Kamehameha Schools Maui Laptop Project:
Findings from Classroom Observations and Teacher Interviews

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Introduction

The Maui Campus of Kamehameha Schools (KS) implemented a laptop program at the beginning of the 2003-2004 academic year. As part of the program, KS provided Dell laptop computers to all high school faculty and students for use at both home and school. ROCKMAN *ET AL* collaborated with the Policy Analysis and System Evaluation (PASE) research staff to design a model and instruments for evaluation of the laptop program. Primary responsibility for implementation of the evaluation was left to PASE, however ROCKMAN *ET AL* was contracted to conduct administrator interviews with key program staff as well as classroom observations and teacher interviews.

A memo of the findings from the administrator interviews was provided to PASE in February, 2004. Overall, the interviewees were excited about the laptop program but recognized the challenges in implementation of the program during the first part of the year. That memo included recommendations for future program preparation and rollout, laptop technical support, and mechanisms for reviewing the laptop program. The following is a report of findings from the classroom observations and teacher interviews conducted in Spring 2004. Findings and recommendations from this evaluation component should be considered along with previous recommendations to Kamehameha Schools.

Method

Procedure and Instrument

The evaluator worked with a campus liaison to schedule classroom observations and interviews with each Maui Campus high school teacher. Teachers were told that the evaluators were interested in observing and interviewing each teacher in order to gather information about how teachers were incorporating the laptops into instruction. Observations and interviews were conducted between February and May 2004.

Evaluators created an observation/interview instrument based on an instrument designed by Wetzel and Timms[1]. The instrument contained three sections:

1) *Timed interval observations* – This piece of the instrument was comprised of eight categories about classroom organization and technology use that were to be rated by the observer in 5-minute intervals.

[1] Wetzel and Timms (2003). Integration of Technology Observation Instrument for the ASU West PT3 Project.

2) *Observation notes and classroom map* – The observation notes section provided prompts for the observer to record information about the number of students, the number of laptops, and the class lesson, including technology use. This section also included a page for the observer to draw a diagram of the class set-up.

3) *Teacher interview* – The interview portion of the instrument contained questions for the teacher about the observed lesson, their typical use of technology, and their opinions about the laptop program.

The first two sections of the instrument were completed during the observation period and the third section (the interview) was typically completed after the observation occurred; in a few cases, the interview was conducted before the observation. See Appendix A for a copy of the instrument.

Several of the first classroom observations were videotaped to use for reliability coding. Two evaluators independently watched videotapes from the same two classes and coded them using the timed interval portion of the instrument. Agreement for the observations was 81% across the two observations. All disagreements were discussed and the instrument was revised based on observer feedback. The revised instrument was used for all remaining observations (the two reliability observations were recoded with the new instrument).

Participants

Seventeen classroom observations and teacher interviews were conducted during the spring 2004 term. Each teacher was observed in only one class session. The numbers of classes observed, by course type, are presented in Table 1, below. Eleven of the observed classes were comprised of 10th grade students, three classes were 9th grade students, and three classes contained a mix of students in both grades.

Table 1: Numbers of Classes Observed, by Course Type (N = 17)

Course Type	Number of Classes
English	3
Mathematics	5
Science	2
U.S. History	2
Other (e.g., Spanish, Hawaiian Culture, Guidance Counseling, and Academy Classes)	5

Results

Observations of Class Organization and Laptop Use

Class sessions ranged in length from 45 to 90 minutes (Mean = 75 minutes). On average, there were 17 students in each class observed (Range = 9 – 25 students).

All of the lessons observed were part of longer units; at the time of the observations one class was introducing a new topic, all other classes were continuing with previously started topics. One class lesson appeared to be specifically focused on technology learning goals (i.e., Excel and the Internet), and all others were focused on specific content areas of science, history, math, or language arts.

Class Organization

Most of the observed classes were set-up such that students sat in pairs or groups of three facing the front of the class. In four classes students were seated at individual desks, in rows, facing the front of the class. In one class, individual desks were arranged in groups of four with students facing each other.

On average, just under half of the class time (43%) was spent on whole class activities. One class engaged in a whole class activity for the entire class period (they watched a film). When classes were not working on whole group activities they typically exhibited a mixed organizational structure (e.g., some students worked individually while others worked in pairs or small groups). Specifically, evaluators observed individual students working alone 90% of the time, pairs of students working together 38% of the time, and small group work (3+ students) 19% of the time.

