Indian Valley Netbook Project
Satisfaction Survey, Cost/Benefit Analysis, and Local Organization Comparisons

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For:
Indian Valley High School

April 9th, 2015
From TreeCity Consulting

TREECITY

CONSULTING

April 9, 2015

Robert Clarke
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Dear Mr. Clarke,

I am writing to thank you for your exceptional participation with our technical writing group at KSU at Tuscarawas. You not only provided prompt and informative communication to our group, but also gave us the information that we required to complete our final project. I speak on behalf of my fellow group members when I say that our experience with you has been an enjoyable and productive one.

In the following pages, you should expect to find our reports that can be used when making future technology decisions. We will also include all of our raw data received through the teachers' and students' satisfaction surveys alongside our final cost-analysis.

Our group hopes that this information can be useful to Indian Valley High School's administration, so that the 1-1 netbook initiative can continue to be as successful as possible. Once again, I want to thank you for aiding our group in regards to this project – without you we wouldn't have gotten the great responses from the staff and students that we did.

Sincerely,

William S. Bonanno

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Executive Summary

In response to Indian Valley High School's (IVHS) unfamiliar stance with the satisfaction and cost-effectiveness regarding their new technology initiative, we have developed a final report summarizing our research. This report includes three sections. First, TreeCity Consulting (TCC) examines the student and teacher surveys that were conducted in late March. Then, we inspect the initiative's financials to determine if it has been cost-effective. Finally, IVHS's plan is analyzed in comparison to other local institutions, such as Buckeye Career Center and New Philadelphia High School, to determine if the initiative has been successful.

In regards to the initiative as a whole, TCC has found the new netbook initiative a success. Students and teachers, through their survey answers, have expressed their overall approval of the new initiative. As well, our cost analysis team found that the netbooks should pay for themselves in the long-run; hence they are a cost-effective alternative to textbooks. Finally, our comparison against various local schools uncovered the fact that IVHS has been an important forerunner in regards to technology in the classroom.

Client Profile

Indian Valley High School (IVHS) is a local secondary school located in Gnadenhutten, Ohio. IVHS is the only high school in the Indian Valley district. Each year, IVHS houses roughly 500 students ranging from freshmen to seniors. According to their website, the school has "exceeded the requirement for each high school indicator on the building and district report cards for the past [ten] years." IVHS has a staff of 33 teachers and a handful of administration personnel. This local high school has been providing a quality education to the area's students since 1988.

Statement of Problem

IVHS has recently introduced a new technology initiative within the last three years, which grants netbooks to all current students. Considering IVHS's small administrative footprint, they have been unable to gather the resources and manpower required to conduct proper research into the effects of their new initiative. While students and teachers can immediately see differences in the classroom, administration has not been able to determine the reaction to the new initiative in-depth. Also, IVHS's administration has been unable to research if the netbooks have been cost-effective in the long run. With TreeCity Consulting's (TCC) research help, not only would the administration learn about the effects of their new technology initiative, but also district taxpayers could be shown the possible benefits of said initiative.

Teacher Survey Analysis

While there were several aspects of this survey, in which the respondents were evenly distributed in their opinions regarding the netbook initiative, more than a few of the questions that were asked received more skewed results than others. Some of these even produced results in an overwhelming majority of support either for or against features of IVHS's netbook initiative.

For example, when asked how much paper the teachers felt had been used since the enactment of the netbook program, the vast majority of them (70.4%) agreed that less had been used. This would indicate that as far as cutting back on paper usage and conservation of resources, the netbook program has been, to a large degree, somewhat of a success at IVHS. However, by and large, the faculty at IVHS seems to be somewhat divided on other facets of the program, such as student productivity and student personal use.

Student Productivity
First, as applies to student productivity, the teaching staff at IVHS seems to differ on their opinion regarding how beneficial the netbooks have been in that capacity, as the following pie chart illustrates:
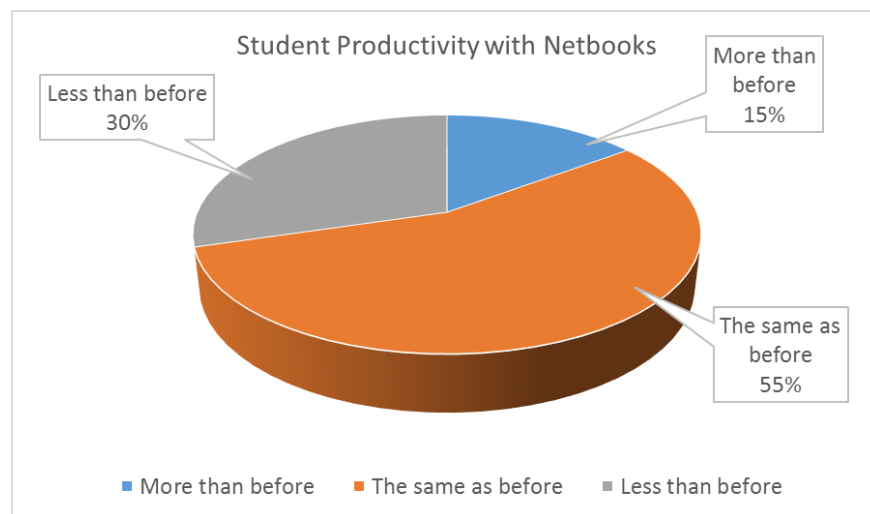

As can been seen from these results, more than half of the teachers (55%) feel that the student body as a whole has been just as productive as before, with no gain or loss, since the start of the new initiative. On the opposite end of that, the remaining portion are as well unequally divided in their opinion regarding student productivity with the new technology.

Of the remaining 45%, the lower third (15%) assert that the netbooks are making the students more capable learners, and thus a total of 70% who believe the netbooks are offering the same or more capacity. However, a full two-thirds (30%) have stated that the netbooks have made their students less industrious with their studies, for a total of 85% who feel the netbooks offer the same or less student productivity.

Hence, the numbers shown here clearly indicate that for the most part, the faculty at IVHS feels that the netbooks have not made the students more productive with their study and learning abilities. A direct corollary to these numbers, then, is the second topic of discussion here: student personal use.

Student Personal Use
One of the largest contributing factors to the previous numbers can be construed from the results regarding how the students use their netbooks, particularly *in* the classroom. According to the teachers surveyed, the vast majority of them believed that their students were not using the netbooks – provided *by* the school, *for* school use – for their intended purpose. As the ensuing chart provides, the numbers do indeed suggest a direct relation to productivity:
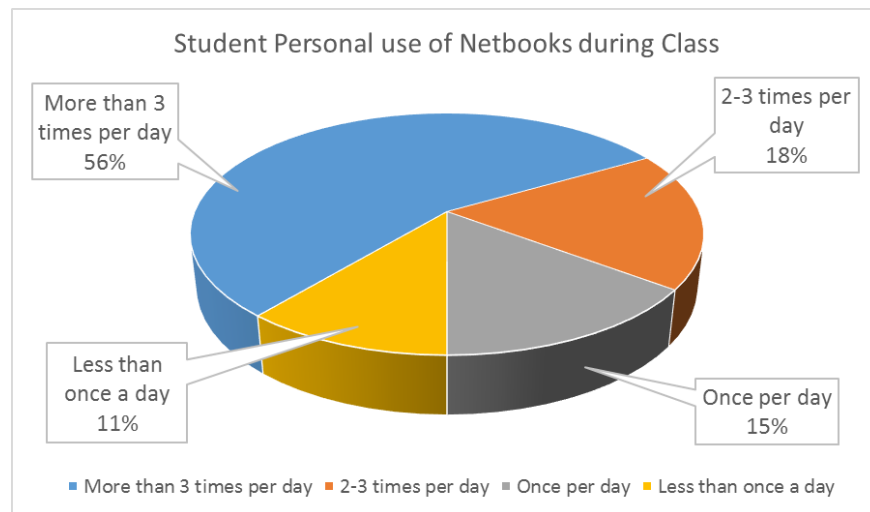
From this chart, we can see that the students have been observed by more than half of their teachers (56%) as using their netbooks *during class* more than three times in a single school day for activity *not* related to course work. This, of course, begs the question: how can students possibly be considered as "more productive" with their netbooks regarding classwork, learning, and studying, when they are not using the technology – during class – for those purposes?

