera has issues with QR code. Could just be finding the right app. Bad internet connections.
- Charger, and battery is always dead
- Charging it, bringing it to class every day, figuring out the correct apps we needed
- Computer, tablet problem
- Didn't have problems.
- Doesn't work well with math lab
- Every device reacts differently.
- Having to download a lot of programs just to use my math lab
- I don't have any technical problems.
- I had no problems.
- I have a Mac Book pro and you have to download a lot of things in order to be able to use websites such as my math lab and the thing i hate most about my math lab is typing in a ridiculously long answer and then accidentally making a mistake on the keyboard and having to do an entirely different problem all over again. And also having to go back and forth when typing different symbols or signs. It can get me tiring and discourage me from wanting to do my homework.
- I have had a lot of trouble trying to troubleshoot my laptop or my tablet. When taking tests it's very hard because when in the process of taking a test, it will kick me out and I receive a zero, on the test.
- I have had no technical problems with MY personal tablet that I use in class as well.
- I have had no technical problems with my tablet. My tablet is my own, I did not rent it.
- I have not had any problems with the use of the tablet.
- I haven't experienced any yet but I can see how if I'm here all day battery usage can become a problem.
- I haven't had any technical problems.
- I never had technical problem
- I never had technical problems
- I purchased the tablet that I used last semester that the college provided to each student and I had many, many technical problems; however this semester I had no issues at all.
- I'm not a [expletive] apple user, I know how to work a computer.
- Internet capability
- Internet connections, maintenance blackouts, although not common, are a pest.
- It dies if you don't charge it. A textbook never dies.
- It was hard to study and to keep up with the homework
- It's going well and it's really fun
- It's slow to respond at times, in addition to responses varying according to the device.
- Just occasional blackboard problems.
- Just the wrong QR codes
- Lack of easy access for power cords. (Not ADA). Internet connectivity issues. Not able to print from my laptop. Installing software was a huge issue. [Name] the computer tutor was able to help me, and also cleaned up issues on my laptop that was causing problems. [Name] was terrific!
- Mainly slow internet connection
- Mainly slow internet connection.

- Math Lab shutting down.
- Microsoft customer support is lacking, OS cross-compatibility is not the best.
- My math lab not compatible with MY own tablet
- MyMathLab shutting down, closing out, having pop ups on a quiz stating I have little time to complete it thus making the time I have even smaller because I need to close it out.
- N/A
- Never had one
- No issues
- No problems
- No technical problems
- No technical problems.
- none
- None
- None really
- None really, some of the graphing of the equations cannot be done on my tablet and must be done from my laptop instead just to be able to graph every point on the correct line, but that's really it and not that big of a deal.
- None.
- None. I know google
- No problem it is just too small for me.
- Nothing much
- Page sometimes has to be refreshed.
- Problems were not being taught before how to use technology device.
- Punctuation typing in answers, internet connection.
- Shut down at random times lose my work have horrible battery life
- Slow internet in class, lost work if internet cuts out.
- Some of my devices were not able to perform all the necessary actions.
- Some professors lack the understanding that I am using my device for educational purposes and simply assume I am texting due to the large amount of irresponsible students
- Sometimes certain files would load
- Sometimes couldn't load socrative but that's it
- Sometimes it's hard to connect to internet.
- Sometimes laptop won't run the application or maintenance from the website
- Sometimes the software or page glitches and I have to reload the page. Some tablets are easier to use than others.
- The only problems I had during this course is my computers battery life. I had to sit by a plug because my battery would die fast. Another technical problem would be the Wi-Fi connection but that was a rare problem.
- The only technical issues were when the study material went down the before an exam.
- There are minor glitches with having a tablet. Temporary setbacks of the system is one of them. Sometimes devices run slow resulting in having to restart your work.
- Viruses from school network
- We did not get any tablets, but our computers worked great.
- When taking a test the Wi-Fi had a problem once and I was unable to finish a test on time. I was able to take it again later as it was a multiple time test.
- Wi-Fi at school
- You need to download everything just in case it gets lost, rather than having it on paper where it is accessible at all times.

## Appendix H

Q10a: Reason for recommending or not recommending that CHC continue the tablet initiative.

