HENRICO COUNTY PUBLIC SCHOOLS
iBOOK SURVEY REPORT

Submitted to:

Henrico County Public Schools

For:

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EXECUTIVE SUMMARY

The Henrico County Public School (HCPS) system has implemented a technology program that provides all middle and high school students, teachers and administrators with iBook laptop computers. The goal of the program is to integrate electronic technology throughout the curriculum, including staff development courses for teachers. During the 2003-2004 school year, over 20,000 students participated in the program.

As the iBook contracts expire, the HCPS School Board must make decisions about the future of the program. To guide their decision-making, the School Board sought information on the experiences and opinions of program participants: the students, their teachers, their parents, and school administrators. This information was collected by conducting surveys of all members of these populations. The questionnaires, while developed specifically for each group, included a number of common core questions so that comparisons could be made among population groups on key issues. Each questionnaire included at least one general open-ended question where the respondent was invited to type or write their response. This mechanism ensured that all program participants were able to freely express any view on the iBook program.

Web-based self-administered questionnaires were designed for the student survey, the teacher survey, and the school administrator survey. The parent survey used two data collection modes: one half of the parents were surveyed by telephone and the second half by mail. These two modes were employed to maximize participation while controlling cost. Telephone surveys achieve higher participation rates than mailed surveys, but are more expensive. All of the telephone interviews were conducted in English. The mailed questionnaire was translated into Spanish, Vietnamese, and Croatian for speakers of those languages who might prefer to use their first language. In all, 29,031 people participated in the survey: 20,405 students (10,027 middle school students and 10,378 high school students), 1,301 teachers, 223 administrators, and 7,102 parents.

Key findings include:

Middle School Students: There are no differences in iBook use by gender or free/reduced lunch status, however, there are small differences in use by magisterial district and race/ethnicity. Middle school students use their iBooks primarily for class work and homework and conducting research on the Internet. They believe that iBook access to the Internet makes research easier and that iBook use helps them to be better organized. They are not all convinced that iBook use helps them to do <u>better</u> in school. The downside of the program is the repair rate, which seems high.

High School Students: There are differences in iBook use among the high school students by magisterial district and the student's race/ethnicity. Like the middle school students, the high school students use their iBooks for class work and homework and to access the Internet. Also similarly, they believe that iBook access to the Internet makes research easier and that iBook use helps them to be better organized. They are not all convinced that iBook use helps them to do <u>better</u> in school. Their iBook repair rate is very similar to that reported by the middle school students.

All of the students would like to see the technology program continue, but they have different operating system preference profiles. More middle school students than high school students prefer the Apple Macintosh while more high school students than middle school students would like Windows-based laptops.

Teachers: The teachers report that their workloads have increased due to the implementation of the iBook program, however they feel that it is vary valuable and should be continued. Critical problems for teachers include the fact that not every student brings his or her laptop to class every day, that a small number of students do not participate in the program, and their need for additional training. The teachers are divided on which operating system they prefer.

Administrators: The administrators feel that they spend a significant amount of time supporting the program, including monitor students for inappropriate website access. They believe that the iBook program is valuable, enjoy using their iBooks, and would like additional training.

Parents: The parents support the program, and even those whose children do not participate believe that it should continue. The parents of racial and ethnic minority students are especially supportive of the iBook program. Most student households include a Windows-based personal computer. While the parents recognize the magnitude of the need for iBook repair, their out-of-pocket costs are minimal. They are divided on the fairness of the $100 deductible and on whether HCPS should spend more on the technology program. They prefer Windows-based computers.

The wealth of information collected in the surveys will provide the School Board with answers to their key questions. It also suggests avenues for further development of the program.

HENRICO COUNTY PUBLIC SCHOOLS
iBOOK SURVEY REPORT

CHAPTER I. INTRODUCTION AND METHODOLOGICAL APPROACH

The Henrico County Public School (HCPS) system serves more than 45,000 students: 20,000 in elementary schools, 11,000 in middle schools, and some 14,000 in high schools in 43 elementary schools, 12 middle schools, and 9 high schools and technical centers. It is divided into five magisterial districts: Brookland, Fairfield, Three Chopt, Tuckahoe, and Varina, and presided over by a five member School Board, with each magisterial district providing one representative. The Superintendent of Schools is responsible for implementing School Board policies.

In 2001 HCPS initiated a four-year technology program, establishing a virtual classroom e-Learning platform in the County's high schools. The program provided an iBook laptop computer to each student and teacher. The following year the technology program was extended to the middle schools. The goal of the program is to integrate electronic technology throughout the curriculum, including staff development courses for teachers. During the 2003-2004 school year, over 20,000 students participated in the program.

Looking forward to the need to make decisions about the future use of electronic technology in classroom instruction, the Board required feedback from those most involved in the program: students, teachers and administrators, and the students' parents. After conducting a brief survey of these groups in the Spring of 2004 on whether or not the program should be continued, the Board decided to conduct a more comprehensive study of the program in the Winter of the 2004-2005 school year. This report presents the findings of the Winter survey.

METHODOLOGICAL APPROACH

For the survey for the Teaching and Learning Initiative, Development Associates conducted four surveys using the most appropriate data collection technique for each key stakeholder group: parents, students, teachers and administrators. The parent survey was conducted by telephone and mail. The teacher, administrator and student surveys were self-administered web-page surveys. The study was conducted by a team from Development Associates' Research and Evaluation Group. All data collection was completed from the Development Associates headquarters in Arlington, Virginia.

The sections below describe questionnaire development, data collection procedures, sample design and response rates, and present a profile of respondents.

A. Overview

Development Associates conducted surveys of key groups in HCPS to gather the views and experiences of all iBook program participants. No statistical sampling was used; respondents included all middle and high school teachers and administrators, all middle and high school students and all parents of middle and high school students in HCPS.

In all aspects of the survey research design, survey, data collection, and statistical analysis, Development Associates worked collaboratively with HCPS to frame key issues of concern and to ensure that the information needed was collected and reported as required. Key steps and decisions were discussed and reviewed with HCPS staff. Development Associates and HCPS staff worked collaboratively to incorporate pre-survey feedback from stakeholder groups and develop the content of the questionnaires, to design the pretest and establish the schedules for data collection.

B. Questionnaire Development and Pretesting

In collaboration with HCPS staff and the School Board, Development Associates developed four survey instruments, one for each group – parents, teachers, administrators and students. Deliberate attention was given to including similar items on overlapping issues for comparative analysis.

The approach to questionnaire development was informed by several needs: (1) to include items identified as important in the initial planning meeting[1], (2) to obtain high cooperation rates, (3) to ensure that the appropriate respondent was identified and reached, and (4) to ensure that selected respondents could provide the requested information. A core set of questions was developed to form the foundation of each questionnaire with the content tailored for each respondent group as well as the data collection mode. HCPS staff and the School Board reviewed and approved the final drafts. (See Annex 1: Questionnaires.)

The four questionnaires, in final form, included:

a) Parent Questionnaire: 45 items, including two open-ended questions. The questionnaire was formatted for two data collection methods: telephone and mail[2]. The telephone survey was conducted from Development Associates' computer assisted telephone interviewing center (CATI) in Arlington, Virginia.

b) Teacher and Administrator Questionnaires: a web-based questionnaire with two modules. The teacher module included 67 items and the administrator module included 63 items. Each module included two open-ended questions.

c) Student Questionnaire: a web-based questionnaire with 61 items, including one open-ended item.

The questions were based on the input from key stakeholder groups:

1. The focus groups conducted by the Superintendent and his staff with middle and high school parents, middle school students, high school students, secondary teachers, administrators, assistant principals and principals.
2. The School Board.
3. Staff (Superintendent, Assistant Superintendents, Directors of Middle and High Schools).

[1] This includes the ideas proposed in focus groups led by HCPS staff early in the instrument design process.

[2] It was important for HCPS that all parents be included in the study. For time and cost efficiency, half of the parents were surveyed by telephone, half by mail. The parents were randomly assigned to either the telephone or mail approach.

Development Associates pretested and refined each instrument, making needed changes in both the content and wording of the questionnaire items. The instruments were pretested with small groups of respondents chosen from the larger populations. These groups reviewed the salience of the issues included in the questionnaires as well as each question. Based on this feedback, we made changes in subsequent drafts of the HCPS questionnaires.

HCPS staff recruited participants for the pretest groups which were held on December 14th, 2004, at HCPS premises. The middle school student focus group was held at Brookland Middle School, the high school student, parent and teacher pretest groups were held at Hermitage High School.