Before giving that answer, we need to address the remaining numbers of the results which indicate that at least 18% of the teachers have found students using the netbooks for personal use, during class, at least two to three times per day. All told, that is a whopping 74% of IVHS students that have been discovered, at least twice per day, using their school-provided netbooks for activities other than schoolwork *during* school hours.

With this combined figure, we can easily come to the conclusion that since the bulk of the students use their netbooks for activities other than studying and learning during class time, the netbooks as a whole affords them less or the same productivity rate as before the netbook initiative. As an assessor of this data, the numbers would seem to indicate that the netbooks are counter-intuitive to the goals of IVHS in that respect, which is to foster greater, not equal to or less than, productivity among their high school students, because the students are not using them solely for school-related work and study.

Teacher Satisfaction
Surprisingly, though, despite the facts of what the numbers relay regarding mediocre student productivity and student personal use during class, the faculty of IVHS seem to prefer the netbook initiative over traditional book, paper, and pencil methods.

Though their opinions either for or against the initiative vary by the subjects they teach, the general consensus would appear that as a whole they are satisfied with the netbooks. As stated, though, the degree of their approval or disapproval varies by their perspective fields, as exhibited in the subsequent graph:
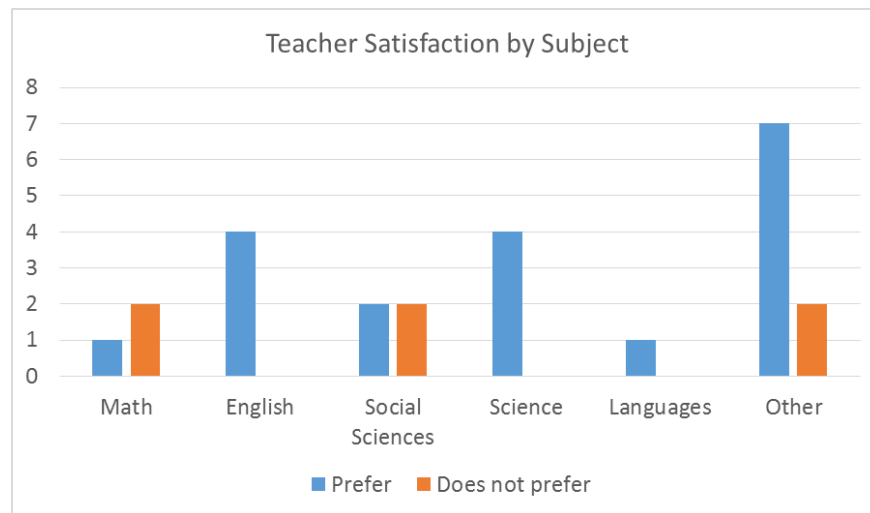
According to the above numbers, which are based upon the amount of faculty respondents per subject, satisfaction with the netbooks as teaching tools have been met with positive results in every subject but math and social sciences. Of the three math teachers who responded to the survey, two felt dissatisfied with the netbooks. Likewise, the four social science instructors surveyed were split evenly on their opinions for and against the netbooks.

In contrast, the English, science, and language departments at IVHS all seemed to be in accord in their assessment of the initiative. Of the four English faculty, all were content with the netbooks as teaching tools. Further, the one language and four science teachers who answered the survey all agreed in being happy with the netbooks. Of the other miscellaneous subject instructors who responded, seven out of the nine were also pleased with the teaching capacity of the netbooks. If translated to percentages, this would be a 19:6 ratio, or 76% of the faculty that found the netbooks to be a useful, and satisfying, teaching apparatus.

Findings
From the above data, we can make the following assessments regarding the netbook initiative in regards to teacher satisfaction. As far as student productivity is concerned, a resounding 85% of the teachers surveyed feel that the students are just as or less productive with the netbooks as before the initiative. Correlating to this is the student's personal use of the netbooks. More than 74% of the students have been observed at *least* twice per day using the netbooks for activities other than school-related work, during class time. One can infer from this that the netbooks are, in truth, a counter-intuitive tool to the purpose of education, which is to build more productive students, not equal to or

less than. Lastly, despite the findings that students are just as or less productive and show a marked misuse with the netbook initiative, the teachers overall seem satisfied with the netbooks. When broken down by individual subject the results varied, but 76% of the faculty at IVHS as a whole agreed that the netbook initiative is a useful method of instruction and learning for their students.

As an assessor of the data, this seems incongruous with the results of productivity and student use, specifically in that it raises the following question: why do the teachers view the netbook initiative in a satisfactory light, given that the productivity of students is the same or less, and they misuse the netbooks from their intended purpose?

Primarily, it is here suggested that one way to curtail the misuse of the netbooks is to implement some better safeguard to prevent netbook misuse. Specifically, a white-list that would block access to only school approved sites would be appropriate. This would cut back on the misuse of the netbooks for recreation, as the students would only be able to use them for their intended purpose, a learning tool. By extension, this should also increase their productivity, as they would no longer have access to the varied distractions that an unregulated internet offers.

Student Survey Analysis

As with the teacher survey, there were several characteristics appraised within the student body as a whole at IVHS. Chief among these, being the aspects that gave largely unanimous results either for or against, were students with home internet, student netbook usage in school, student satisfaction by grade, and overall student satisfaction. While seeming irrelevant to the notion of being for or against the netbook initiative, these statistics illustrate by their majority numbers the success of the initiative as a whole, which then reflects the program in either a positive or negative light. In the larger scheme, this notion of the program's potential success is of great importance, considering that as polled, 97% of the 248 student responses affirmed that, with this initiative, they were asked to complete assignments at home using the internet.

This suggests a lean towards the growing trend of using technology and internet based learning to augment and replace the classic face-to-face teaching method, for which the netbooks would be essential. As such, directly related to this is the amount of students with home internet access versus their usage during school hours.

Home Internet Access
As applicable to internet access overall, most public school systems in America now have links to web servers to augment student learning while within the "school" environment. However, as the above statistic revealed, 97% of the students at IVHS are asked to do internet-based school work at home, outside the school environment, which would require some sort of external access to the web. Concordant to this, the following chart shows how many of the IVHS students have such access:

Students with Home Internet

No
20%

Yes
80%

■ Yes ■ No
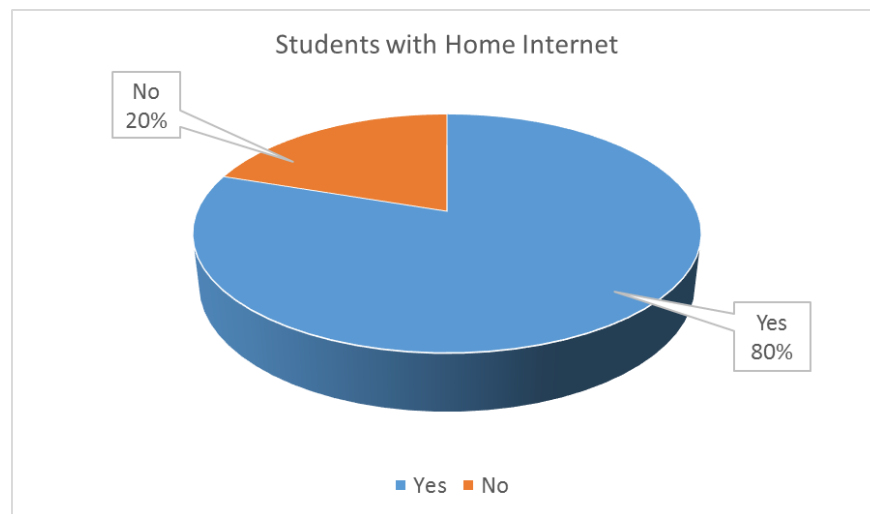
As can be seen by these numbers, the blue section of the pie indicates the percentage of students who do have some sort of external use of the internet beyond the school premises. This number comprises 80% of the IVHS student population, or 4/5 of the student body. However, there are still the 20%, indicated by the orange pie section, who do not have access to the Web outside of school. Thus, while the majority of the students *can* complete assignments that were specifically asked to be done outside of school, a full 1/5 of the students *cannot*, as they do not have outside internet access.