Teachers' Overall Role in the Classes

When the class was organized as a whole group, the teachers were typically directing (telling or lecturing) or leading an interactive discussion (18% and 23% of time, respectively). A small amount of time (2%) was spent on modeling a skill or strategy to the group. While these activities typically occurred during an instructional portion of the classes, occasionally teachers interrupted the individual, pairs, or group work to provide instruction or modeling related to the assignment.

Teachers spent about one third of class time (32%) facilitating or coaching students. During this time, students were working on assignments while the teacher walked around the class answering students' questions or engaging students in discussion about their work. On average, 19% of class time was spent managing behavior or materials and for about 9% of class time teachers were not involved in the class activity (e.g., the teacher sat in the back of the room and did not interact with students or left the room to answer a call).

Teachers' Use of Laptops

For a majority of the observation time, across all classes, teachers did not use their laptops (77% of the time); seven teachers never used their laptops and one teacher used her laptop during the entire class period. When teachers were using their laptops, they were typically presenting information to the class (64% of the time). When presenting information to the class, teachers projected information from their laptops to a screen or to their SmartBoard. Teachers also used their laptops to model a skill to the group (22% of the time), for grading, attendance or material preparation (20% of the time), or for retrieving information (10% of the time).

Students' Use of Laptops

Students used their laptops in 14 of the 17 classes; they were part of the required lessons in 12 of the classes, and optional in the remaining two classes. In two of the three classes where students did not use their laptops, the teachers used their laptops for instruction or grading.

In half of the classes where students used laptops (7 classes), students took out their laptops immediately as they entered the classroom. In these classes, students were typically completing work from a previous day, printing assignments, or emailing assignments to the teacher. In the other half of the classes, students' laptops remained in their backpacks or unopened on their desks until the teacher asked them to take them out (5 classes) or gave them an option to use the laptops (2 classes).

In the classes that required laptop use, the majority of students had their laptops with them. Only seven students did not have their laptops for use on assignments across these 12 classes. It is unknown whether all students had their laptops in the five classes where laptop use was not required.

Across all classes, students used their laptops over half of class time (57% of the time). In the classes where students used their laptops, they spent 73% of the time using productivity tools 43% of the time using research tools and 1% using communication tools. The percents of time students spent using specific tools in each of these categories are presented in Table 2, on the next page.

Table 2: Percent of Time Students Spent Using Each Productivity, Communication, and Research Tool (N = 14 [a])

Tools[b]	Percent of laptop time[c]
Productivity Tools	
Word processing, publishing software	50%
Presentation software (e.g., PowerPoint, Photoshop)	15%
Spreadsheets (e.g., Excel)	22%
Database (e.g., FileMaker, Access)	0
Authoring Programs (e.g., HyperStudio, video editing)	0
Subject specific software (e.g., Inspiration, Geometer's Sketchpad)	0
Web authoring (e.g., Netscape communicator, Front Page)	0
Hardware (e.g., camera, calculator, printer)	3%
Other productivity tools (Hawaiian keyboard, graphical analysis grid developed by teacher, and SmartBoard)	18%
Communication Tools	
E-mail	1%
Bulletin board, listserv	0
Two-way video	0
Research Tools	
CD ROM (e.g., encyclopedia or web-based databases)	6%
Internet search engines	19%
Internet Web sites	34%
Teacher's Web sites	17%
Automated library system (e.g., OPAC station)	0

[a]The percent of time using each tool was calculated excluding the three classes in which students did not use their laptops. [b]Activities were not mutually exclusive. [c]This is the total amount of time on each activity during the time that laptops were used.

Purpose of Productivity Tools

As seen in the table above, students used a variety of productivity tools on their laptops. Students used Word for free writing and KWL sessions in their English classes, to edit poems using the track changes feature, to develop brochures and advertisements based on content they were learning, and to write letters in Hawaiian. They used Excel to keep track of stock prices, to work on a sales model for breaking even, and to create a personal database of careers. They used PowerPoint to make presentations to their classmates, and in one math class, students used graphical analysis software to construct an octagon.

Purpose of Research Tools

When students were using research tools on their laptops they spent equal amounts of time locating information independently (e.g., using keyword searches), locating information under teacher direction (e.g., using teacher bookmarks or specified words), and selecting information (e.g., by cutting and pasting, taking notes, or downloading).

Specifically, they used search engines such as Google to look up information, to find games to play, or look at pictures. And, they used the Internet to view sites they had been referred to by their teachers.

Purpose of Communication Tools

When students used communication tools on their laptops they were typically sending assignments to their teacher via email attachment.