The pretest discussions were led by Development Associates staff and were audio-taped for later analysis. The student and parent groups consisted of ten participants. Thirteen teachers attended the teacher group. Each group ran for an hour, with participants providing valuable insights on question content and wording. Changes were made in each questionnaire based on the feedback provided by each group. The final draft of each questionnaire was prepared and submitted to HCPS staff on December 15th, 2004, and approved by the Superintendent and the School Board on December 16th, 2004.

The questionnaires were developed in English. After finalizing the parent questionnaire, Development Associates' Translation Center staff translated them into Spanish, Vietnamese and Croatian. All of the translators and editors are certified by the American Translators Association.

C. Data Collection

Development Associates collected the HCPS survey data by hosting a web-based survey site for teachers/staff/administrators and students, and conducted telephone and mail surveys for parents.

In collaboration with HCPS, Development Associates implemented a number of measures to provide each parent, student and teacher the opportunity to participate. All procedures were designed and implemented to allow each member of the school community – parents, teachers, administrators and students – to have sufficient time to complete the questionnaire. Several procedures were used to inform them of the survey as well as to facilitate their participation.

1. Parents

In collaboration with HCPS, Development Associates drafted a survey notification letter to parents to be printed on HCPS letterhead. This text was revised by HCPS staff and sent by the Superintendent to all parents. This letter, sent prior to the date of mailing the questionnaire, introduced the firm, the study, its purpose and sponsor and provided contact numbers should they need more information.

A total of 8,488 survey packets were then mailed to parents between January 10th, 2005, and January 7th, 2005. Each included (1) a cover letter to again explain the study and encourage parents to participate, (2) a questionnaire, and (3) a self-addressed stamped return envelope. Mailed questionnaires were also sent to parents who speak languages other than English. Questionnaires were made available to parents whose languages were Spanish, Vietnamese and

Croatian[3]. All materials (cover letters and questionnaires) sent to these groups of parents were in their respective languages. These packets also included a set of materials in English.

A toll free telephone number was maintained during the data collection period to provide parents an opportunity to call Development Associates' Survey Research Center, at their convenience, to verify any information about the survey, report any technical difficulties they experienced completing the questionnaire, or request additional copies of the mailed questionnaire.

The telephone survey was conducted from Development Associates' CATI Center on:

- December 22nd – December 23rd, 2004
- December 26th – December 30th, 2004
- January 2nd – January 31st, 2005 (with the exception of January 22nd, 2005 when the CATI Telephone Center was closed due to a severe winter storm).

The Center was staffed with a shift supervisor to supervise interviewers, monitor quality control, and resolve any other issues. Based on the data collection schedule and the specific requirements for calling times for the parents, we scheduled shifts of telephone interviewers primarily during weekday evening and weekend hours. Ten thousand households were included in the telephone sample. As of January 2nd, 2005, we also scheduled daytime calling to reach as many respondents as possible. Our automated system scheduled each number at different times of the day and different days of the week. Approximately 85 percent of interviews were completed by the second call, only 12 percent during the third call. The remaining three percent of calls resulting in a completed interview were made on the fourth and fifth calls. These repeated calls that resulted in completed interviews were primarily scheduled calls, where the parent had been reached and agreed to a fixed day and time to complete the interview. Development Associates interviewers dialed parent telephone numbers a total of 26,360 times, achieving 4,668 completed interviews.

Due to the high volume of calls that reached answering machines, interviewers left brief messages identifying themselves, informing parents of the purpose of the call and leaving a toll free number so parents could call and schedule an interview at their convenience. All calls received on the toll free number were returned and interviews completed when parents were contacted.

During data collection, the interviewers were monitored during every shift using both audio and visual means. Constant and close monitoring of interviewer performance allows for quickly detecting and addressing any problems that might occur. This ensured that Development Associates maintained its interviewing standards. In addition, parents who indicated that they had returned a completed questionnaire in the mail did not complete the telephone interview. A few parents expressed a preference for completing the paper version of the instrument and asked to be sent the questionnaires. Development Associates respected all such requests and removed their names from the telephone list. Therefore, responses for each parent were captured through one data collection mode only.

[3] HCPS chose which language groups would receive mailed materials.

2. Teachers and Administrators

In all, 1,965 teachers and administrators were invited to participate in the on-line survey. The initial survey notification was sent to 1,850 teachers and administrators whose names and email addresses were provided by HCPS. Later, an additional 98 administrators and 15 teachers were added to the survey population and completed questionnaires.

Development Associates drafted a letter for teachers and school administrators informing them of the survey which was sent as an attachment to all survey participants. It included information on the purpose of the survey, data confidentiality and instructions on accessing the website and completing the questionnaire.

On January 12th, 2005, each person received an email from Development Associates inviting them to participate in the survey and providing a unique password and the URL address. Attached was a MS-Word document containing a letter explaining the purpose of the survey, and providing the due date for responses, 5 p.m. January 19th, 2005. Teachers and administrators had access to the website any time of the day and on any day of the week. This flexible scheduling was designed to accommodate respondents' preferences, allowing them to complete the questionnaire at a time that was most convenient for them. In addition, teachers and administrators had the option of completing the questionnaire during one or several sessions. This provided teachers more than one opportunity to complete the survey. Passwords were deactivated only when a completed questionnaire was submitted to the system.

E-mail reminders were sent to each teacher's and administrator's individual email address. Each email message contained the URL address and unique password allowing each individual to access her or his form. Although teachers and administrators logged into the same URL, a unique identifier in the database distinguished teachers from administrators and ensured that each received the appropriate questionnaire respectively.

Development Associates sent several reminders to teachers and administrators inviting them to complete the questionnaire. These email reminders were sent on:

- January 14th, 2005: 1,328 teachers and administrators who had not yet used their passwords.
- January 19th, 2005: 963 teachers and administrators who had not yet used their passwords. At this time, the deadline was extended to January 24th to give the administrators and teachers an opportunity to complete the questionnaires.
- On January 26th, 2005, at the request of HCPS, the deadline was again extended to 5 p.m. January 28th, 2005. Email notices were sent to the remaining 624 teachers and administrators who had not yet used their passwords informing them of this extension.

3. Students

Data collection for the students was conducted in collaboration with the principals and administrators. Packages containing instructions for the teachers were delivered to each the middle and high school classroom. Teachers administered the survey following the instructions provided by Development Associates.

For student data collection, every student received a unique password. Based on a list of all classes in all grades in the County's 12 middle schools and nine high schools, Development Associates printed business cards with the URL link and a unique password for each student. Teachers distributed the cards in the classrooms during the periods set aside for the student on-line survey. The passwords could be used to complete only one questionnaire and were deactivated as soon as a given student completed the last question of the questionnaire, thus permitting each student to participate only once.

The on-line student survey was scheduled to start on Thursday, January 6th, 2005, and continue through Tuesday, January 18th, 2005, with make up days extending through Friday, January 21st, 2005. Due to a technical problem, the start of data collection was rescheduled to Monday, January 10th, 2005. Students at schools scheduled to complete the questionnaires on January 6th and 7th were reassigned to other days during the data collection period, which was extended to January 21st 2005, to accommodate this change. In addition, the student survey deadline was extended to January 28th, 2005 (an additional week), to accommodate school closings caused by harsh winter storm conditions.

D. Confidentiality

Development Associates followed established procedures to protect the privacy of all survey participants. All identifying information (such as names and addresses) used to administer the survey were kept in the strictest confidence. Electronic data files were kept in a secure location with appropriate password protection. Only the study team was allowed access to these data. A list of ID numbers that was generated to serve as a link to the questionnaire data for administrative purposes was destroyed upon completion of the study. Questionnaire responses were not linked directly to the file containing identifying information. Once all of the data collection activities were completed, the variables indicating the names and addresses of respondents were deleted.

At no point in the data collection process were the individual questionnaires viewed by anyone other than staff assigned to the study. All analyses were conducted so that no one could be identified individually and were conducted after ensuring that responses could not be used to identify specific respondents. Background variables that could permit the identification of a small group of respondents through cross tabulation were suppressed or collapsed.

E. Description of Respondent Groups

In the sections below, we present a discussion of the survey for each respondent group.

1. Parents of Students Enrolled in HCPS

A list of the parents of all the students enrolled in Henrico County public middle and high schools was provided by HCPS. This list included 19,113 telephone numbers. Of the 13,048 numbers used for the telephone survey, a total of 346 telephone numbers were incorrect, i.e. the person who answered the telephone indicated that they had no children in the Henrico public middle or high schools. Another 34 were business numbers and 1,140 numbers were out-of-service. In addition, 121 respondents were considered ineligible for the telephone survey as they indicated that they primarily spoke a language other than English and could not complete the interview in English.