Still, if it is a matter of number-crunching, the results show that the bulk of IVHS students have home internet access, which in turn allows them to accomplish web-based homework. Corollary to this is how much time the students use their netbooks in school – and what they use it for – given that while in school, *every* student has access to the internet.

In-School Student Usage
As stated previously, one out of every five students at IVHS does not have access to the internet off school grounds. However, while in school, every student can use the internet through their provided netbook. With this, though, an important question must be asked: *how* are they using that access; for scholastic, or personal use? Upon examination of the ensuing chart, the numbers point out the variance of usage:

Student Netbook Usage during School Hours

Scholastic
18%

Personal
82%

■ Scholastic ■ Personal
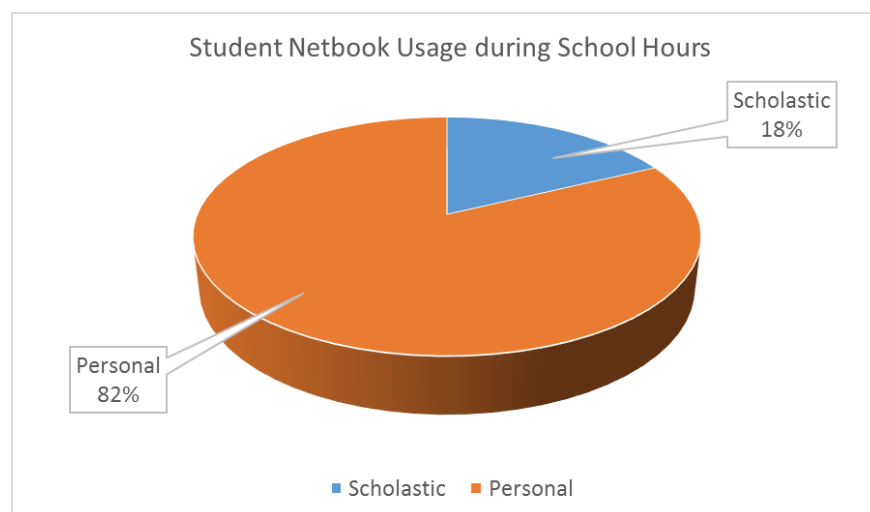
Not surprisingly, an overwhelming 82% of the student body freely admits to using their *school provided* for *school-related work* netbooks for activities *not* related to school work. Not only do they use them for personal use, but they admit, albeit anonymously, to doing so during school hours.

On the other end of this chart are the 18% who say they use it for scholastic purposes only. That is not say the majority use it solely for personal use, but that they do so in conjunction with their school work. That said, the purpose of the initiative is for education and scholastic use, not playtime or personal distractions, such as Candy Crush, Facebook, Twitter, or any other avenues that deviate from the course material. This, then, begs yet a further question: are there any safeguards in place to ensure that the netbooks are being used for their intended purposes? Also, if not, how may such safeguards be implemented? Still too, how satisfied would the students be with their netbooks if such safeguards were in place to prevent or at the very least severely limit personal usage?

Satisfaction by Grade
Since the netbook initiative is a relatively new program, implemented only within the past two years, there has been a fairly uneven percentage of the IVHS student body that has had access to the netbooks for any prolonged period. The majority of students who have had more time with the program belongs to the upper classes, the juniors and seniors. The freshman and sophomores, just beginning high school, have had less time within the program as a result. The following bar graph shows the students' satisfaction, by class, accordingly:
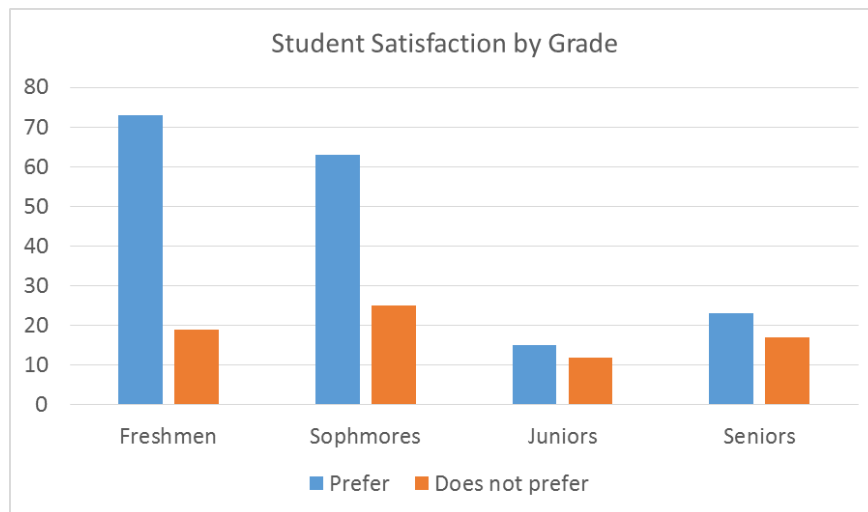
Thus, the numbers above clearly show a marked division in the satisfaction with the netbooks among the student body based on their level in high school. When broken down by class standing, over 70 of the freshmen prefer the netbooks, as opposed to just under 20 who do not. Likewise, the sophomores seem to follow suit, with just over 60 preferring, yet those who not like the netbooks is somewhat higher within that class bracket. Among the juniors, the difference is starker, due to the lower amount of respondents, showing an almost even split at just above 10 each between like or dislike of the initiative. Seniors, too, seem to mirror the junior's responses, though their preference for opposed to against the netbooks is slightly higher, peaking at just over 20. Overall, then there is a preference for versus against the netbooks within all the grades.

Overall Student Satisfaction

Based upon the previous graph, it can be seen that on the whole the student body is overwhelmingly satisfied with the netbook initiative. To better represent the percentage of preference, the above graphs have been condensed into the following chart:
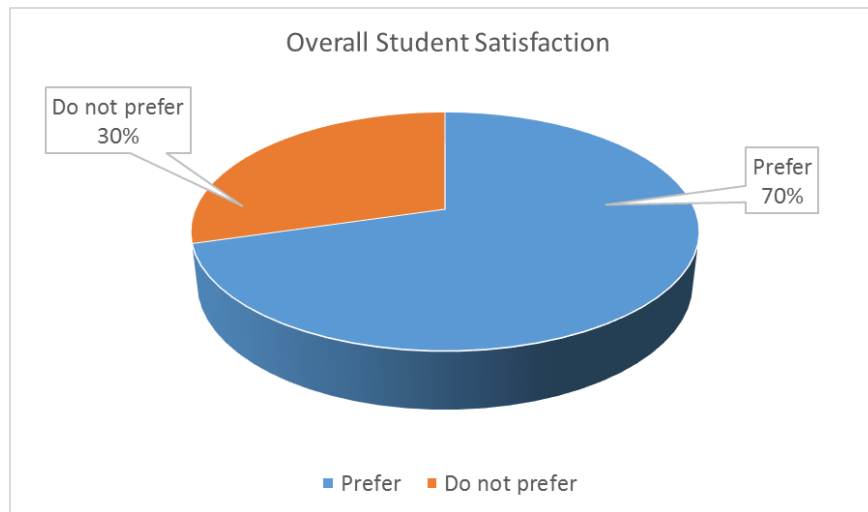
Based upon these results, the majority of students, regardless of their high school standing, are for the netbook initiative as opposed to against. When this number is compared with the previous chart regarding netbook usage during school, it should be considered that their preference for the netbooks might possibly hinge on the fact that they have access to the internet, with no safeguards, during school hours.

Findings

As the above findings indicate, the students are required to use their netbooks for internet-based homework assignments, and the majority of the students (80%) have access to some sort of internet outside of the classroom. In tandem with this is how much they use their netbooks during school hours for internet activity, and specifically what they use it for. Not surprisingly, a resounding 82% of the students admit, albeit anonymously, that they use their netbooks during school hours for non-school related activity.