Students' Level of Technical Skills

In general, students were quite skilled at using their laptops. Students worked without the help of their teachers and were able to solve problems if something went wrong nearly all of the time spent on laptops (90%). Occasionally, students needed a little (6% of the laptop time) or a lot (4% of the time) of technical help from their teachers, typically when performing new tasks with a software program.

Students' Engagement

For each class, the observer rated students' engagement (i.e., listening to the teacher or working on the assigned work) during the class period, on a scale of 1 to 3, with 1 = almost never engaged, 2 = sometimes engaged, and 3 = almost always engaged. On average, students were quite engaged in their classes; across all classes, the average rating was 2.82 (SD = .39).

Teachers' Reflections about the Laptop Program

Both veteran Kamehameha teachers and those who were new to the school system reported that prior to the Maui Laptop Program they rarely or never required students to use computers for class assignments. Some teachers reported that before the Laptop Program began, they occasionally took students to computer labs or reserved computers for classroom use. However, they said that, prior to the Laptop Program, the limited amount of computer use, restrictions on their use, and the variability in students' abilities produced more problems than benefits, which prevented them from using the computers regularly.

Teachers reported that since the Maui Laptop Program has been implemented, they have begun using technology in their classrooms more often and in a variety of new ways. Five teachers talked about using their own laptops and SmartBoards for class demonstrations – one teacher said that she used hers everyday. One-third of the teachers (6) said that they had students use their laptops whenever they fit in with the class lesson or to enhance students' presentations. Many of the teachers now require at least some, if not all, of students' work to be word processed rather than hand-written. Teachers reported that they had students use their laptops for a range of activities including:

- Internet research (14)
- PowerPoint presentations (8)
- Word processing or preparing final drafts of papers (7)
- Working on problems or equations in Excel (2)
- Data management in Excel (2)
- Graphical analysis software (2)
- Looking up stock information
- Conducting virtual dissections
- Creating Web pages based on a novel read for class
- Creating a soundtrack/CD to accompany a class reading
- Using EBSCO Host for researching professional journals and articles
- Writer's circles where students write papers then move around the room editing others' work

In addition to the activities listed above, two teachers mentioned that students turn in homework assignments via email attachments. One of these teachers edits students' homework, using the track changes feature in Word, and sends it back to students. Another teacher has a class website she updates daily so that students can access homework assignments outside of class.

Two teachers specifically talked about times they did not allow their students to use their laptops. One said that he does not allow students to use the laptops for note taking because he thinks that the students will have a difficult time staying on task and that they need practice writing

longhand. The other teacher does not allow students to use their laptops for free writing because she wants them to "think and write off the top of their head and not worry about editing or how it looks."

One teacher set up a listserv for class discussions, but said that it did not work because many of the students could not access the listserv from home.

Teachers talked about several ways that they think laptops assist students to reach the learning goals of assignments. Specifically, they said that:

- *Laptop use helps students gain a better understanding of material* through Internet research and the ability to access primary resources, which support learning goals. One teacher added that information found on the Internet is more up-to-date than textbooks.
- *Laptop use helps students with skill building* through performing calculations, and reinforcement of reading comprehension, typing, and study skills.
- *Laptop use improves the quality of students' assignments* because the typed assignments are neater, easier to read, and more creative.
- *Laptop use helps students communicate more effectively and quickly* via the use of email.
- *Laptop use helps students work more efficiently* because their assignments are easily transported to be worked on at both school and home.

Challenges to the Laptop Program

Teachers talked about several challenges of the laptop program including monitoring students' use, limited access, variable student skills, students' lack of responsibility, technical problems, and teachers' comfort/skills with computers. Each of these program challenges is described below:

- Monitoring students' laptop use in the classroom

Teachers mentioned several reasons for why they had difficulty monitoring students' laptop use. Teachers had a hard time controlling when students took out their laptops because students often took them out as soon as they arrived in class or when they were switching tasks in class, even if the teachers' lessons did not include a laptop component. Furthermore, teachers said that when students were working on the computers, they could quickly and easily switch on and off task without the teacher knowing. So, even if a teacher suspected a student was off task, by the time s/he gets to the student, the student was able to quickly switch back to classwork. When students were off task, they used email, played games, and searched the Internet. Several teachers talked about spending a lot of time managing behavior where laptops were concerned.