- Although I don't like it, and using my math lab to do homework, it may be good for other students to take notes on so why not. I don't mind.
- As an option to use as extra study but not necessity. For a lot of people it could be hard to get one and mistakes are easily made with them especially tests. And not everyone is a visual learner. Especially science classes they can be very hands on.
- Because it is easier and more enjoyable.
- Because it may be easier for the newer generation to connect in classroom.
- Because like I said I rather have hands on learning
- Convenience in the movement of today's lifestyle. Age of technology would agree moving forward with the tablet initiative is necessary.
- Convenient
- Easier for students like me who both go to work full time and go to school full time.
- Easier to do homework.
- Efficient method of teaching.
- Efficient (I am using my own device) teaching method. Great resource.
- Fix the technical issues and I think you have a winner!
- For research
- Gives students more of a feel for the classroom and allows one to spend more time doing a problem or figuring something out then just hurrying and writing notes.
- Gives students who both work and go to school an easier way to keep up and like I said, use every spare moment of time wisely without carrying homework and textbooks literally everywhere you go.
- God has given us the opportunity.
- Honestly, and unfortunately, books, including text books, are becoming outdated with all of today's technology; so yes, moving forward, I do believe the use of mobile devices is a good idea.
- I think this tablet program has potential. Either implement the "bring your own device" rule, or, if planning to keep giving tablets to the students for the semester, get more reliable tablets.
- I believe the tablet initiative contributes to conservation of paper products and reducing the waste of textbooks that have new editions nearly every year and semester that end up being thrown in the trash. Don't force me to almost literally put my money in a trash can after I'm done learning from it.
- I feel it is important to implement a huge part of the technology world which consists of tablets but have the right tools available for proper use.
- I feel like classes that use mobile devices are not for everyone but it's good to have the choice to experiment with it. I wouldn't want every class to be a mobile device classroom
- I feel the pros outweigh the cons and our world is getting more technical as it is so why not if it's helping students.
- I only agree with it in regards to computer classes. Otherwise I think it's a little unnecessary until tablets advance far enough where all can access them without experiencing technical difficulties and at a cheaper price.
- I say yes for lab classes because I found it very helpful to take pictures and use them to study when I did not have lab available to during the week outside of open lab and my regularly scheduled class.
- I think it is a great tool and makes school cheaper.
- I think it is a positive program that will help the students of Crafton greatly.
- I think it's good to give people the option, but don't make it mandatory. A lot of people just don't learn that way or take tests that way.
- I think it's a great way for students to continue moving forward in such an advanced technological world. I love the idea that it saves people money and it helps save the environment by reducing the amount of trees being killed. Not all students have their own computers and this way school is helping students out.
- I would only recommend it because the textbooks at our school are too expensive.

- I would recommend Crafton Hills College to continue moving forward with the use of tablets in the classroom because technology is being used everywhere.
- If only they have enough for all students and all classes it is needed for.
- It depends some students younger ones like to use the tablet but not me it is hard to say.
- it helps some people but older people don't know how to work it
- It is an advantage we can use to study better.
- It is cheaper for college students, we should have the choice between both tablet and non-tablet courses.
- It is easier
- It is easier and more cost-effective for students.
- It is more convenient to have and carry a tablet with me than a big textbook. It's easier to keep up with my class when I have what I need on the tablet.
- It is simple and not hard to understand
- It made learning the material easier.
- It makes things easier
- It shows progress in the way we present material to students.
- It was a very interactive class.
- It's a good idea, but there needs to be a system implemented rather than simply requiring there be use of a tablet in whatever way possible to fall into the digital requirement.
- It's less heavy and will because less strain on students carrying book bags. However it is costly for some.
- It's more convenient
- It's quicker
- It's very easy and simple to use not confusing
- It's very useful for students, and I think for professors too. Not to mention the future is coming, better embrace it sooner rather than later.
- It's a 50/50. I don't care which one they use, either way, I'm sure we will continue using electronic based things in college as we advance.
- it's a useful tool
- Just do it
- Just leave it up to the student to decide.
- More
- more advance environment
- Most students have a laptop or tablet. Continued evolution will ensure success of the initiative.
- Move along with progress guys! =)
- My thoughts really don't, matter. The world is changing and books will no longer be in a couple of years anyways.
- Not only is it environmentally friendly, but it gives students the opportunity to work with technology that they may not have been able to use otherwise.
- Not until all the bugs are worked out. I am familiar with computers and had a difficult time, those with less experience would
- Only use tablet for some classes.
- so it is more advance class room
- Stick to the traditional style of teaching.
- Student with have better study habits and studying will be more effective.
- Tech is the future. Why not move forward?
- The ability to manipulate technology is a necessity in the real world. This school is supposed to teach its students how to excel in the real world so it would make sense to teach them with the same tools they will be using.
- The future man
- The use of tablets allows individuals that learn better through electronic devices to do so and gives teachers new tools to present ideas in different ways that simple Power Point presentations cannot.