Further, when broken down by grade and overall, the students are satisfied with the netbooks. As alluded to above, this satisfaction may have a lot to do with their unfettered access to the internet, completely on the school's dime. Hence, it is recommended that IVHS looks into incorporating a better filtering service on their netbooks, one that limits what the students have access to while using their school-provided netbooks, to ensure they are being used solely for education purposes, not entertainment.

Cost/Benefit Analysis

Methodology

Our TreeCity consulting team has completed a cost-analysis for IVHS. In our research we have obtained information that includes the total paper and toner usage of IVHS, the life-span of the netbooks, and the overall cost of the netbooks. Also, some information on IT personnel and whether or not they have had to hire more IT staff to compensate has been directed to our attention. In addition to the cost factors, IVHS has provided us with their

policies on broken or damaged netbooks and who is held accountable for paying the fees/fines associated with them. Included in Appendix D is a graph that represents all costs associated with the implementation of the netbooks. The aforementioned graph also includes textbook costs and estimations about paper and toner usage.

Netbooks versus Textbooks
After reviewing the survey and the answers given, our team has been able to make some conclusions on the cost-effectiveness of the netbooks versus textbooks. Paper usage on the students' behalf has decreased since the introduction of the netbooks because the use of paper handouts has decreased. Even though the administration has recently negotiated a new copier contract agreement at the district level, they would like to see a decrease of paper usage for the staff at IVHS. Since the netbooks are a portable device and have internet access, the students can look up or research whatever they may need to without handouts. The information is on screen and accessible to them at any given time. Students at IVHS do not have to pay a "book fee" but they are responsible for paying a course fee instead. Course fees cover any additional material needed for the classes they are enrolled in and these fees have been minimized in some classes since the inclusion of the netbooks. The life-span expectation of a single netbook is approximately four years.

When the 1:1 netbook device was first introduced to IVHS in 2012 they paid an estimated $320 for every netbook unit. This includes the device itself, the power cord, and the case. Since the initial price of $320 was too much, they have made a bulk purchase of Google Chromebooks and it now only costs them around $290 for each device. When a student graduates, since the netbooks are still full operable and are in good condition, they send them to the elementary building for classroom purposes. This is great for IVHS in a multitude of ways. Since the netbooks have already been paid for, when they send them away to the middle school they are allowing the future high school students to become familiar with the devices.

IT Department Improvements
IVHS has added an additional technology assistant to their staff to help with the technology integration but they are not specifically related to the 1:1 devices. This person takes on the tasks of providing beneficial technological improvements in the class room and also deals with other technological improvements outside of the class. An estimated $60,000 was spent at IVHS to upgrade their core switch, add enterprise-grade wireless access points, implement PoE switches, and for other various minor technological upgrades. All of the upgrades do not coincide with the netbook devices. These upgrades were made because of the rate that the equipment was aging; hence, it was time for a more modern setup.

Policies on Broken/Damaged Netbooks
Reparability comes into the equation a lot while dealing with the netbook devices. However, in the three years that IVHS has implemented the 1:1 devices only an astonishing 14 were damaged to the point where they had to be fully repaired. This is a very good ratio considering the fact that they have purchased approximately one-thousand devices since 2012. It is known that prior to the netbooks they typically spent around $2000 a year for textbook repair and replacement. Since the netbooks have been introduced, they only spend $1200-$1500 on minor damages. Insurance plans are also available to the parents of students using the netbooks and if they decide to not purchase insurance then they are liable for all costs of repair for the device.

Findings
After analyzing and interpreting data from the cost-analysis questionnaire we make the bold conclusion that the netbooks are cost-effective. We cannot give an exact numerical value or dollar amount due to the limited information that we have received. But, based on context clues and the questions that have been answered, it is safe to assume that IVHS is saving money overall by implementing the netbooks. Due to the investments they have made in purchasing netbooks, upgrading infrastructure, and having another IT personnel it will take time to see how things unfold. We at TCC were very pleased with the answers that IVHS gave us and how they responded to us in a timely fashion. Also, they have given us enough numerical and statistical data that allowed us to make the interpretations that we did.

Local Organization Comparisons

Methodology
At TreeCity consulting, we decided to investigate whether or not the new netbook initiative at IVHS has been conclusively successful. To determine the success, we conducted interviews with various local schools to see how they have implemented similar technology initiatives. We also researched the general effectiveness of technology in the classroom through Kent State University's database systems.

Comparison
Compared to other local schools, Indian Valley has implemented a very similar technology program. According to Mr. Eric Jerkovic, the principal of New Philadelphia High School, his school district is striving to implement a 1-1 program that is quite similar to that of IVHS's. He mentioned that the students and teachers have responded quite positively to the current technologies in the classroom, much like IVHS's students and faculty. He did note that some teachers were "set in their ways" and found the new technology a hindrance more than a help. Lastly, Mr. Jerkovic expressed that their new initiative hasn't been able to cut down on paper usage quite yet.

TCC also investigated Buckeye Career Center's (BCC) most recent technology initiative. In the last couple years, they have implemented a 1-1 program that almost mirrors IVHS's own initiative. In an interview that we had with Mr. Trent Edie, an assistant principal at BCC, he noted that the some teachers "embraced" the new technologies while others did not. He also explained that he hasn't seen a huge increase in students' eagerness to learn. In closing, he mentioned that the new 1-1 initiative has dramatically reduced the amount of paper that the school uses daily.

Both district representatives stated that they think their programs have been a success, yet Mr. Jerkovic explained that they anticipated a better response to their newest initiative than what has been expressed.

Findings
In closing, I think it is evident that IVHS's new 1-1 initiative has been successful. Because of the close resemblance between the three districts' plans, it is easy to see that IVHS has been able implement technology in a way that has been beneficial to students, teachers, and the administration. IVHS's initiative has also been quite successful in reducing the cost of paper that is used per year.

Through the satisfaction surveys that we distributed, it can observed that a great deal of people prefer having netbooks in the classroom versus textbooks. Pauline Baba, in her journal article entitled "Technology in the Classroom: a Tool or a Drag," writes: "[today's classrooms] cannot function without at least one [device]" (75). Indian Valley has definitely met the one-device requirement that Baba discusses in her article.

Finally, an interesting perception that I noticed when comparing the three schools was that BCC only introduced their initiative after the administration realized how successful Indian Valley's initiative was. According to the English writer Charles Colton, "imitation is the sincerest form of flattery."

Conclusion
Keeping in mind the satisfaction survey results, the cost/benefit analysis, and the local organization comparisons, TCC has been able to verify that IVHS's new technology initiative has been both financially and satisfactorily successful. While IVHS could implement several new policies that could help with student personal use on the netbooks, teacher and student satisfaction are still quite high. Alongside the satisfaction results, TCC also came to the conclusion that the netbooks have been cost effective thus far. Finally, recognizing the fact that many local organizations have, or plan to, replicate IVHS's new technology initiative has led us to realize that Indian Valley has been an important forerunner in in this area regarding netbooks in the classroom. Hopefully, other local schools can follow IVHS's example and introduce new technology initiatives that help students learn while reducing the overall cost of education.

Annotated Bibliography

Baba, Pauline A. "Technology in the Classroom: A Tool or a Drag. *"Journal of Education and Practice* 5.27 (2014): 76-78. *International Knowledge Sharing Platform*. 2014. Web. 12 Apr. 2015.

Edie, Trent. E-mail Interview. 14 Apr. 2015.

Jurkovic, Eric. Telephone Interview 14 Apr. 2015

Gaved, Mark, et al. "Using Netbooks to Support Mobile Learners' Investigations across Activities and Places." *Open Learning* 25.3 (2010): 187200. *Education Research Complete.* Web. 28 Apr. 2015.

Mark Gaved and co-authors used 300 school-aged children between the ages of 11-15. The first decision that was made was on the use of netbooks for device learning. The netbooks chosen for consideration were based on screen size, operating system, and the options like no phone availability, as well as access to the internet, GPS, word capability and ability to make spread sheets. Another factor was the cost, and the fact that the Netbook was geared to meet school-aged children and first-time computer user's needs. The Netbooks also had to have quick start up after they went to sleep, and more durable. Groups of students were then given the task of collecting data doing research and writing reports using the netbooks. Students took readings from around town and around school. The students found it easy to learn the new technology, and they had little trouble even when one was damaged or when dropped. They also found they were easy to handle, rain proof, and the screen was still visible in the bright sunlight. Gaved found that using Linux allowed them to be virus free until they started jumping from home and school and having the use of pen drives. In addition to that, they also found that with Linux, students couldn't access YouTube and free video games when given the opportunity to use the web. This study found that netbooks were a good fit for device learning and were cost-effective.