Thus, a total of 11,339 telephone numbers were identified as those of eligible families. There were 121 "calls back", where a respondent was not reached, i.e. the telephone was always answered by another member of the household, or the selected person was "busy" when we made our call attempts. Also, there were 1,485 refusals, i.e. we reached a parent of a student but they declined to complete the interview. A total of 4,668 parents completed the interview, for a response rate of 41.2 percent.[4] For the completed telephone calls, the interviewers spoke with the parent who was most knowledgeable about their child's education.

A total of 7,102 questionnaires were completed by parents of students in HCPS. This is comprised of 4,668 questionnaires completed by telephone and 2,434 by mail. The response rate for the mail portion of the survey was 28.7 percent.

Table I-1
Parent Telephone Number Outcomes

Outcome Description	Number
Ineligible telephone numbers	
Business number	34
Not a HCPS parent	346
Fax number	68
Out of service	1,140
Not an English speaker	121
Eligible telephone numbers	
No answer	823
Answering machine	4,038
Always busy	204
Refusal	1,485
Call back-no interview	121
Completed interview	4,668
Total	13,048

Table I-2 below presents the characteristics of the parents of HCPS students.

Table I-2
Characteristics of Parents of Secondary Students Enrolled in HCPS[5]

	2005 Parent Survey Participants		2004-2005 HCPS Parent Population	
Characteristic	**Number**	**Percent**	**Number**	**Percent**
Ethnicity				
Asian	228	3.2	826	4.3
Black	2248	31.7	6,950	36.4
Other	139	2.0	452	3.4
Hispanic	148	2.1	523	3.7
White	4332	61.0	10,362	54.2
Unknown	7	0.1	NA	NA
Parents of special education students				
Yes	1282	18.1	3,639	19.0
No	5813	81.9	15,474	81.0
Parents of free/reduced lunch students				
Yes	5497	77.4	5,107	73.3
No	1598	22.5	14,006	26.7
Unknown	7	0.1	NA	NA
District				
Brookland	1034	14.6	3,372	17.6
Three Chopt	1274	17.9	4,380	22.9
Fairfield	1126	15.9	3,759	19.7
Tuckahoe	1917	27.0	3,393	17.8
Varina	1715	24.1	4,113	21.5
Unknown	36	0.5	97	0.5

[4] The response rate for the parent survey = (completed interviews/(no answer + answering machine +busy + refusal + call back + completed interviews))*100.
[5] Data in this table were compiled from the HCPS database and the survey data.

2. Students

A total of 20,409 HCPS students completed questionnaires for the iBook survey in January 2005, for a total response rate of 80.5 percent. Approximately 49 percent of the students who completed questionnaires were in middle school and 51 percent in high school. See Table 3 below for the characteristics of the students.

Table I-3
Characteristics of HCPS Secondary Student Survey Participants

	2005 Student Participants		2004-2005 Student Population	
Characteristic	**Number**	**Percent**	**Number**	**Percent**
Ethnicity				
Asian	951	4.7	1,052	4.2
Black	6,813	33.4	9,226	36.4
Other	475	2.3	597	3.4
Hispanic	557	2.7	709	2.8
White	11,507	56.4	13,546	53.5
Unknown	106	.5	212	0.8
Gender				
Male	10,165	49.8	12,774	50.4
Female	10,138	49.7	12,356	48.8
Unknown	106	0.5	212	0.8
Grade				
6th Grade	3,497	17.1	3,497	17.1
7th Grade	3,313	16.2	3,313	16.2
8th Grade	3,217	15.8	3,215	15.8
9th Grade	3,214	15.7	3,212	15.7
10th Grade	2,861	14.0	2,858	14.0
11th Grade	2,391	11.7	2,390	11.7
12th Grade	1,912	9.4	1,911	9.4
Free/reduced Lunch				
No	15,265	74.8	18,367	72.5
Yes	5,038	24.7	6,763	26.7
Unknown	106	0.5	212	0.8
District				
Brookland	3,463	17.0	4,376	17.3
Three Chopt	5,269	25.8	5,885	23.1
Fairfield	3,740	18.3	5,018	19.8
Tuckahoe	3,964	19.4	4,392	17.3
Varina	3,792	18.6	5,393	21.3
Unknown	181	0.9	302	1.2
School Leave				
Middle School	10,025	49.2	11,230	44.4
High School	10,371	50.8	14,040	56.6

3. Teachers and Administrators

The questionnaires for teachers and administrators were sent to 1,952 individuals. A total of 1,301 teachers and 223 administrators completed the survey, for a total response rate of 78.1 percent. The teachers' and administrators' characteristics are presented in Tables I-4 and I-5 below.

Table I-4
Characteristics of Secondary Teachers[6]

	2005 iBook Survey Participants		2004-2005 HCPS Teacher Population	
Characteristic	**Number**	**Percent**	**Number**	**Percent**
Race				
Asian	2	0.2	6	0.4
Black	198	15.2	291	17.8
Other	8	0.6	10	0.6
Hispanic	12	0.9	15	0.9
White	1,076	82.7	1,312	80.0
Unknown	5	0.4	5	0.3
Gender				
Female	901	69.3	1130	68.9
Male	395	30.4	504	30.8
Unknown	5	0.4	5	0.3
Years of Service				
1-3 years	396	30.6	772	47.1
4-10 years	330	25.5	412	25.1
11-20 years	191	14.7	239	14.6
Over 20 years	172	13.3	211	12.9
Unknown-zero	207	16.0	5	0.3
District				
Brookland	212	16.3	274	16.7
Three Chopt	317	24.4	369	22.5
Fairfield	293	22.5	384	23.4
Tuckahoe	222	17.1	72	16.6
Varina	252	19.4	334	20.4
Unknown	5	0.4	6	0.4

[6] Data in this table were compiled from the HCPS database.

Table I-5
Characteristics of Administrators[7]

	2005 iBook Survey Participants		2004-2005 HCPS Administrator Population*	
Characteristic	**Number**	**Percent**	**Number**	**Percent**
Race				
Black	40	17.9	52	16.6
Asian	NA	NA	NA	NA
Hispanic	NA	NA	NA	NA
White	132	59.2	163	52.1
Unknown	51	22.9	98	31.3
Gender				
Female	115	51.6	147	47.0
Male	57	25.6	68	21.7
Unknown	51	22.9	98	31.2
Years of Service				
1-3 years	32	14.3	56	17.9
4-10 years	58	26.0	71	22.7
11-20 years	42	18.8	51	16.3
Over 20 years	29	13.0	37	11.8
Unknown-zero	62	27.8	98	31.3
District				
Brookland	27	12.1	31	9.9
Three Chopt	38	17.0	48	15.3
Fairfield	35	15.7	45	14.4
Tuckahoe	28	12.6	31	9.9
Varina	31	13.9	42	13.4
Unknown	64	28.7	116	37.1

* No data were available for 98 administrators.

F. Data Presentation

The data from students, teachers, and administrators that are presented in this report are presented in unweighted form (i.e., the percentages reported are the actual percentages of respondents providing a response). However, because the number of parents responding to the telephone and mail surveys represented less than half of the parent population, and because the response rates varied across magisterial districts, a decision was made to weight parent data to make those data more representative of the overall population. The parent responses were weighted by magisterial districts so that the proportion of parent respondents within each district was proportional to the number of students in that district.

[7] Data in this table were compiled from the HCPS database.

CHAPTER II. STUDENTS

In this chapter, the results from the online survey of middle and high school students are presented. Results from middle school students are discussed first, followed by results from the high school students. A brief final section compares students at the two levels. The complete data for all items from the online survey are found in the appendix.

A. MIDDLE SCHOOL

Most middle school students have iBooks. Of all middle school students, 90 percent reported getting an iBook since the start of the 2004-2005 school year. Of middle school students with iBooks, almost all first received them in the sixth grade (92 percent). The bulk of this section will focus on students with iBooks (users), with shorter sections on students without iBooks (non-users) and the future preferences of both groups.

1. Users

a. Use

Middle school students used the iBooks more frequently at school than at home. Of all middle school students with iBooks, 88 percent indicated that they brought it to school every day, while less than half used the iBook at home every day (41 percent). This difference was also reflected in the percentages of students reported using the iBook at school and home at least one hour per day among those who had it at either location (92 percent and 86 percent, respectively). In addition, 74 percent of students with iBooks participated in computer training at school.

Students were asked about the extent (every day, 2-4 times per week, once per week, and never) to which they completed 15 specific activities with their iBooks at home and at school. The five most common activities completed using the iBooks at least two times per week were "use Appleworks" (77 percent), "complete class work" (70 percent), "complete homework" (59 percent), "use Virtual Share" (59 percent), and "do research on the internet for school work" (55 percent). Slightly fewer than a quarter of students play games at least two times per week, and fewer than 1 in 6 instant message with friends or download music at least two times per week.