- The world is technology based, it is time to upgrade learning. We will be using technology for the rest of our lives, might as well get used to it now. It makes learning a lot easier and convenient.
- They have a lot of use in academic settings
- Time is spent too much on technology and explaining how to use it for an assignment, instead of focusing on the education and resources that need to be learned in the first place.
- Too many complications
- Traditional is always better.
- Very convenient and learn as you go!
- Yes because it allows convenience but it should be an optional feature
- Yes but let us know ahead of time if you decide we have to spend 300 bucks last minute on something you told us you would provide.
- Yes but not too much. Not all students have easy access to mobile devices.
- Yes for the pricing and yes if it stays the way it is now. Students do not want to take tests on computers and do not want to take notes on a tablet.
- Yes only if they had enough for all students required to have one and they are easy to use
- Yes. Read answers above.

## Appendix I

Q1: Please share your thoughts on how using tablets and/or mobile devices has changed teaching and learning in your classroom in relation to other traditional lecture courses. What have you done differently? What has happened unexpectedly? What should other faculty members know about your experience that can inform their teaching?

- Having students do their homework online during their labs with the devices in my opinion has helped both retention and completion.
- I love the idea of adding in technology especially when the discipline lends itself to it. I have now been a part of the tablet pilot for two semesters and have kept the same assignments, but altered them as I have learned new things. My advice to newbies would be: don't be afraid to try new things and don't be hard on yourself if it doesn't work right the first time... (that is very negative advice)... better yet: Explore new ways of doing things and be open to learn as you go. Additionally, stay in close connection with others who are on this journey too as you will learn a lot from your peers. On a side note, I feel like the support and connections we had during the first pilot were more helpful than the second. Maybe my memory fails me (which happens often), but this semester felt more sporadic and not as efficient in the guidance of using devices. I know I personally did not communicate with my colleagues as often.
- I'm not sure this semester was really representative of what I can and will do with devices in my classroom. I was already having the students use their devices to take quizzes (with Socrative). We did that in my tablet class again this semester. One challenge I encountered was the wide variety of devices the students used. Some had a smart phone, a couple had tablets and one student brought his laptop to class. Another challenge is the section I designated for this project was not well-enrolled and only 8 students completed the course. Not much of a sample to work with for collecting meaningful data. As the semester progressed I began working on "flipping" my classroom. I have recorded lectures and posted them on YouTube. The students are assigned videos to watch outside of class and are quizzed on the material at the beginning of the next class period. During lecture sessions I assign them an activity: analysis of a case study, research a topic and give a presentation to the class, etc. This is when things kicked into high gear with the use of the devices. I plan to use this model in all of my classes beginning next semester so students will definitely need a smart device to work effectively in class. The next two questions do not have a response that truly reflects my opinion. 2. I don't require an e book but it is available as an option. Very few students select this option 3. I don't give exams using a tablet but I will probably experiment with that next semester. All quizzes are given using a device.
- I've always been a technology type of person. I've incorporated technology before this pilot program by using QR codes for notes, diagrams, and videos posted for students' accessibility. I've used it in testing as well. Unexpected technicality were more so on the availability of the tablet supplements which was the biggest issue. Students were informed that funds were not available after they've went to the financial office as instructed to and were told they did not know what was going on, before they were told that the funds ran out almost immediately at the start of the program. On the brighter side, students were very engaged and embraced the technology. Some whom were new to technology.
- If you use Blackboard (or similar), it is very convenient for students to download and look at documents on their devices. Several students in the device required section really liked turning in lab reports electronically rather than as hard copy (they didn't run the expense of printing the labs out), but this was not convenient for labs that required drawings (although some students got pretty creative with making drawings in Word). I found that when students turned in assignments or did worksheets/quizzes electronically, I had a tendency to forget to grade them in a timely manner.
- It is cool how schools are changing with technology. I like how there is less paper to use. The only thing is that it's hard for some to get a device to use.
- It was very different teaching experience especially in the painting. I had to make the clear distinction between the digital painting class expectations vs. regular painting class. In this class the tablet was used as a tool that facilitates research, interactive learning with an access to online tools, as a digital journal, sketch pad for an exploratory thumbnail sketches, and most of all as a way of