Lannon, John M. "Chapter 9: Exploring Primary Sources." Technical Communication. 11th ed. New York: Longman, 2007. 138-46. Print.

Primary sources allow for firsthand information into specific fields. Interviews are great primary sources because they allow researchers to gather information that may have never been published. While interviews are effective at determining a specific individual's thoughts on a subject, surveys remain crucial to gauging a group's concerns, preferences, attitudes, and beliefs on a subject. Inquiries to specific individuals should also be considered when researching information. They can provide information that isn't stated in secondary sources. Another valuable form of research can be public records. Because of the Freedom of Information Act, governments and corporations must provide certain documents and information to the public. A final primary source that can be used for research is your own observations. It is important to remember that personal observations typically contain some form of bias.

McPeake, Joanne, Meghan Bateson, and Anna O'Neill. "*Electronic Surveys: How to Maximize Success.*" Nurse Researcher 21.3 (2014): 24-26. *CINAHL Plus with Full Text*. Web. 5 Mar. 2015.

Primarily, there are two types of e-surveys: web-based and email. The first presents a format where one can complete a survey online, whereas the second is sent directly as an email attachment or in the text of the email itself. However, given the ease of distributing e-surveys versus phone or postal mail, there tends to be poorer response rates for the electronic versions. Some factors that contribute to this are out-of-date email address lists, as well as the fact that many people have more than one email address, and tend to check or use one more than the other. Another crucial facet of surveys - electronic or otherwise - is the response rate. Statistically, response to e-surveys, both web and email, have been found to be lower than phone or postal service. The authors posit reasons for this, including type of audience being targeted, inexperience with the internet, poor internet access, and trust issues with private information being transmitted via the web. Also, some people are reluctant to respond due to 'survey saturation,' considering many such questionnaires as spam mail. Still, there are ways to increase response rate. Some suggestions are to keep the surveys short, let the audience know the average completion time, and sending periodic reminders with current response rate information to encourage completion.

Shaffer, Marvin. *Multiple Account Benefit-Cost Analysis. [Electronic Resource] : A Practical Guide for the Systematic Evaluation of Project and Policy Alternatives*. n.p.: Toronto [Ont.] : University of Toronto Press, c2010., 2010. *KentLINK*. Web. 28 Apr. 2015.

A benefit-cost analysis is a tool for gauging rates of return to risk involved in business, potential environmental gains to risk by environmental advocates, etc. The purpose of using a benefit-cost analysis is to identify the positives and negatives for more than one project or policy from society as a whole's point of view. The party initializing the benefit-cost analysis starts by identifying the outcomes of the project or policy, both the positive and the negative. The next step is to take the positives and negatives and begin to decide how to make people except the negatives for the positives. The chapter then goes on to give the components of value and what they are for benefit (positive) and what they are for cost (negative). The components of value are; use, existence, option and quasi-option. *Use value* refers to something for which people are willing to pay because of the satisfaction they directly and personally derive from it. *Existence value* refers to those things or attributes that people value for their mere existence or for their preservation for the present and future generations. *Option value* refers to a willingness to pay in excess of the expected benefit of a good or service. Then you have *Quasi-option value*, which refers to a willingness to pay for flexibility or the expected value of new information. In a nutshell, benefit-cost analysis is a system by which a person or group can weigh the positive and negative aspects of a situation, then decide if they are willing to take the negatives to attain the positives, or whether they require a compensation to offset some of the negatives. People do this on a daily basis. A good example is when a consumer finds two similar products on a store shelf, but one has a higher price than the other. They must then decide whether the added expense is worth it or not, and why.

Sinkowitz-Cochran, Ronda L. "Survey Design: To Ask Or Not To Ask? That Is The Question…." *Clinical Infectious Diseases* 56.8 (2013): 1159-1164. *Academic Search Complete*. Web. 10 Mar. 2015.

Survey Design: To Ask or Not to Ask? That is the Question… primarily relates to healthcare epidemiology but also acts as an informer for survey development. Why survey? Surveys are used most frequently in our society. We see them day-to-day at school, online, via mail, etc., and they are crucial in understanding the opinions and behaviors of a particular group of people. Surveying allows the target audience to voice how they feel, most of the time anonymously, and collectively respond to the questions as a whole instead of individually. Some reasons for this may include things such as the population being too large or their not being enough time to participate in other forms of communication. Room for question development is key. It is important that the questions conducted for the survey pertain to the audience, and also define the purpose of the survey. The implementation of surveys results in the highest response rate because they are commonly quick, concise, and accurate enough to coincide with fields such as healthcare.

Teacher Satisfaction Summary (Compiled using Google Forms)

1. On a scale from 1-10, how effective has the netbook been as a teaching tool?

1	**0**	0%
2	**1**	3.7%
3	**2**	7.4%
4	**0**	0%
5	**1**	3.7%
6	**6**	22.2%
7	**7**	25.9%
8	**5**	18.5%
9	**4**	14.8%
10	**1**	3.7%

2. On a scale from 1-10, how steep was the learning curve for the new technologies?

1	**3**	11.1%
2	**2**	7.4%
3	**4**	14.8%
4	**4**	14.8%
5	**1**	3.7%
6	**2**	7.4%
7	**3**	11.1%
8	**8**	29.6%
9	**0**	0%
10	**0**	0%

3. On a scale from 1-10, how satisfied are you with the new netbooks?

1	**2**	7.4%
2	**0**	0%
3	**1**	3.7%
4	**1**	3.7%
5	**3**	11.1%
6	**3**	11.1%
7	**5**	18.5%
8	**4**	14.8%
9	**5**	18.5%
10	**3**	11.1%

4. How often do your students experience technical issues with their netbooks?
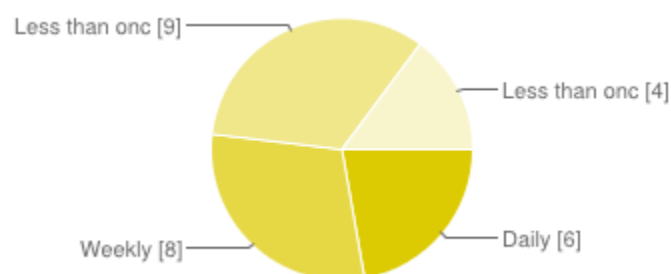
Daily	**6**	22.2%
Weekly	**8**	29.6%
Less than once a week	**9**	33.3%
Less than once a month	**4**	14.8%

5. How much paper do you use per week since the netbook initiative?
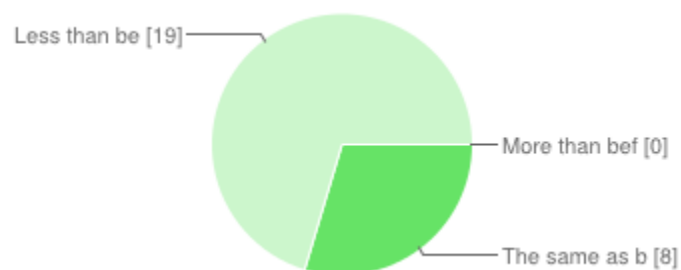
More than before	**0**	0%
The same as before	**8**	29.6%

Less than before   **19**   70.4%

6. Do you still use a textbook for most of your classes?
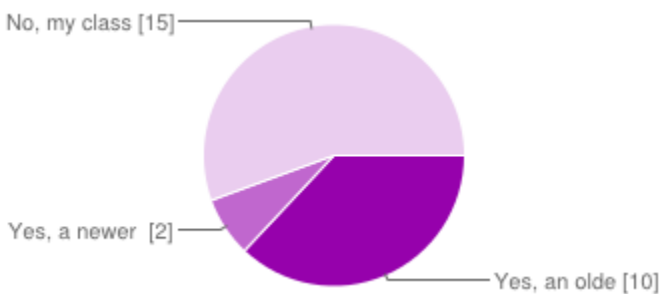
Yes, an older one	**10**	37%
Yes, a newer one	**2**	7.4%
No, my classes are completely online	**15**	55.6%