- Students did not have full access to the laptops

Although students could take their laptops home, many teachers complained that home use was limited to software available on the computers. Most students did not have Web access, so accessing email or conducting Internet research was impossible from home. Furthermore, students were not able to print their work at home, which caused problems when they came to school because students wanted to take out their computers immediately to print assignments. In general, if students were not able to finish computer work at home, they wanted to finish the work in class, which teachers found disruptive. Teachers added that if students did not have full access to the laptops at home, they might as well have only classroom/school-based computers.

Some teachers complained that students did not have full access on their computers because they were blocked from downloading files. These teachers suggested that if students were being given laptops, they should be given full privileges to use the computers.

- Students' computer skills varied

The Kamehameha high school students had varying amounts of skills and experience with computers, which made it difficult to teach. Not only did the teachers have to pay attention to the level of the lesson, they also had to be aware of the technology skills of the students. Teachers talked about problems with students getting confused about where they had saved documents, not being able to synchronize after working at home, and students being scared to try new things on the computers. Sometimes these were legitimate problems, but sometimes students used these technical problems as excuses for not completing assignments. Teachers explained that students' variable skill levels caused more problems at the beginning of the school year because teachers assumed that they knew more about computers than they did, which caused confusion with completing assignments. And, as reported above, these reported behaviors were rarely seen during the class observations.

Teachers acknowledged that there were some students who were computer savvy, however teachers recognized that computer skills did not imply that students had the content knowledge. For example, a student might be able to produce a beautiful PowerPoint presentation, while the content in the presentation was lacking.

- Students were not responsible with their laptops

Many teachers said that students did not act responsibly with their laptops: students had been seen standing on computers, popping off keys, carrying laptops by the screen, and taking other students' batteries. Furthermore, students downloaded music, games, or pictures and used up their allotted memory, which caused problems when they needed to save schoolwork. Teachers complained that there was no consequence for laptop misuse beyond not having the laptop while

it was being repaired from imposed damage. Some students used their broken laptops as an excuse for not completing homework assignments.

- Laptop technical issues

Many of the students' computers suffered from technical problems not due to students' misuse. Teachers complained that there were not enough loaner computers for students to use while their laptops were being repaired, which was disruptive to instruction when all students were supposed to be working on computers. One teacher explained that because students can complete their coursework efficiently with their laptops, when students do not have their laptops, they quickly fall behind.

Four teachers also mentioned printing problems with the laptops. One explained that some programs (e.g., graphing software) did not print properly. This required students to cut and paste into another program before printing. One teacher had a Mac printer in the classroom, thus students had to email documents to a Mac computer before being able to print in that classroom. The third teacher thought that having only one printer in the classroom was not enough. And, the fourth teacher did not have a printer that was connected to the network, preventing students from that class from printing.

- Teachers' lack of comfort/experience with computers

Several teachers talked about the challenge of not being prepared to integrate technology into their lessons. Although this frustration did ease a little over time, teachers were trying to learn new applications as well as manage student behavior when using the laptops. For some teachers, having students who knew more about using computers was helpful because the students could show them how to do things, others seemed to feel frustrated by the reverse direction of knowledge transmission.

In addition to the challenges mentioned above, one teacher talked about student plagiarism as a challenge to the laptop program. Specifically, she has had two students turn in identical research papers downloaded from the Internet and her students have cut and pasted information from Web sites into their papers without citing or restating the information. She now requires students to be very clear about citing references for their work.

Some of the teachers suggested that there should be school-wide rules for the laptop program. They recommended that the laptops be used in a more controlled environment where teachers work together to consistently monitor and model appropriate use and that the program include a review mechanism for violations of use.

Benefits of the laptop program

Teachers talked about several important benefits to having the laptop program including more access to information, improved quality of student work, availability of tools that increase students' learning, individualized instruction, and increased technology skills. Each of these benefits to the program are described below:

- More access to information

The laptops provided convenient and fast access to information allowing students and teachers to conduct research in the classroom, rather than going to the library. Furthermore, students could assist with research that teachers might have previously done on their own. Teachers thought that the access to laptops allowed students to search out connections between things and to take ownership of their learning in ways they had not previously done. One teacher added that the Internet access can help cut costs in other places, for example, classrooms do not need to have foreign language dictionaries because students can look up words online.

- Improved quality of students' work

Teachers saw an improvement in the quality of students' work such that they feel they can now raise the standards of future work products. The laptops allowed students to turn in work that looked better, had been spell-checked, and included research conducted on the Internet. The teachers believed that seeing the increased quality of work could build students' self-confidence and creativity. Furthermore, teachers reported that the better quality work made them more efficient in their grading.