Students were also asked about the types of software they have used since the first year they received their iBooks. The four most common software products used were Virtual Share (93 percent), Quia (84 percent), Larsons Math (77 percent), and K12 Planet (70 percent).

The extent of reported use varies by magisterial district and race/ethnicity. In order to make comparisons about use of the iBook, a composite variable was created based on responses to 30 questionnaire items. The possible values of the composite ranged from 0 (lowest amount of reported use) to 46 (highest amount of reported use). The mean values on this composite were then compared for groups of students based on magisterial district, race/ethnicity, gender, and whether a student receives a free or reduced lunch. Differences among groups are presented in this report only if these met a specific standard for size of effect.

In terms of magisterial district, the mean composite scores were: Tuckahoe (25.1); Three Chopt (24.7); Brookland (23.9); Fairfield (22.8); and Varina (22.6). For race/ethnicity, the mean composite scores were: Asian (25.0); Whites (24.2); Hispanic (24.0); African-American (23.2); and Other (23.2). [8]There were no meaningful differences in the scores of groups defined by free/reduced lunch or gender.

b. Perceptions of Usefulness

Students provided information on the usefulness of the iBooks in relation to their general academic activities (e.g., organization) and in specific subjects (e.g., history). Items about general academic activities consisted of statements in which the students could choose among strongly disagree, disagree, neither agree nor disagree, agree, and strongly agree.

Concerning general academic activities, the iBooks were reported to make research easier. Research was the area that the most students agreed or strongly agreed as being easier because of the iBook (86 percent). Of middle school students, 72 percent agreed or strongly agreed that they were more organized when using the iBook, and more than half (55 percent) agreed or strongly agreed that the iBook helps them do better on their schoolwork. However, fewer than half of the students (44 percent) believed that the iBook saved them time on their homework, and less than a quarter (22 percent) agreed or strongly agreed that they could not do their schoolwork without their iBooks.

The iBooks are most useful in social studies, history, science, and English/language arts. Students were asked to rate the usefulness of the iBook in 12 different subjects, if they had taken a class in that subject. A majority of students indicated that the iBooks were very useful in social studies (55 percent) and history (54 percent). Close to half (49 percent) viewed the iBooks as being very useful in science and English/language arts.

Usefulness varies by magisterial district, race/ethnicity, and free/reduced lunch. Similarly to the composite variable created on extent of use of the iBook, a composite was developed for usefulness of the iBook. The range of possible scores was from 1 to 5, with "5" representing the most useful and "1" the least useful. The mean values on this composite were then compared for groups of students based on magisterial district, race/ethnicity, whether a student receives a free or reduced lunch, and gender.

The mean composite scores for middle school students by magisterial district were: Fairfield (3.64); Varina (3.62); Brookland (3.53); Three Chopt (3.50); and Tuckahoe (3.45). For race/ethnicity, the mean composite scores were: Hispanic (3.64); African-American (3.63); Asian (3.58); White (3.48); and Other (3.62). The mean composite scores for free/reduced lunch were 3.65 for those who received free/reduced lunch and 3.50 for other students. There were no meaningful differences in usefulness based on gender. [9]

[8] *Usecomp* was developed to provide an indication of iBook use from variables Q9, Q10, Q12-27, Q51, Q54-Q64.
[9] The Usefulness composite is comprised of variables Q32-Q36 and Q40.

c. Problems

The majority of iBooks require repair during the school year. Of middle school students with iBooks, 61 percent turned their iBooks in for repair since the start of the 2004-2005 school year. A minority (24 percent) agreed or strongly agreed that their iBooks often had problems so that they had to turn them in for repairs. Regarding the specific maintenance issues, the most common problems were the backlight (27 percent) and chargers (15 percent).

Middle school students are generally satisfied with the maintenance provided to them. In terms of the repair services provided, 66 percent of the students agreed or strongly agreed that the Help Desk solves their iBook problems. When asked about the length of time it took the Help Desk to repair their computers the last time they gave them to the Help Desk, 61 percent indicated that it took more than three days to receive their iBooks back from the Help Desk. In addition to the Help Desk, 18 percent of middle school students with iBooks have sent them to the Texas repair center since the start of the 2004-2005 school year.

Most middle school students print at school but do not print at home. The majority of middle school students with iBooks indicated that they printed at school at least once per week (83 percent). In contrast, less than a quarter (24 percent) responded that they could print at home from the iBook. Of those students who print at school and who print at home, 7 in 10 reported rarely or never having problems printing at either location.

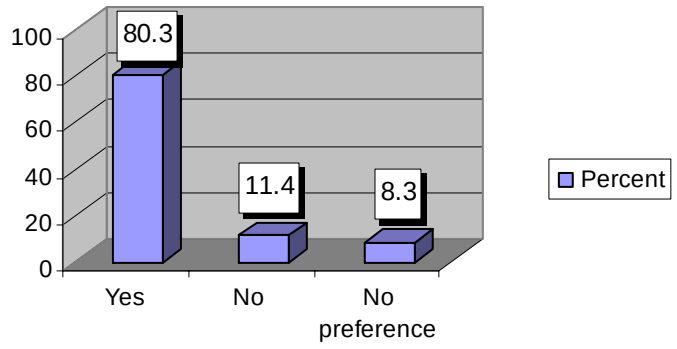
2. Non-users

Most middle school non-users believe they function effectively in school without having an iBook. Of middle school students without iBooks, 21 percent disagreed or strongly disagreed that they could do their school work without the iBook. In addition, fewer than 3 in 10 indicated that they had difficulty following in class when their teachers used their iBooks. Also, a majority of middle school students without iBooks agreed, strongly agreed, or neither agreed nor disagreed that they could participate in class without the iBook (74 percent).

3. Preferences

A large majority of middle school students want the iBooks offered next year, with the strongest support coming from Fairfield, minorities, and students from economically disadvantaged families. As shown in Figure II-1, more than 8 out of 10 of all middle school students indicated that they want the school system to offer the iBooks next year.

Figure II-1
Middle School Students who Wanted the iBook Offered Next School Year



There were meaningful differences among groups based on magisterial district, race/ethnicity, and free/reduced lunch, but not on gender. Support for offering the iBooks next year was strongest in the Fairfield magisterial district (90 percent) and lowest in Tuckahoe (73 percent). The results for the other magisterial districts were: Varina (86 percent); Brookland (79 percent); and Three Chopt (76 percent). Concerning race and ethnicity, African-American middle school students were most supportive for offering the iBooks next year (89 percent) while Whites were the least enthusiastic (75 percent). The results for the other groups were: Hispanic (85 percent); Asian (83 percent); and Other (82 percent). The iBooks also received more support from students who received free/reduced lunch (88 percent) than those who did not (77 percent).

There is not a majority preference for a specific type of operating system. When all middle school students were asked about choosing among operating systems, 41 percent selected Apple/Macintosh, 36 percent chose Windows-based, and 23 percent indicated no preference.

There were meaningful differences in preference for an operating system among groups based on magisterial district, race/ethnicity, and free/reduced lunch, but not on gender. A majority of the students in Fairfield and Varina marked Apple/Macintosh as their preference (55 percent and 52 percent, respectively). There were no other magisterial districts in which a majority preferred either system. In terms of race/ethnicity, support for the Apple/Macintosh system was highest among African-Americans (56 percent), Hispanics (45 percent), and Other (46 percent), and lowest among Asians (34 percent) and Whites (32 percent). Concerning economic differences, a majority of students who received free/reduced lunch preferred the Apple/Macintosh (55 percent) while less than 4 out of 10 of the other middle school students had a similar preference.

B. HIGH SCHOOL

Almost all high school students have iBooks. Of all high school students, 95 percent reported getting an iBook since the start of the 2004-2005 school year. The most common grades when high school students first received their iBooks were 9th (43 percent), 7th (26 percent), and 8th (21 percent). As with the middle school students, most of this section will focus on students with iBooks (users), with shorter sections on students without iBooks (non-users) and the future preferences of both groups.

1. Users

a. Use

High school students used the iBooks more frequently at school than at home. Of high school students with iBooks, 88 percent indicated that they brought it to school every day, while less than half used the iBook at home every day (45 percent). This difference was also reflected in the percentages of students reported using the iBook at school and home at least one hour per day among those who had it at either location (96 percent and 87 percent, respectively). More than half of students with iBooks (56 percent) participated in computer training at school.