## 7. How productive do you think your students are with their new netbooks?
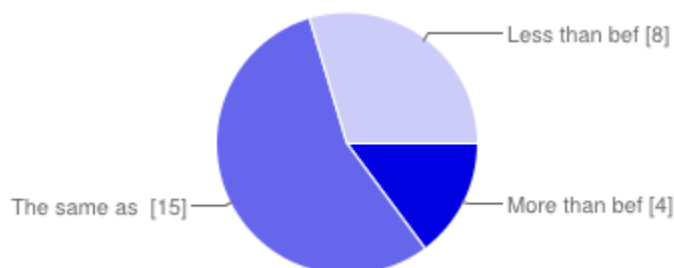
More than before	**4**	14.8%
The same as before	**15**	55.6%
Less than before	**8**	29.6%

8. How often do you find students using their netbook for personal use during class?

More than 3 times per day	**15**	55.6%
2-3 times per day	**5**	18.5%
Once a day	**4**	14.8%
Less than once a day	**3**	11.1%
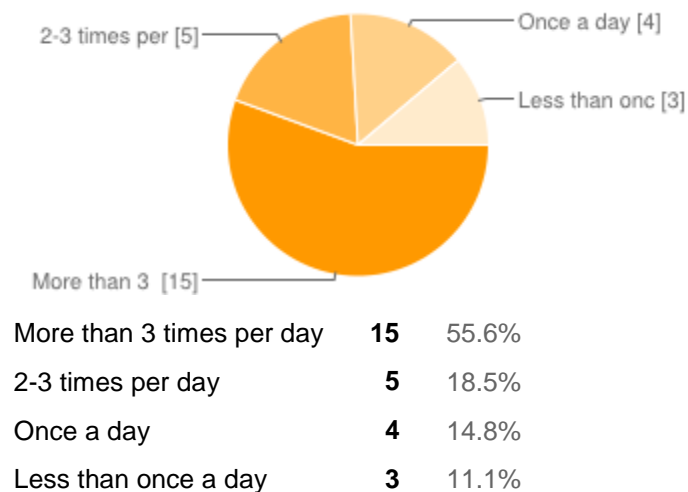
9. Since the classes are roughly 45 minutes long, how much of your class is spent on the netbooks?

75%-100%	**1**	3.7%
50%-75%	**7**	25.9%
25%-50%	**5**	18.5%
0%-25%	**14**	51.9%
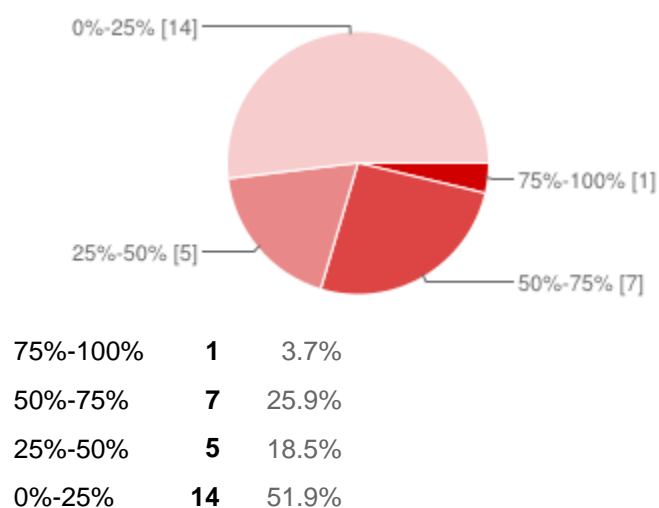
10. What department do you teach in?

Math	**3**	14.8%
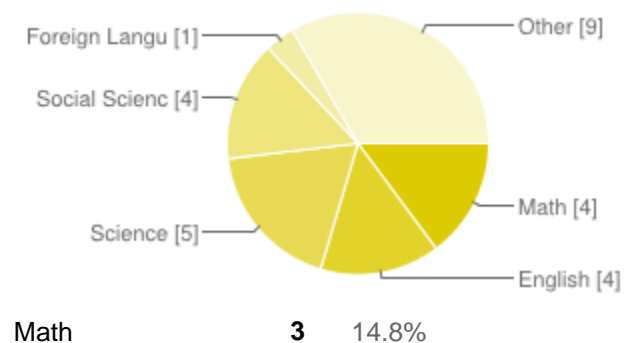
English	**4**	14.8%
Science	**5**	18.5%
Social Sciences	**4**	14.8%
Foreign Languages	**1**	3.7%
Other	**9**	33.3%

11. Overall, do you prefer the new netbook initiative?
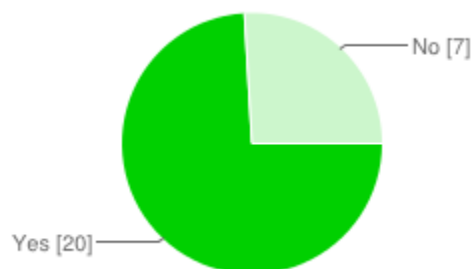
| Yes | **20** | 74.1% |
| No | **7** | 25.9% |

Number of daily responses

Student Satisfaction Summary (Compiled using Google Forms)

1. On a scale from 1-10, how effective has the netbook been as a learning tool?

1	12	4.9%
2	9	3.6%
3	8	3.2%
4	8	3.2%
5	32	13%
6	17	6.9%
7	27	10.9%
8	52	21.1%
9	31	12.6%
10	51	20.6%

2. On a scale from 1-10, how satisfied are you with your netbook's performance?

1	23	9.3%
2	9	3.6%
3	14	5.7%
4	10	4%
5	26	10.5%
6	27	10.9%
7	22	8.9%
8	31	12.6%
9	31	12.6%
10	54	21.9%

3. Have you ever used your netbook for anything other than school use during school hours?
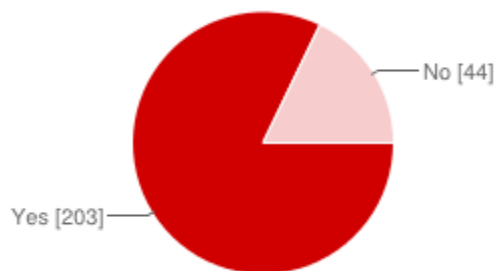
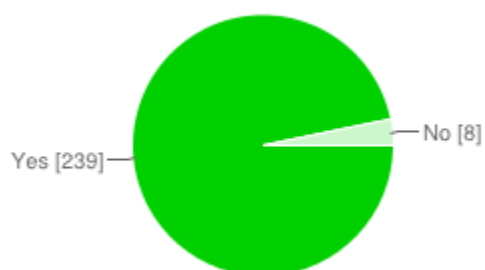| Yes | **203** | 82.2% |
| No | **44** | 17.8% |