- Tools that help increase students' learning

The software provided on the laptops helped students with their learning because it provided immediate visual feedback. Furthermore, programs like Excel were used for a variety of interesting projects and the graphing software was more flexible than graphing calculators. When using Word, students had immediate help with spelling and grammar, which especially helped those with poor English skills. Finally, the laptops allowed students to store information for working at home or for reference for future assignments.

- Opportunities for individualized instruction

Teachers reported that the laptops encouraged students to do their own work, and thus, students often worked independently with less teacher guidance. And, because students were working independently, teachers were better able to provide individualized instruction.

- Increased technology skills

Both teachers and students learned new technology skills; they learned together and they learned from each other. Teachers said that they were more creative in their teaching methods and

creating assignments. And, they believed that students would be more competitive in the workplace, which will open up new opportunities for them. Some teachers used their Web sites as a place to post class assignments, which, in turn, lessened the number of students who said that they did not know what the assignment was. One teacher talked about implementing electronic portfolios so that students would have a record of their work while at Kamehameha.

At the end of the interviews some of the teachers talked about whether they wanted the program to continue. In particular, six teachers said that they definitely would not want to give up the program, although some reiterated that more rules or guidelines should accompany the program. Three teachers were not interested in seeing the program continue, and said that they would prefer to have computers in the classroom. Two teachers were not sure the program was necessary but said that if it were discontinued, they would still want access to technology either in their classroom, or in the form of a mobile lab.

Four teachers thought that although the laptop program was a good idea, it might be better implemented if students earned the right to have computers. They thought that because freshman were immature, they might appreciate the laptops more if they started out using laptop or desktop computers in their classrooms, and over time (e.g., sophomore or junior year), were given the laptops for school and home use.

Summary and Recommendations

Because baseline data on teachers' and students' technology experience and program expectations were not collected at the beginning of the school year, it is impossible to talk about changes observed in students and teachers during the first year of implementation. Nonetheless, interviews with teachers suggest that changes in they way they teach and students learn are occurring. The majority of high school teachers observed and interviewed were using their own laptops for lesson preparation and instruction and was integrating laptop work into students' assignments. During the classroom observations, students used their laptops to work with productivity and research tools, such as: Word, Excel, PowerPoint, and Internet search engines.

During interviews, teachers talked about both challenges and benefits to the laptop program. Implementation challenges included: difficulty monitoring students' use of the laptops, students' limited access from home, students' variable computer skill levels, students' lack of responsibility, laptop technical problems, and teachers' own comfort/skills with computers. Despite these challenges, teachers still saw many benefits to the program, including: more access to information, improved quality of student work, availability of tools that increased students'

learning, individualized instruction, and increased technology skills. They believed that these benefits assisted students with reaching the learning goals of assignments.

Only three of the teachers interviewed were not interested in continuing the laptop program. Others were in favor of the program but specified that they would like to see school-wide guidelines for students' use.

Overall, the first year of the Maui Laptop Program was successful – teachers and students learned to use their laptops, and although there were reports of laptop misuse and behavior problems, they did not appear to be egregious. Below we offer recommendations for program modifications that we believe will increase both the implementation process as well as the program impact. Some of these recommendations are similar to or build on suggestions made in the memo on administrator interviews, referred to earlier. As mentioned earlier, we suggest that the following recommendations be considered in conjunction with the previous recommendations in order to build the most successful laptop program possible.

Develop Program Guidelines

The following guidelines should be developed, formally documented, and explained to teachers, students, and parents. Consider distributing the guidelines in the form of contracts in order to instill a sense of responsibility among the parties.

- Develop guidelines about the expectations for teachers' use of the laptops and provide examples of how those expectations can be met. Include teachers in these discussions and review the guidelines periodically during the next academic year.
- Set clear rules for students' use and treatment of the laptops including when and where laptop use is allowed and what types of software/programs are acceptable for use in class and at home. Include teachers as well as parent and student representatives in these discussions and review the guidelines periodically during the next academic year.
- Develop a system of accountability for the laptops that includes documentation and clear consequences for abuse or misuse of the laptops.

Address Technical and Implementation Issues

The following technical recommendations are designed to assist with laptop and software training as well as curriculum implementation issues.

- Provide training for all teachers that includes the mechanics for using the laptops as well as support for integration of curriculum. New teachers should be required to attend laptop mechanical trainings before the academic year begins. And, all teachers should be required to attend curriculum integration trainings as part of their professional development activities. The Maui Campus technology staff or teachers can offer these trainings on-site, curriculum

integration experts can be brought to campus, or training can be obtained from off-site/online reputable vendors.