Using Appleworks was the only activity conducted every day by a majority of students with their iBooks. Students were asked about the extent (every day, 2-4 times per week, once per week, and never) to which they completed 15 specific activities with their iBooks at home and at school. The five most common activities completed using the iBooks at least two times per week were use Appleworks (84 percent, including 58 percent every day), complete class work"(79 percent), use Virtual Share (72 percent), complete homework (70 percent), and do research on the internet for school work (67 percent). A quarter of students play games at least two times per week, and fewer than 1 in 5 instant message with friends or download music at least two times per week.

Students were asked about the types of software they have used since the first year they received their iBooks. The four most common software products used were Virtual Share (97 percent), Beyond Books (86 percent), Quia (82 percent), and K12 planet (81 percent). No other software was used by more than 50 percent of high school students with iBooks.

The extent of reported use varies by magisterial district and race/ethnicity. As with the middle school students, the mean values on the composite of extent of use were compared for groups of high school students. The groups compared were based on magisterial district, race/ethnicity, whether a student receives a free or reduced lunch, and gender.

The mean composite scores for magisterial district were: Three Chopt (27.8); Fairfield (26.7); Tuckahoe (25.9); Varina (24.8); and Brookland (24.2). In terms of race/ethnicity, the mean composite scores were: Asian (27.8); White (26.0); African-American (26.0); Hispanic (26.0); and Other (25.1). No meaningful differences were found in the free/reduced or gender groupings.

b. Perceptions of Usefulness

Students provided information on the usefulness of the iBooks in relation to their general academic activities (e.g., organization) and in specific subjects (e.g., history). Items about general academic activities consisted of statements in which the students could choose among strongly disagree, disagree, neither agree nor disagree, agree, and strongly agree.

Concerning general academic activities, the iBooks were reported to make research easier. Research was the area that the most high school students agreed or strongly agreed as being easier because of the iBook (89 percent). Of high school students, 68 percent agreed or strongly agreed that they were more organized when using the iBook. More than half agreed or strongly agreed that the iBook helps them do better on their schoolwork (55 percent) and that the iBook

saved them time on their homework (51 percent). However, less than a third (32 percent) agreed or strongly agreed that they could not do their schoolwork without their iBooks.

The iBooks are most useful in history, social studies, technology, and science. Students were asked to rate the usefulness of the iBook in 12 different subjects, if they had taken a class in that subject. A majority of students indicated that the iBooks were very useful in history (57 percent) and social studies (54 percent). In addition, 50 percent of students viewed them as very useful in technology and science classes.

Usefulness varies by magisterial district. As with the middle school students, the mean values on a composite of usefulness were compared for groups of high school students. The groups were based on magisterial district, race/ethnicity, whether a student receives a free or reduced lunch, and gender.

The mean composite scores for magisterial district were: Three Chopt (3.55); Fairfield (3.54); Varina (3.44); Tuckahoe (3.42); and Brookland (3.32). No meaningful differences were found on race/ethnicity, free/reduced lunch, or gender.

c. Problems

The majority of iBooks require repair during the school year. Of high school students with iBooks, 57 percent turned their iBooks in for repair since the start of the 2004-2005 school year. Of high school students with iBooks, 34 percent agreed or strongly agreed that their iBooks often had problems so that they had to turn them in for repairs. Regarding the specific maintenance issues, the most common problems were the backlight (31 percent) and chargers (19 percent).

High school students have mixed views about the maintenance provided to them. In terms of the repair services provided, less than half (47 percent) of the students agreed or strongly agreed that the Help Desk solves their iBook problems. When asked about the length of time it took the Help Desk to repair their computers the last time they gave them to the Help Desk, 77 percent indicated that it took more than three days to receive their iBooks back from the Help Desk. In addition to the Help Desk, 22 percent of high school students with iBooks have sent them to the Texas repair center since the start of the 2004-2005 school year.

Most high school students print at school but do not print at home. The majority of high school students with iBooks indicated that they printed at school at least once per week (76 percent). In contrast, 1 in 5 responded that they could print at home from the iBook. Of those students who print both at school and at home, 72 percent reported rarely or never having problems printing at home. A smaller percentage, 54 percent, reported rarely or never having problems printing at school.

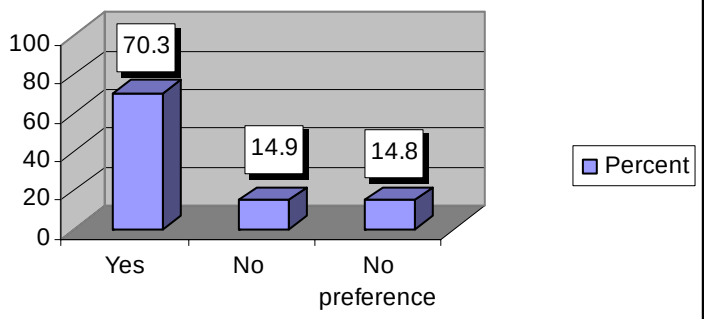
2. Non-users

Most high school non-users believe they function effectively in school without having an iBook. Of high school students without iBooks, only 18 percent disagreed or strongly disagreed that they could do their school work without the iBook. In addition, less than 3 in 10 indicated that they had difficulty following in class when their teachers used their iBooks. Also, a majority of high school students without iBooks agreed, strongly agreed, or neither agreed nor disagreed that they could participate in class without the iBook (83 percent).

3. Preferences

A majority of high school students want the iBooks offered next year. As shown in Figure II-2, 7 in 10 of all high school students indicated that they want the school system to offer the iBooks next year. There were no meaningful differences based on groups.

Figure II-2
High School Students who Wanted the iBooks Offered Next School Year



High school students prefer Windows-based personal computers. When all high school students were asked about choosing among operating systems, 51 percent selected Windows-based, 25 percent indicated no preference, and 24 percent selected Apple/Macintosh.

There were meaningful differences among groups based on magisterial district, race/ethnicity, and free/reduced lunch, but not on gender. A higher percentage of the students in Three Chopt (57 percent), Tuckahoe (56 percent), and Brookland (56 percent) marked Windows-based computers as their preference in comparison to their counterparts in Varina (41 percent) and Fairfield (37 percent). In terms of race/ethnicity, support for the Windows-based system was highest among Asian-Americans (67 percent) and Whites (57 percent), and lowest among Hispanics (40 percent), African Americans (37 percent), and Other (39 percent). Concerning economic differences, a smaller percentage of high school students who received free/reduced lunch preferred the Windows-based (37 percent) than did the other high school students (54 percent).

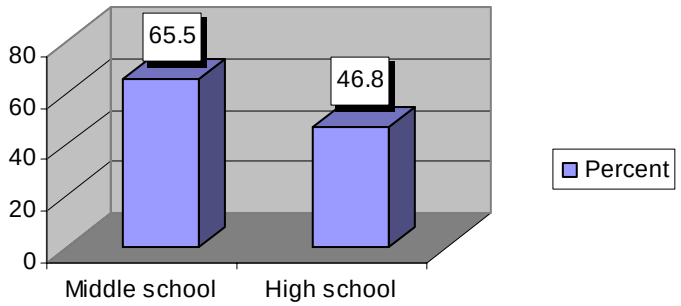
C. COMPARISON BETWEEN MIDDLE SCHOOL STUDENTS AND HIGH SCHOOL STUDENTS

A series of comparisons between the reported experiences of middle school students and high school students were conducted. Several meaningful differences were found. The responses were compared on the use and usefulness composites, maintenance issues, and preferences.

High school students reported that they use the iBook more than middle school students. On the use composite, the mean high school score was 26.1 and the mean middle school score was 23.9. In terms of composite of usefulness, there were no meaningful differences between the groups.

Middle school students have a more favorable view of the Help Desk than high school students. As shown in Figure II-3, the majority of middle school students strongly agreed or strongly agreed with the statement that the Help Desk solves their iBook problems. In contrast, a minority of high school students expressed the same view.

Figure II-3
Middle School and High School Students Strongly Agreeing/Agreeing that the Help Desk Solves their iBook Problems



In addition, a larger percentage of high school students than middle school students indicated that the Help Desk took a long time to solve their iBook problems (56 percent and 39 percent, respectively).

Middle school students prefer Apple/Macintosh computers more than high school students. The percentage of middle school students who selected Apple/Macintosh was 41 percent compared with 24 percent of high school students. More than a third (36 percent) of middle school students preferred Windows-based and 23 percent had no preference. Half of high school students (51 percent) preferred Windows-based and 25 percent selected no preference.

Majorities of middle school students and high school students support offering the iBooks next year, with the middle school endorsement stronger. Of all middle school students, 80 percent indicated that they think the iBook should be offered next year. A smaller majority (70 percent) of high school students indicated the same thing.