4. If you have technical problems with your netbook, are most of your teachers able to assist you?
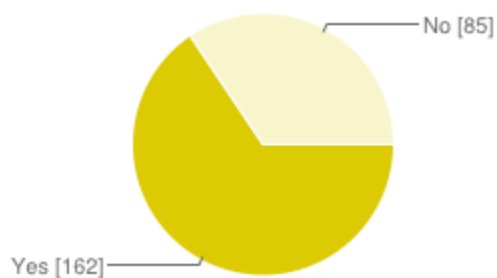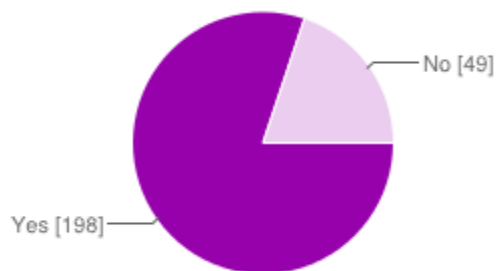

| Yes | **162** | 65.6% |
| No | **85** | 34.4% |

5. Have you been asked to complete an assignment at home that requires the internet?
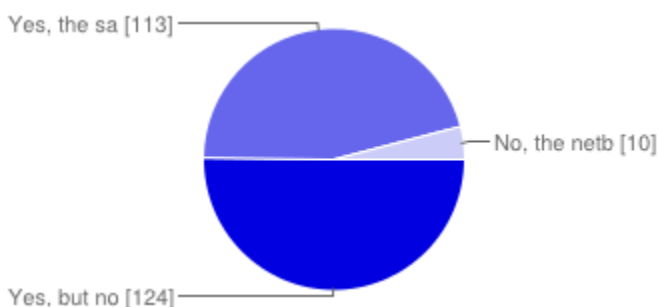

| Yes | **239** | 96.8% |
| No | **8** | 3.2% |

6. Do you have internet access at home?

Yes   **198**   80.2%

No   **49**   19.8%

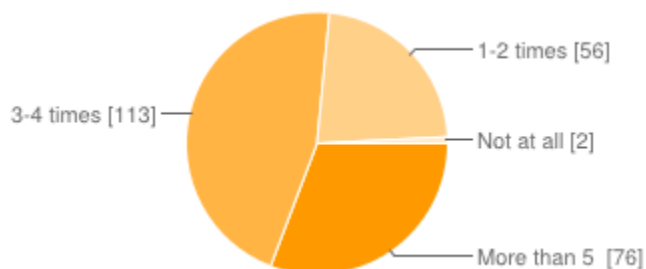## 7. Do you have to buy paper at the beginning of the year? As much as you used to?

Yes, but not as much	**124**	50.2%
Yes, the same amount	**113**	45.7%
No, the netbook has completely eradicated my need for paper	**10**	4%

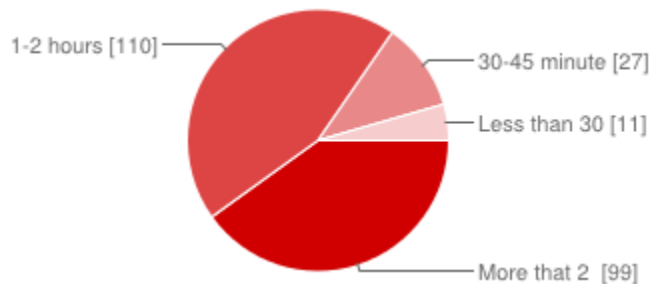## 8. How often do you use your netbook in your classes per day?

More than 5 times	**76**	30.8%
3-4 times	**113**	45.7%
1-2 times	**56**	22.7%
Not at all	**2**	0.8%

9. How much time do you spend on the netbook every day?

More than 2 hours	99	40.1%
1-2 hours	110	44.5%
30-45 minutes	27	10.9%
Less than 30 minutes	11	4.5%

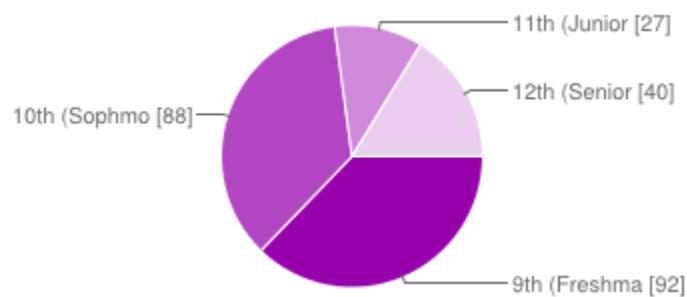## 10. How much time do you spend on your netbook outside of class for school functions per day?
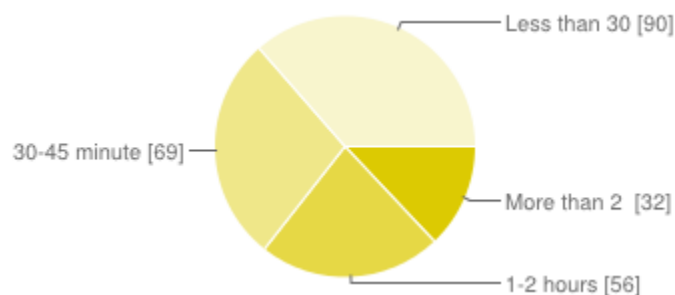
More than 2 hours	32	13%
1-2 hours	56	22.7%
30-45 minutes	69	27.9%
Less than 30 minutes	90	36.4%

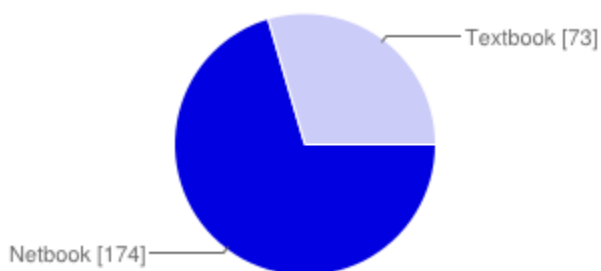## 11. How productive do you think you are in-class with your new netbook?
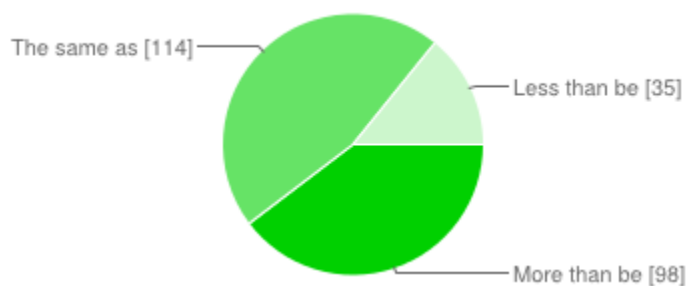
More than before	**98**	39.7%
The same as before	**114**	46.2%
Less than before	**35**	14.2%

12. What grade are you in?

9th (Freshman)	**92**	37.2%
10th (Sophomore)	**88**	35.6%
11th (Junior)	**27**	10.9%
12th (Senior)	**40**	16.2%

13. Do you prefer having a netbook or a textbook?

Netbook	**174**	70.4%
Textbook	**73**	29.6%

Number of daily responses
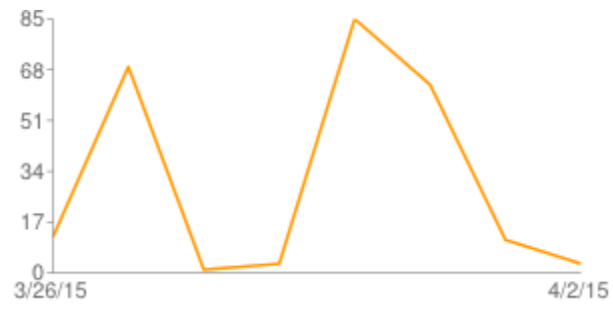
Hi William:

Here are the answers to your questions.

1. What is the overall cost of one netbook (case, power adapter, etc.)?
The cost when we initially started the 1:1 in 2012 was $320 for everything. We give new devices to incoming freshmen each year that follow them through their high school career. For those purchases, we have went with Chromebooks and they have been a lesser cost of around $290 for everything.

2. How many netbooks have been purchased for the students?
We purchase enough to cover every student who attends at least 1 class at the high school. We also purchase some additional units to cover replacements and/or new students entering the district. We purchased 500 netbooks when we initially started the 1:1 in the 2012-2013 School Year to cover all students in grades 9-12. Future purchases since then for incoming freshmen have been between 160-175 Chromebooks depending on class size each school year. When seniors graduate, since the devices are still in our expected life cycle for them, we have been sending them to our elementary buildings to be used in those classrooms.

3. What is your cost of regular printer paper? Toner?
For this school year, we spent $3800 on paper at the high school. Toner for the copiers are included in the copier contract. For printers, which are being removed at the end of this school year, we spent $2964 on toner.

4. What is the expected lifetime of the netbooks?
We expect to get 4 years out of a 1:1 device.

5. Do students still have to pay book fees?
Students do not have "book fees", but they do have "course fees" based on the courses they take to cover any additional materials needed for it. These fees have been reduced in some areas over the years due to the 1:1.