- Provide training for all new laptop students (i.e., 9th graders entering the program and students in later grades who transfer to the campus) about the basic mechanics of using the laptops and the school's network, including how to access the files at home, where to save files, and how to synchronize with the network.

- Offer technical support for students who need help with specific program applications required for schoolwork. This support can be provided by Kamehameha staff and/or students in the school (e.g., a student technology support group).

- Equip each classroom with at least one printer that students can access from their laptops And, provide students with access to centrally located printers (e.g., in the library) for printing assignments worked on outside of class.

- Provide students with enough memory to save schoolwork as well as some personal files. If students are able to use the laptops for both schoolwork and personal things (such as looking at pictures or listening to music) they may be more inclined to take care of them.

- Assess the rate of laptop repairs in order to obtain an adequate number of loaner laptops for students to use while their laptops are being serviced.

Develop a System for Program Review

We suggest that clear review mechanisms be established to monitor program implementation and outcomes, including: laptop disbursement, technical support, curriculum integration, and students' use of laptops. To this end we suggest that Kamehameha Schools:

- Set-up a mechanism for communication about the program among teachers, students, parents, and technology support in order to refine and improve program procedures and implementation as issues arise.

- Develop and implement a multi-year program evaluation plan that confidentially surveys teachers, students, parents, and administrators about key issues in program implementation and students' academic achievement.

Appendix A:
OBSERVATION INSTRUMENT – INTEGRATION OF LAPTOPS
PASE – MAUI LAPTOP PROGRAM

Instructions to the Observer

These classroom observations are designed to gather information about the nature and context of teaching and learning and how it is influenced by the integration of laptops. The goal of the evaluation is not to evaluate the teacher, but rather to document examples of the ways in which technology is used in the classroom and how it influences teaching and learning.

1. TIMED INTERVAL OBSERVATIONS:

This form is to be completed by the observer, during the observation.

How: Note the time you begin. Observe for two minutes and then begin recording responses to the questions. Look at the first question and record the appropriate response. Look at the next question. Record the observation. Proceed in this fashion until you have reached the last data question. When you are finished with the last question, wait until the 5-minutes have elapsed from the start time until you start again. Do not stop recording just because the data mark is the same as the previous period. Continue working through all observation intervals until the class period ends. (Note: If you forget what was happening you may look around the class again, however once the codes from one period have been marked, do not change your answers if the class changes activities – wait until the 5-minutes have elapsed. Then, again, observe for two minutes and then begin recording.)

2. OTHER OBSERVATION NOTES AND MAP OF THE CLASSROOM:

This form is to be completed by the observer. If you have time during the timed interval observations, you should take notes in this section; otherwise, these pages should be completed at the conclusion of the observation.

Purpose: to provide context for the data

3. POST-OBSERVATION INTERVIEW:

The observer will conduct this interview after the observation has taken place. Someone from the school will help schedule the interview time with the teacher. If necessary, you may complete the interview by telephone.

Purpose: a) To provide context for the observation; b) to obtain information about the teacher's thinking about the lesson plan; c) to provide background data for interpretation of study results; d) to provide qualitative data about the teachers' general use of the laptops and other technology.

Classroom Observed:

Date:	**Teacher:**	**Class Period/Block:**
Subject:		**Grade Level:**

1. TIMED INTERVAL OBSERVATIONS:

WATCH AND RECORD THE ENTIRE CLASSROOM, NOT JUST ONE SMALL GROUP

The observer will record the activities of the classroom at FIVE-minute intervals using a combination of check boxes and written notes.
Begin observing and marking when the teacher indicates the lesson begins. Mark the questions in sequence.
For each interval, observe for two minutes and begin recording responses in order for the next three minutes.

Minutes	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85
Actual Time																	
1. Class organization (MARK ALL THAT APPLY)																	
① Individual students working alone	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①
② Pairs of students	②	②	②	②	②	②	②	②	②	②	②	②	②	②	②	②	②
③ Small groups (3+ students)	③	③	③	③	③	③	③	③	③	③	③	③	③	③	③	③	③
④ Whole class	④	④	④	④	④	④	④	④	④	④	④	④	④	④	④	④	④

④ Whole class: Use this code if at least 80% of the class is working as a group. Do not worry about individual students who are not paying attention to the lesson. This code should be used exclusive from the other codes.