CHAPTER III. TEACHERS AND ADMINISTRATORS

This chapter presents the results of the online surveys of teachers in middle schools and high schools and of district and school administrators. The results from teachers are presented first, followed by results from administrators. There is a brief section comparing the two groups at the end of the chapter.

A. SURVEY OF TEACHERS

1. Teachers and iBooks

About one third of HCPS teachers (31 percent) reported that they first received their iBook laptops during the school year 2000-2001, while approximately 18 percent reported that they first received them in 2004-2005. By the academic year 2003-2004, the majority of teachers (82 percent) had received iBooks.

About 26 percent of teachers reported that they agreed or strongly agreed with the statement that they "feel pressured to use the iBook." On the other hand, the majority of teachers (84 percent) agreed or strongly agreed that they feel they have the freedom to use the iBooks in the way that best suits their classes. There was no significant difference in the opinions of high school and middle school teachers.

2. Teachers' Views on the Effect of Use of the iBooks

Teachers believe that using the iBooks has increased their work load, but also recognize that the use of such technology in the classroom could have potentially positive effect on student attitudes and behavior. The majority of teachers (78 percent) reported that classes, that have both students who use iBooks and others who do not have increased the demands made on teachers. Both high school and middle school teachers shared that same opinion. Almost half of the teachers (48 percent) agreed or strongly agreed with the statement that using the iBook has increased their preparation time for each class. However, teachers recognized that having computers makes schoolwork more interesting for their students. Over three-quarters (78 percent) of teachers indicated that having the iBooks makes schoolwork more interesting for students. In addition, 89 percent of teachers agreed or strongly agreed that having iBooks make it easier for students to conduct research. However, slightly over one-third of the teachers agreed that students are more organized when they use their iBooks. While teachers recognize the potential benefits from using laptops as an educational tool, only 25 percent indicated that they prefer to have digital textbooks for the classes they teach.

Teachers expressed concern for the different effect and educational experience for students who have and do not have iBooks. Almost two thirds of the teachers indicated that all students should be provided with an iBook, while one third thought HCPS should not necessarily provide all students with iBooks. However, the majority of teachers (75 percent) of teachers reported that they agreed or strongly agreed that students who do not have iBooks are at a disadvantage.

3. Preferred Location for iBook Use

Only 42 percent of teachers report that the majority of their students bring their iBooks to class. Teachers had evenly divided opinions on whether students should be required to take their iBook

home every day. Over one third of the teachers (35 percent) indicated that they disagreed or strongly disagreed with the statement that students should be required to take their iBooks home every day, while slightly less than one third of the teachers (30 percent) agreed or strongly agreed that students should be required to take the iBooks home every day.

4. Monitoring Student Internet Use

More than half the teachers (56 percent) reported that the filtering system installed on the iBooks is not at all effective in preventing students from accessing inappropriate websites on the Internet, while 23 percent of teachers indicated that they did not know enough of the filtering system to be able to determine what its effectiveness is. However, the vast majority of teachers (74 percent) reported that they frequently monitor students' use of the iBooks in their classes. Teachers do request their students to conduct research on the Internet. Only 6 percent of teachers reported that they never request their students to use information from the Internet, while 8 percent request their students to use such information every day. The majority of teachers (59 percent) request their students to use the Internet once per week or less than once per week.

5. Instructional Use of iBooks

Teachers frequently have students use the iBook in their classes for instructional purposes. Only 4 percent of teachers reported that their students never use the iBooks in their classes for instructional purposes, while 16 percent report that their students their laptops every day in their classes for instructional purposes. About one third of the teachers (33 percent) reported that their students use it only 1-2 days per week, while one quarter of the teachers (26 percent) reported students use the iBooks 3-4 days per week in their classes. On the other hand, only 4 percent of teachers report that they devote over 75 percent of their instructional time in the classroom to student use of the iBook, compared with 51 percent who indicated that they allocate less than 25 percent of class time to student use of iBooks. This pattern is also reflected in the frequency with which teachers assign work that can only be done on the iBook. The majority of teachers (60 percent) reported that they never assign work that can only be done on the iBook. Slightly over one quarter of teachers (27 percent) reported that they assign work that can only be done on the iBook once per week, compared with only 2.5 percent of teachers who reported that they assign their students work that can only be done on an iBook. However, the vast majority of teachers (62 percent) reported that they always made hard copies available to their students of the work that they assign on the iBook, compared with 27 percent who reported that they sometimes provide hard copies and 11 percent who reported they never provide hard copies.

There was no meaningful difference in teacher use of iBook by magisterial district of the school. However, teacher use varied by school level. Higher levels of teacher iBook use are associated with the high school level.

Table III-1 Extent of Teacher Use of iBooks			
	School level		
Teacher Use	Middle school	High School	Total
low	15.7%	16.5%	16.1%
medium	80.4%	75.4%	77.6%
high	4.0%	8.1%	6.2%
Total	100.0%	100.0%	100.0%

Teachers request their students to the iBook in a number of different manners, primarily for completing homework, conducting research, completing classwork, posting bulletin board messages, looking up information on CD-ROM, taking online assessments, and using information from the Internet. The frequency of such requests varies across the tasks, as shown in the table below.

Table III-2 Teacher Requests for Student Use of iBooks					
	Frequency of Use (percent)				
Tasks	**Every day**	**2-4 times per week**	**Once per week**	**Less than once per week**	**Never**
Complete homework	5.2	17.2	17.9	29.1	30.5
Conduct research	3.1	16.1	24.7	44.8	11.1
Complete class work	10.6	29.5	23.1	25.1	11.6
Post bulletin board messages	5.6	1.9	5.6	9.9	77.1
Look up information on CD-ROM	0.6	1.2	3.1	20.4	74.8
Take online assessments	1.3	7.2	15.3	38.2	37.9
Use information from Internet	7.9	27.1	26.0	33.0	5.9

In order to summarize teacher perceptions of the extensiveness of student use of iBooks, a composite variable was created from 11 items on the Teacher Questionnaire. The composite had a theoretical range of 0 (no reported use) to 20 (very extensive use), and an actual range from 0 to 19 (i.e., no teacher reported the maximum use on all 11 items).

Groups of teachers were compared in terms of the mean score on this composite. Four grouping variables were used: (1) school level of teacher (middle, high); (2) magisterial district of the school; (3) years of experience (0 years or unknown, 1-3 years, 4-10 years, 11-20 years, and over 20 years); and (4) race/ethnicity of teacher.

Teachers from schools in certain magisterial districts and more experienced teachers reported greater student use of iBooks. The mean composite scores by magisterial district were: Tuckahoe (8.68); Three Chopt (8.00); Brookland (7.12); Varina (6.99); Fairfield (6.86).

The mean composite scores by years of experience of the teacher were: 0 years or unknown (6.53); 1-3 years (7.47); 4-10 years (7.71); 11-20 years (8.08); over 20 years (7.84).

6. Teacher Use of iBooks

In order to summarize teacher perceptions of the extensiveness of their use of iBooks, a composite variable was created from 14 items on the Teacher Questionnaire. The composite had a theoretical range of 0 (no reported use) to 14 (very extensive use), and an actual range from 0 to 13 (i.e., no teacher reported the maximum use on all 14 items). We found no meaningful differences among subgroups of teachers on this composite variable.

Table III-3
Teacher Use of iBooks

	Frequency of Use (percent)				
Tasks	**Every day**	**2-4 times per week**	**Once per week**	**Less than once per week**	**Never**
Administer online assessments	3.2	7.7	12.5	36.8	39.8
Provide feedback on assignments	3.5	8.3	12.2	28.3	47.8
Use information from Internet	44.3	28.2	13.0	12.5	1.9
Virtual Share files	17.6	22.2	18.4	27.8	14.0
Appleworks	50.9	23.9	9.0	9.6	6.6
Creating curricula	40.6	25.2	13.9	10.7	9.7
Developing web pages	17.1	10.9	17.3	31.7	23.0
Communicating with parents	31.4	28.7	20.7	16.3	2.9

7. Teachers' Perception of Usefulness of iBooks

We also computed an average rating for each teacher across subjects taught of the ratings of usefulness of the iBook in helping students with their schoolwork. The scale for this average ranged from 0 (not very useful) to 2 (very useful). Grouping of teachers were then compared in terms of their mean average score. The only meaningful difference among groups was based on years of experience of the teacher. The mean ratings were: 0 years or unknown (1.38); 1-3 years (1.50); 4-10 years (1.51); 11-20 years (1.56); over 20 years (1.38). Interestingly, the least and most experienced teachers gave the lowest usefulness ratings.[10]

8. Problems with iBooks

A minority of teachers reported that they experience difficulties using the iBook. Less than one quarter of teachers (23 percent) agreed or strongly agreed that their iBook often malfunctions, compared with 65 percent of teachers who strongly disagreed or disagreed with this statement. Most teachers expressed positive assessment of the services provided by TST. Approximately 77 percent of teachers agreed or strongly agreed that TST promptly solves problems with the iBooks.