6. How much have you spent on your new wireless infrastructure (routers, line upgrades, etc.)? If internet is charged per usage, how much has it gone up?
We upgraded our infrastructure in general to handle the move to digital learning. We spent around $60,000.00 to upgrade our core switch, add enterprise-grade wireless access points to cover the density of a 1:1, and PoE switches for our wireless access points. Even if we did not go 1:1, these would have needed upgraded by now due to aging equipment at the time. As for Internet bandwidth, this cost is at a district level and it has been upgraded to handle the increases in digital learning throughout the entire district. The cost for 500MB is around $10,000.00 more annually than we spent in 2012-13 for 200MB. But that cost is not specifically for the high school 1:1.

7. Have you added more IT professionals to the district? How much is their salary?

We have added an additional technology assistant, but that is not specifically due to the 1:1 at the high school. Our 1:1 expansions throughout the district is part of it, but the additional staff is meant to allow for other initiatives such as technology integration in the classroom to take place and to assist in additional workloads that we have seen over the years beyond just the 1:1. Their salary is around $30,000 + benefits.

8. Paper usage: then vs. now?
Since students do not have access to any printers on their 1:1 devices, we have seen a decrease in paper usage on their end, but not at the levels we would like to see with copying/printing from staff. This is an area we are focusing on for this coming school year.

9. Has your copying machine maintenance budget gone down since the initiative?
We recently negotiated a new copier contract agreement at the district level where that budget has gone down substantially. With our focus to reduce paper usage from staff, we expect this savings to go even further.

10. Average cost per textbooks; do you still plan on ordering new textbooks?
The cost per textbook can greatly vary depending on the subject area. As an average though, in one school building, we could spend around $35,000 per subject area. Since we have implemented the 1:1 at the high school, we have not purchased any new textbooks and will not do so. This also applies to our middle school, who officially went 1:1 this school year.

11. What is your policy on broken netbooks?
If a 1:1 device is broken due to normal wear and tear, we will fix or replace it at no charge to the student. If a 1:1 device is broken due to negligence, the student, or their parents, is responsible for the full cost of repair or replacement. This policy is aligned with Ohio law when it comes to vandalism or damages of school property.

"Under Ohio Revised Code 3109.09, parents or guardians having custody and control of students under the age of 18 are responsible for vandalism and damages rendered by their children, up to $10,000, plus court costs. Students who are 18 years or older are held accountable in their own right."

Since the 2013-14 School Year, We have offered optional insurance policies for parents to enroll in to help them cover the responsibility of repair/replacement of negligent damages.

12. Were the netbooks bought in bulk? Did you get a discounted price?
Yes on both questions.

13. How much is spent per year specifically on netbook maintenance?
This is a hard one to gauge due to the insurance and student/parent liability. Under the optional insurance policies, the 1:1 device is sent away and the insurance company handles the cost of it all. Those that do not have insurance pay for the cost to

repair/replace any negligent damages that occur. So once that is paid, we eventually don't have a cost for that either. So when I look at normal wear and tear maintenance, I estimate we spend around $1200-1500 a year on parts to cover that.

14. How much was spent per year specifically on textbook repair/replacement?
At the high school, we estimated around $2000 a year was spent on this prior to our 1:1. Since the 1:1, we have not been doing this.

15. What is the cost to the student per year to "rent" the netbook?
There is no fee for students to "rent" the 1:1 device. Due to students/parents being responsible for the full cost of repairs/replacement of any negligent damages to their 1:1 device under Ohio law, we offer an optional insurance policy to help offset that.

16. How often do IT personnel have to replace a netbook that is broken beyond repair?
Reparability is a big factor we look at when choosing a 1:1 device. Due to that, we've had very few that are broken beyond repair. In the 3 years we have been doing 1:1 at the high school, we have had 14 that have had to be fully replaced.

17. Are all the netbooks utilized each year? Have you ever had to or will you ever have to purchase additional netbooks for a larger class?
Yes. We purchase some additional ahead of time based on freshmen class sizes each year, so we have not yet had to buy additional during a school year to cover any new students, etc.

Thanks.

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Estimation of Cost by Specified Catagories
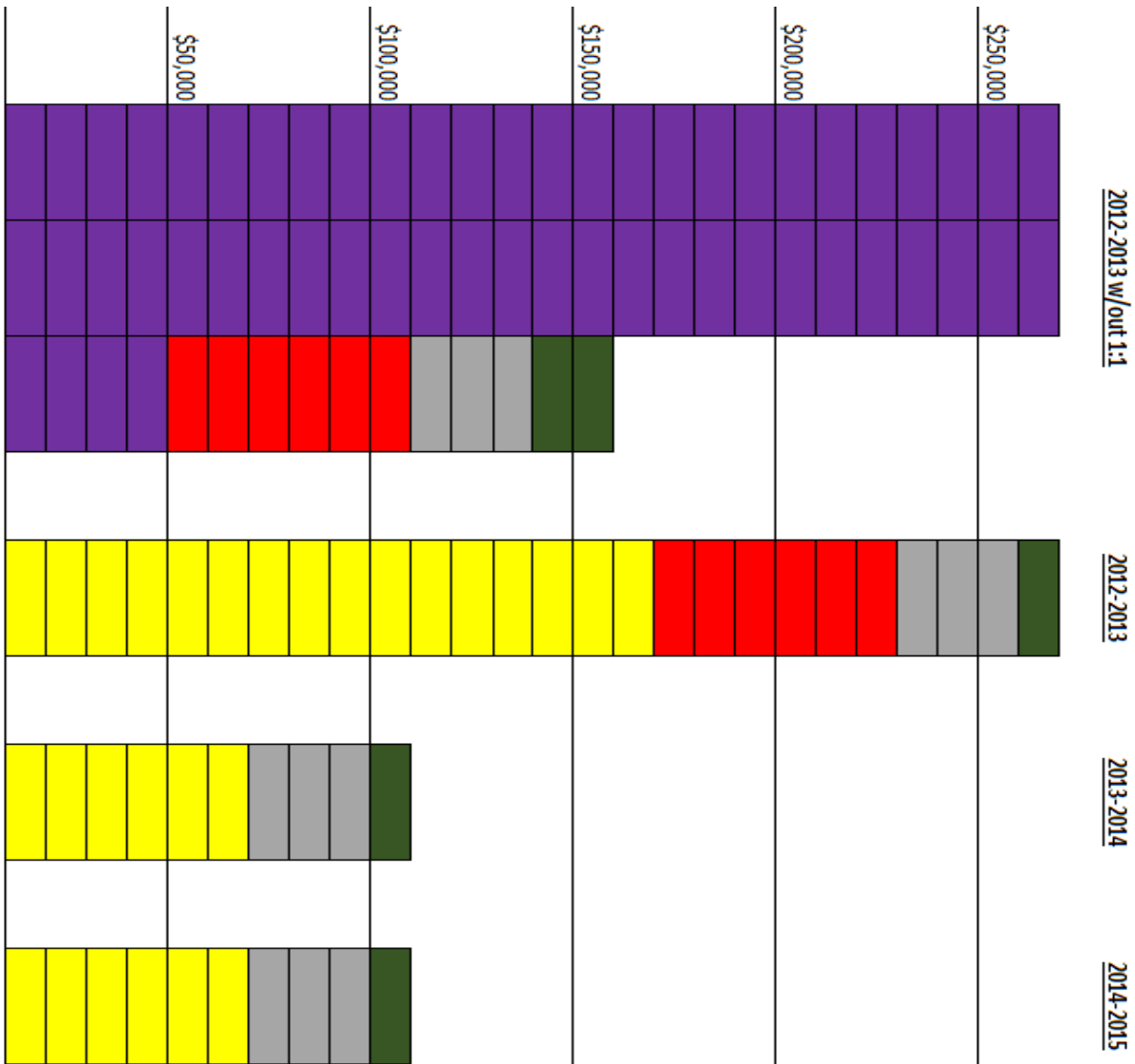
Values shown are estimations from data received

"2012-2013 w/out 1:1" is speculation.

- Book Cost
- Computer Cost
- Internet Infostructure Upgrade
- New IT Person
- Paper and Ink/Toner Use*

One Unit Block Equals $10,000

*Estimation

2012-2013 w/out 1:1

2012-2013

2013-2014

2014-2015

$50,000

$100,000

$150,000

$200,000

$250,000