saving money on the supplies. I have expected that the students are tech savvy, which was not the case. Most of them have purchased the tablet just for this course and some of them resumed to use our computer lab, especially when the Photoshop has faster results than some tablet's apps. The experiments with the tablet gave me more creative ideas about the projects and inspired me to make a real time video for a landscape painting, where the students had a recreation of plain air experience via a tablet video projection. I wish I had more preparation time with my tablet to learn about other possibilities. I also learn that having a new tool and new ideas keeps all of us highly energized and focused, but that the flexibility is also an important element in teaching. The students felt that they need to have more hands on, visceral experience so in the second portion of the class used tablets less as a digital paintings tool, but more as a support platform.

- Microsoft Office 365 doesn't work the same with MAC and Windows Tablets and Laptops. Used Virtual Box to overcome differences in Microsoft Office lab work. Office 365 installs are problematic depending on patch levels, older laptops. Difficult to work with and assist students in a lab setting (looking over their shoulder, display visibility, use of WebEx is problematic when working with students remotely. Form Factor (display size) causes problems when following tutorials (button, ribbon, tabs, reposition or hide themselves to save screen space). On campus - Internet Bandwidth and Latency caused productivity issues. Classroom printing is not possible. Had to use Lab PC's. SAM was problematic for MAC users (Office 365 compatibility issues). Consistency in providing instruction is more complex in that each student's desktop experience is different in operation, presentation, and in some cases, compatibility. Power cord access and ergonomic issue (outlets with easy access, crawling under desks, etc.). RECOMMENDATION: A remote desktop solution (Microsoft RDP, Citrix/XenApp, etc. and Temporary Profiles) would allow CHC to provide a consistent desktop with standard applications (Office 365, SAM, Blackboard, Quick Books, etc.) using the various tablets, desktops, without impact of differing technologies, operating systems, and application variation. There are remote desktop solutions that launch and operate from different technology platforms (Windows XP, Windows Vista, Windows 7, Windows 8.x, MAC, and Linux). If this solution was offered to students, it could be paid for by a technology service fee per semester. The service would not be one for one (one desktop per student) but it would leverage the remote desktop solution where an optimum number of students who paid the fee would be online at any given time. It would also allow and control licensing based on an expected volume of use.
- Mobile devices are not for everyone. Some students expressed great joy and excitement over using mobile devices in conjunction with class assignments, while others found them to be an annoyance. Overall, I found that students did at least as well on assignments in the device required course as in more traditional courses. No improvement in grades or quality of assignments. Rather, the benefit seems to be largely convenience rather than educational.

## Appendix J

Q5: We are interested in knowing your overall thoughts and opinions about the tablet initiative. How is this initiative going for you? Tell us what is going well and what may not be going well.