NOTES:

Minutes	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85
2. Teacher role OVERALL, what is the Teacher's role? (MARK ONE)																	
① Directing (telling, lecturing) whole group	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①
② Interactive direction whole group	②	②	②	②	②	②	②	②	②	②	②	②	②	②	②	②	②
③ Modeling whole group	③	③	③	③	③	③	③	③	③	③	③	③	③	③	③	③	③
④ Facilitating/Coaching	④	④	④	④	④	④	④	④	④	④	④	④	④	④	④	④	④
⑤ Managing behavior or materials	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤
⑥ N/A (e.g., teacher leaves the room)	⑥	⑥	⑥	⑥	⑥	⑥	⑥	⑥	⑥	⑥	⑥	⑥	⑥	⑥	⑥	⑥	⑥

① Directing: Teacher directs learning and does most or all of the talking. Provides information or explanations. Controls topic and pace.
② Interactive direction: Teacher directs learning and does most of the talking, but asks for students' responses. For example, teacher Initiates, students respond, teacher Evaluates.
③ Modeling: Teacher demonstrates a skill or strategy. "Watch me do it" is the implied or spoken message. Aligned with instructional goals.
④ Facilitating/coaching: Students do most of the talking and work. This time IS aligned directly with instructional goals. Students interact with one another, materials or problems and teacher asks questions or provides suggestions. Teacher is clarifying, engaging, or motivating one-on-one or with a small group.
⑤ Managing: time on managing class behavior -- This is NOT time aligned with instructional goals. Teacher is managing behavior, materials, or solving computer problems in order to get students on task.

NOTES:

Minutes	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85
3. Teacher's use of laptop (MARK ALL THAT APPLY) **NETS•T I, III, IV**																	
① To present information	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①
② To model a skill to large group (e.g., NOT coaching)	②	②	②	②	②	②	②	②	②	②	②	②	②	②	②	②	②
③ For grading, attendance, or material preparation	③	③	③	③	③	③	③	③	③	③	③	③	③	③	③	③	③
④ To retrieve information	④	④	④	④	④	④	④	④	④	④	④	④	④	④	④	④	④
⑤ Other (write in)	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤
⑥ Not using	⑥	⑥	⑥	⑥	⑥	⑥	⑥	⑥	⑥	⑥	⑥	⑥	⑥	⑥	⑥	⑥	⑥
NOTES: Describe technology used. (e.g., name of software, items other than computer -- digital camera, etc.)																	

Minutes	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85
4. Student use of productivity tools (MARK ALL THAT APPLY) **NETS•S 1, 3, 4**																	
Students using:																	
① Word processing, publication software	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①
② Presentation software (e.g., PowerPoint, Photoshop)	②	②	②	②	②	②	②	②	②	②	②	②	②	②	②	②	②
③ Spreadsheet (e.g., Excel)	③	③	③	③	③	③	③	③	③	③	③	③	③	③	③	③	③
④ Database (e.g., Filemaker, Access)	④	④	④	④	④	④	④	④	④	④	④	④	④	④	④	④	④
⑤ Authoring programs (e.g. HyperStudio, video editing)	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤
⑥ Subject specific software (e.g., Inspiration, Geometer's Sketchpad)	⑥	⑥	⑥	⑥	⑥	⑥	⑥	⑥	⑥	⑥	⑥	⑥	⑥	⑥	⑥	⑥	⑥
⑦ Web authoring (e.g., Netscape communicator, FrontPage)	⑦	⑦	⑦	⑦	⑦	⑦	⑦	⑦	⑦	⑦	⑦	⑦	⑦	⑦	⑦	⑦	⑦
⑧ Hardware (Camera, calculator, probes)	⑧	⑧	⑧	⑧	⑧	⑧	⑧	⑧	⑧	⑧	⑧	⑧	⑧	⑧	⑧	⑧	⑧
⑨ Other (write in)	⑨	⑨	⑨	⑨	⑨	⑨	⑨	⑨	⑨	⑨	⑨	⑨	⑨	⑨	⑨	⑨	⑨
⑩ None	⑩	⑩	⑩	⑩	⑩	⑩	⑩	⑩	⑩	⑩	⑩	⑩	⑩	⑩	⑩	⑩	⑩
NOTES:																	

Minutes	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85
5. Student use of interactive communication tools (MARK ALL THAT APPLY) **NETS•S 4**																	
Students using:																	
① E-mail	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①
② Bulletin board, listserv	②	②	②	②	②	②	②	②	②	②	②	②	②	②	②	②	②
③ Two-way video	③	③	③	③	③	③	③	③	③	③	③	③	③	③	③	③	③
④ Other (write in)	④	④	④	④	④	④	④	④	④	④	④	④	④	④	④	④	④
⑤ None	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤

Protocol: Communication tools include those applications that allow students to exchange information with other individuals.