9. Training

The vast majority of teachers (99 percent) reported that since receiving the iBook, they had participated in computer training at schools. More than half these teachers (55 percent) indicated that they found this training to be relevant to their needs. Only three percent found this training to be not at all relevant to their needs, compared with about 38 percent who reported that it was

[10] Teacher use was measured using the variables on the frequency of how teachers use their own iBooks Q19-26 and Q28-33. The usefulness composite was developed using variables Q35-45.

only somewhat relevant to their needs. The majority of teachers (78 percent) reported that they would like to learn more about the iBook program. About 38 percent of teachers disagreed or strongly disagreed with the statement "I need more technical support to effectively use the iBook as a teaching tool." A similar proportion of teachers (36 percent) agreed or strongly agreed with that statement. Moreover, almost two thirds of the teachers indicated that they would like to have specific training on developing digital curricula. Thus, there is evidence that more teacher training on the use of the iBook as an instructional tool could potentially contribute to the effective use of the laptops in introducing technology into the classrooms, curricula, and developing a strong technology in education program.

10. Preferred Platform

While about one quarter of the teachers (26 percent) reported that they did not have any preference for a specific platform, teachers were evenly divided in their preference for Apple/Macintosh (37 percent) and Windows-based personal computer (37 percent).

11. Future

Teachers support the iBook or a similar program. The majority of teachers (60 percent) reported that in their opinion the schools should continue with its current instructional technology program. Only 16 percent of teachers indicated that this program should be discontinued, and the remaining teachers had no preference or opinion on this issue.

B. SURVEY OF ADMINISTRATORS

1. Administrators and iBooks

Administrators spend considerable amount of time per week on issues related to the management and implementation of the iBook program. About 13 percent of administrators reported that they could spend up to 100 percent of their time in any given week on the iBook program, compared with 17 percent who reported that they spend less than 10 percent of their time per week on the program. Almost half the administrators reported that they spend up to 50 percent of their time per week on the administration of the program. The mean amount of time spent on the iBook was 56 percent of the time per week. Administrators reported that they spend considerable amount of time of various aspects of the iBook program such as teacher support (25 percent), repairs (19 percent) and 21 percent of their time is spent on monitoring student use.

2. Preferred Location for iBook Use

Approximately 44 percent of administrators report that the majority of their students (over 75 percent) bring their iBooks to class, compared to 31 percent of administrators who reported that less than half of the students bring the iBooks to class.

Administrators had divided opinions on whether students should be required to take their iBook home every day. Approximately one third of the administrators (33 percent) indicated that they agreed or strongly agreed with the statement that students should be required to take their books home every day, while 45 percent of administrators disagreed or strongly disagreed.

3. Administrators' Views on Effect of Use of the iBooks

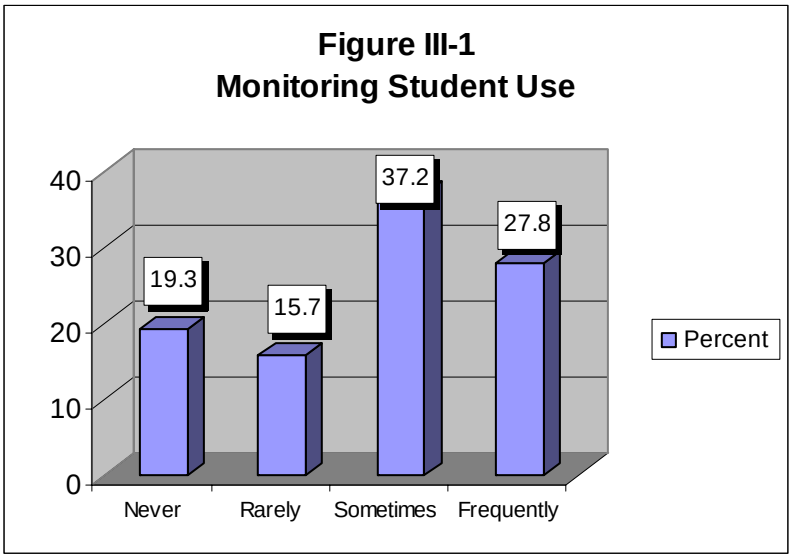
Administrators have positive opinions on potential effect of using iBooks on student attitudes. The vast majority (87 percent) agreed or strongly agreed that computers make schoolwork more interesting for students. The majority of administrators (82 percent) agreed or strongly agreed that the iBook is a tool that improves students' education.

Administrators, like teachers, reported opinions that also expressed concern for the different effect and educational experience those students who have and do not have iBooks. The majority of administrators (72 percent) indicated that all students should be provided with iBooks, while 12 percent thought HCPS should not necessarily provide all students with iBooks. However, the majority of administrators (77 percent) reported that they agreed or strongly agreed that students who do not have iBooks are at a disadvantage.

4. Monitoring Student Internet Use

Student misuse of the iBooks is a concern many administrators. Slightly less than two thirds of administrators (61 percent) reported that the filtering system installed on the iBooks is not at all effective in preventing students from accessing inappropriate websites on the Internet, while 24 percent indicated that they did not know enough of the filtering system to be able to determine what its effectiveness is. Many administrators (37 percent) reported that they sometimes monitor students' use of the iBooks in their classes and 28 percent report that they frequently monitor students' iBook use.

Figure III-1
Monitoring Student Use



5. Administrators' Views on Student Use

In order to summarize administrator perceptions of the extensiveness of student use of iBooks, a composite variable was created from 11 items on the Administrator Questionnaire. This composite was parallel to a similar composite for teachers, though some of the items were worded slightly differently. The composite had a theoretical range of 0 (no reported use) to 20 (very extensive use), and an actual range from 0 to 19 (i.e., no administrator reported the maximum use on all 11 items).

Groups of administrators were compared in terms of the mean score on this composite. Three grouping variables were used: (1) magisterial district of the school; (2) years of service (0 years or unknown, 1-3 years, 4-10 years, 11-20 years, and over 20 years); and (3) race/ethnicity of administrator.

Administrators from schools in certain magisterial districts reported greater student use of iBooks. The mean composite scores by magisterial district were: Three Chopt (12.32); Tuckahoe (11.75); Missing (no district) (11.60); Brookland (9.88); Varina (9.72); Fairfield (9.53). This difference in ratings by magisterial district paralleled similar differences among teachers.

Administrators' perceptions and experience working with students and teachers over the life span of the program has provided them with an opportunity to gain insights into how both groups use the laptops. For example, administrators report that about 27 percent of teachers request their students to use information from the Internet every day, while 54 percent indicate that they think teachers request their students to complete homework 2-4 times per week.

Table III-4
Teacher Requests for Student Use of iBooks

	Frequency of Use (percent)				
Tasks	**Every day**	**2-4 times per week**	**Once per week**	**Less than once per week**	**Never**
Complete homework	11.5	54.1	16.5	13.8	4.1
Conduct research	10.1	39.4	35.3	13.8	1.4
Complete class work	14.2	63.8	11.9	7.8	2.3
Post bulletin board messages	6.7	10.1	11.0	36.2	35.8
Look up information on CD-ROM	1.8	12.4	13.3	48.6	23.9
Take online assessments	2.8	23.4	28.4	38.5	6.9
Use information from Internet	27.1	48.2	16.5	7.3	0.9

6. Administrators' Use of iBooks

Administrators work with teachers on numerous issues pertinent to the implementation of the iBook program. Most administrators (62 percent) appear to not use the iBook to provide feedback to students on their assignments. However, administrators appear to have adopted this new communications technology to be in contact with parents.

Table III-5
Administrator Use of iBooks

	Frequency of Use (percent)				
Tasks	**Every day**	**2-4 times per week**	**Once per week**	**Less than once per week**	**Never**
Administer online assessments	4.2	8.8	6.5	23.1	57.4
Provide feedback on assignments	7.9	14.4	5.1	10.6	62.0
Use information from Internet	62.5	22.7	6.9	3.2	4.6
Virtual Share files	19.0	18.1	7.9	19.4	35.6
Appleworks	38.0	20.8	6.0	11.1	24.1
Creating curricula	15.3	16.7	11.6	18.5	38.0
Developing web pages	4.2	5.6	12.5	32.9	44.9
Communicating with parents	35.2	22.2	9.7	13.4	19.4

A composite was also created to summarize administrators' reports of their own use of the iBook. The composite had both a theoretical and actual range of 0 to 8, and groups of administrators were compared based on the magisterial district of their school, years of service, and race/ethnicity.