- I believe I've already addressed this question.
- I enjoyed the experience and would participate again in the future.
- I like only having to carry one device instead of many different things in a backpack. I think it's good but the classrooms should provide devices to use or alternatives for others. Not everyone learns the same.
- It is going fairly well. I have reduced the amount of paper used in my class, which was one of my goals, but I would like to reduce it even further in future semesters. I'm not sure that the students got a "better" experience by doing quizzes, worksheets and labs electronically rather than in paper form and in class vs. at home. Perhaps I am not using the devices as well as I might. It would be cool to have a PD workshop on creative ways to use tablets in class.
- It is going well, but since my use of the tablet adds work to my load, I don't know if I will pursue it in the future. I think I will let students decide if they want to use it in class but not require it.
- Microsoft Office 365 doesn't work the same with MAC and Windows Tablets and Laptops. Used Virtual Box to overcome differences in Microsoft Office lab work. Office 365 installs are problematic depending on patch levels, older laptops. Difficult to work with and assist students in a lab setting (looking over their shoulder, display visibility, Use of WebEx is problematic when working with students remotely. Form Factor (display size) causes problems when following tutorials (button, ribbon, tabs, reposition or hide themselves to save screen space). On campus - Internet Bandwidth and Latency caused productivity issues. Classroom printing is not possible. Had to use Lab PC's. SAM was problematic for MAC users (Office 365 compatibility issues). Consistency in providing instruction is more complex in that each student's desktop experience is different in operation, presentation, and in some cases, compatibility. Power cord access and ergonomic issue (outlets with easy access, crawling under desks, etc.). RECOMMENDATION: A remote desktop solution (Microsoft RDP, Citrix/XenApp, etc. and Temporary Profiles) would allow CHC to provide a consistent desktop with standard applications (Office 365, SAM, Blackboard, Quick Books, etc.) using the various tablets, desktops, without impact of differing technologies, operating systems, and application variation. There are remote desktop solutions that launch and operate from different technology platforms (Windows XP, Windows Vista, Windows 7, Windows 8.x, MAC, and Linux). If this solution was offered to students, it could be paid for by a technology service fee per semester. The service would not be one for one (one desktop per student) but it would leverage the remote desktop solution where an optimum number of students who paid the fee would be online at any given time. It would also allow and control licensing based on an expected volume of use.
- The tablet initiative speeds up the processes in the classroom and makes the class supplies cheaper. I have enjoyed using it and I would do it again. Initially, students needed time to get used to it. The experience in this classroom made me inspired to try different options in other classes (e.g. Art History) as all the students had smart phones and we were using it as a tool for a groups research and communication tool
- The technology is great, but it has positives and negatives. Positive is the accessibility of the materials I post for the students. The negative is that some students are frustrated with the inability of some tablets not functioning properly or the lack of experience in usage. They spend more time figuring out the technology than using it effectively.

## Appendix K

Q6: What kinds of technical problems have you had (if any) related to the use of a tablet and/or mobile device in your classroom?

- I didn't experience any technical problems.
- I'm only able to use devices in class in my laboratories. The LADM lecture halls do NOT have good Wi-Fi.
- I've been lucky enough to not have ran into any issues this semester. I have a strong sign strength of WIFI.
- Keeping your device charged and holding the charge if you don't have a charger. Not all devices operate the same
- None on my end. :o)
- See above comments in 5.
- The Wi-Fi in the classroom wasn't stable. If there was a high usage we would not have internet. Using different devices and platforms propose challenges. It took more time to address everyone's different issues apps related

## Appendix L

Q7a: Do you recommend Crafton Hills College continue moving forward with the use of tablets and/or mobile devices in the classroom?

- A qualified yes. I don't like the concept of "required" in education. Everyone learns differently and forcing everyone to do the same assignments in the same way could lead to a worse learning experience for some students. As I said above, I don't really need computers IN CLASS. Plus, a lot of the best software is expensive, leading to more expense for the students.
- I would no longer look at it as an "initiative" but rather as a teaching/learning option. It originally came across as a large scale program with lots of Professional Development and support, and it seems that this is decreasing as time goes on.
- Not at this time. A "required" class deter students, especially when this note was added after some students had registered for the class. I think it's a good thing for professors to be into the technological aspect of teaching, but if we were to continue, I prefer that the "required" message be added to the sections before the course is made available. This was brought forth by students who were enrolled prior to the message.
- See above comments in 5.
- See where it goes
- Some students find the use of devices in conjunction with their education rewarding, convenient and helpful.

Any questions regarding this report can be directed to the Office of Institutional Effectiveness, Research, and Planning at (909) 389-3390 or you may send an email to [bgambo@craftonhills.edu](mailto:bgambo@craftonhills.edu); RRN1057 Tablet Initiative Report Spring 2015.docx; snTabletInitiative\_MidTerm\_Sp15.sav; snTabletInitiative\_MidTerm\_Sp15\_Fac.sav; Grades\_CHC\_GOR\_20150624\_FiveYears\_1011to1415\_NoLRC900\_Tablet\_Initiative.sav