NOTES:

Minutes	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85
6. Extent of use of research tools (MARK ALL THAT APPLY) **NETS•S 5**																	
Students gather information from:																	
① CD ROM (e.g., encyclopedia or web-based databases)	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①
② Internet search engines	②	②	②	②	②	②	②	②	②	②	②	②	②	②	②	②	②
③ Internet web sites	③	③	③	③	③	③	③	③	③	③	③	③	③	③	③	③	③
④ Teacher's web site	④	④	④	④	④	④	④	④	④	④	④	④	④	④	④	④	④
⑤ Automated library system (e.g., OPAC station)	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤
⑥ Other (write in)	⑥	⑥	⑥	⑥	⑥	⑥	⑥	⑥	⑥	⑥	⑥	⑥	⑥	⑥	⑥	⑥	⑥
⑦ None	⑦	⑦	⑦	⑦	⑦	⑦	⑦	⑦	⑦	⑦	⑦	⑦	⑦	⑦	⑦	⑦	⑦

Protocol: Mark **ALL** that apply.

NOTES:

Minutes	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85
7. Purpose of research tools (MARK ALL THAT APPLY)																	
Students use technology research tools: ①To locate information independently (e.g., use self selected search strategies - keyword search, etc.) ② To locate information under teacher direction (e.g., using teacher bookmarks, web page with constructed links, teacher-specified keywords) ③To select information by cutting and pasting, taking notes, printing, downloading) ④ None	① ② ③ ④	① ② ③ ④	① ② ③ ④	① ② ③ ④	① ② ③ ④	① ② ③ ④	① ② ③ ④	① ② ③ ④	① ② ③ ④	① ② ③ ④	① ② ③ ④	① ② ③ ④	① ② ③ ④	① ② ③ ④	① ② ③ ④	① ② ③ ④	① ② ③ ④
NOTES:																	

Minutes	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85
8. Students' level of technical skills (MARK ONE) **NETS•S 1**																	
Students level of technical skill: ① Need lots of help ② Somewhat skilled, but need help of teacher ③ Independent - clearly know how to operate the hardware and software they are expected to use and/or strategies are in place to assist students with problems so work is not slowed down. ④ N/A	① ② ③ ④	① ② ③ ④	① ② ③ ④	① ② ③ ④	① ② ③ ④	① ② ③ ④	① ② ③ ④	① ② ③ ④	① ② ③ ④	① ② ③ ④	① ② ③ ④	① ② ③ ④	① ② ③ ④	① ② ③ ④	① ② ③ ④	① ② ③ ④	① ② ③ ④

Protocol: Focus **ONLY** on the students using technology during this segment. **SUMMARIZE** your impression over this entire segment.
Need lots of help = more than 20% or the students are unable to proceed with tasks because they are having difficulty and are waiting for teacher attention;
Somewhat = 10-20% of students need assistance, others solve technical problems by asking an expert, referring to aids, or other strategies.
Independently = fewer than 10% need assistance; most try other strategies before asking for help. Strategies are in place so students can continue working.
NOTES:

2. OTHER OBSERVATION NOTES:

1. Number of students in the class? ____	**2. Did all of the students have their laptops with them?** __Yes __No __not sure If no, how many did not have their laptops? ____
3. Describe how students brought laptops into the room, began working, and closed up at end of class.	
4. Briefly describe the lesson.	
5. Overall, what was the teacher's role in the lesson?	
6. What were the students supposed to be doing during the class period?	
7. On average, how often were students engaged (i.e., listening to teacher, working on the assigned work, etc.) during the class period (circle one): Almost Always Sometimes Almost never	
Describe student engagement:	
7. Other comments about the observation:	

Map of Classroom Layout **• Indicate the layout of the classroom, including arrangement of desks and where the teacher is relative to the students.** • If the layout changes during the class – try to indicate how things changed by using arrows or other symbols.	

3. POST OBSERVATION INTERVIEW:

1. Briefly describe the purpose of today's lesson, including whether it was part of a longer unit.

2. What were the learning goals or objectives for students?

3. How do you decide when to use the laptops (or other technology)?

4. How do you think the laptops assist students to reach the learning goals of their assignments?

5. What other ways have you used the laptops with your students this year?

6. Describe how what you are doing this year with technology is different than in previous years.

7. What do you think has been most challenging about the laptop program?

8. What do you see as the biggest benefits of the laptop program?

9. Other comments?