Administrators from schools in certain magisterial districts reported greater personal use of the iBook. The mean composite scores by magisterial district were: Varina (4.55); Missing (no district) (3.92); Fairfield (3.85); Three Chopt (3.76); Tuckahoe (3.39); Brookland (3.23).

7. Usefulness of iBooks

Administrators from schools in certain magisterial districts and administrators with more years of service provided higher ratings of the usefulness of the iBook. The mean composite scores by magisterial district were: Missing (no district) (1.70); Three Chopt (1.66); Brookland (1.63); Tuckahoe (1.57); Varina (1.56); Fairfield (1.56).

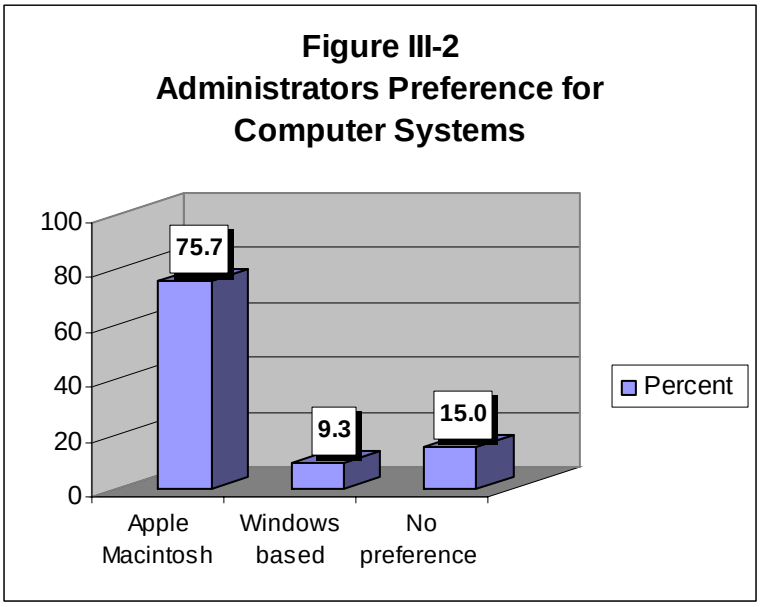
The mean ratings by years of service were: 0 years or unknown (1.57); 1-3 years (1.52); 4-10 years (1.62); 11-20 years (1.66); over 20 years (1.60).

8. Training

The vast majority of administrators (84 percent) reported that since receiving the iBook, they had participated in computer training at schools. Slightly over half these administrators (51 percent) indicated that they found this training to be relevant to their needs. Only 3 percent found this training to be not at all relevant to their needs, compared with about 25 percent who reported that it was only somewhat relevant to their needs. The majority of administrators (79 percent) reported that they would like to learn more about the iBook program. Administrator training on the use of the iBook could enhance the ability of the administrators to design and implement an integrated program and strongly support teachers. This could lead to the more effective use of the laptops in classrooms, improved curricula, and developing a strong technology in education program.

9. Preferred Platform

The vast majority of administrators (76 percent) expressed a preference for Apple Macintosh computers.



10. Future

Approximately two thirds of administrators (66 percent) indicated that they thought that the schools should continue with its current instructional technology program. Only 13 percent of administrators indicated that this program should be discontinued, and the remaining administrators (12 percent) had no preference or opinion on this issue.

C. COMPARISON OF TEACHERS AND ADMINISTRATORS

Teachers and administrators share similar views on the use of technology in education. In both cases, the majority of both teachers (60 percent) and administrators (66 percent) would like the school system to continue its technology program. However, they have identified certain areas that could be revisited in the program design. These issues include the type and sequence of teacher training, the technical support provided to teachers and staff, developing a more standardized implementation approach, streamlining software, identifying appropriate location for student use of the laptops, use of the laptops as a tool for student-centered instruction, and addressing the differential use of the iBooks by students and teachers.

Teachers and administrators expressed different preferences on the use of platforms. The majority of teachers indicated that they prefer to have a Windows-based system, while the most of the administrators preferred the Apple Macintosh system.

Teachers and administrators both recognize the value and potential for providing a better education for their students through the use of technology in education. Both groups indicated that they appreciate the positive impact that the use of such technology could have on their students, making their educational experience more interesting and challenging, and more adequately preparing them for their post-secondary opportunities be in higher education or full time employment.

CHAPTER IV. PARENTS

In this chapter the results of data collected from parents through a telephone survey and mail survey are presented. The responses of parents whose child had an iBook at the time of the interview or completion of the mail questionnaire are discussed first, followed by a section on parents whose child did not have an iBook. Most of the children of the parents interviewed had iBooks (94 percent). As discussed in Chapter I, the data are weighted based on the number of students in each magisterial district.

A. PARENTS OF STUDENTS WITH IBOOKS

1. Use of iBooks

Most students use the iBooks at home despite the presence of another computer in many households. According to the parents of children with iBooks, 91 percent of the children used the iBooks at home. The average amount of time spent by children on the iBooks at home was 1.8 hours per day. Often, having the iBook at home meant that there were at least two computers in the household, because a majority of Henrico families already had a computer prior to their child receiving an iBook (90 percent). More than nine in 10 of the family computers were Windows-based. Concerning the Internet, 46 percent of parents in homes with Internet access reported that their children always or sometimes accessed the Internet at home using the iBook, 52 percent reported that their child rarely or never did so, and two percent did not provide an answer.

A majority of parents have confidence in the safeguards against their children accessing inappropriate websites. More than half of parents (56 percent) indicated that their children could not access inappropriate websites using their iBooks, 17 percent responded that their children could access such sites, and 27 percent did not provide an answer. Related to the prevention of this type of access, 60 percent viewed the iBook filtering system as either very effective or somewhat effective, seven percent as not at all effective, while 33 percent did not provide an answer. More than half (51 percent) of parents reported that they were aware of the undeletable history file in the iBook, 40 percent were not aware, and nine percent did not provide an answer.

The parents' perceptions of the iBooks' usefulness varies by race/ethnicity. In order to make comparisons about the usefulness of the iBooks, a composite was developed from six questionnaire items. The range of possible scores was from 1 to 5, with 5 representing the most useful and 1 the least useful. The mean values on this composite were then compared for groups of students based on level of school, free/reduced lunch, magisterial district, race/ethnicity, and special education.

There was a meaningful difference in the usefulness scores by race/ethnicity. The scores were: Hispanic (3.50); Asian (3.47); African-American (3.38); White (3.23); and Other (3.48). There were no other meaningful differences among the other groupings.[11]

[11] The parent usefulness composite is composed of variables on rating usefulness to perform certain tasks; Q16, Q17, Q21, Q22 and Q24.

2. Technical Issues

Parents are satisfied with the support given to their children to help them use the iBook. Of parents whose child had an iBook, 69 percent strongly agreed or agreed that the school provided the necessary technical support, 17 percent strongly disagreed or disagreed, 11 percent neither agreed nor disagreed, and three percent did not provide an answer. Regarding instructional support needed to use the iBook, 75 percent strongly agreed or agreed that it was provided, 12 percent strongly disagreed or disagreed, 10 percent neither agreed nor disagreed, and three percent did not provide an answer.

The majority of children need to have their iBooks repaired during the school year. According to the parents, 53 percent reported that their children needed to have their iBooks repaired during this school year, 45 percent indicated that no repairs were required, and two percent did not provide an answer. Of parents whose children needed to have their iBooks fixed, 46 percent reported that the iBook needed to be repaired one time, 38 percent 2-3 times, 14 percent more than three times, and two percent did not give an answer. In terms of the quality of the repairs, 37 percent of parents reported being very satisfied, 43 percent somewhat satisfied, 17 percent not at all satisfied, and three percent did not provide an answer.

iBook repairs most often take at least three days and typically do not require the parents to pay. Of parents whose children turned the iBooks in one time only for repairs, 62 percent reported that the repairs took at least three days, 31 percent less than two days, and seven percent did not provide an answer. For parents whose children have had to have the iBook repaired multiple times, the last time it was taken in, 74 percent indicated that it was at least three days until the iBook was returned, 22 percent reported less than two days, and four percent did not provide an answer. As for cost, 89 percent of parents indicated that they did not have to pay the last time their child took the iBook in for repairs, 10 percent did pay, and 1 percent did not give an answer. Concerning the $100 deductible, 47 percent of parents indicated that it was a fair charge, 49 percent responded that it was not, and four percent did not provide an answer. Also, there were no meaningful differences on the deductible's fairness when the responses were compared by magisterial district, race/ethnicity, and free/reduced lunch.

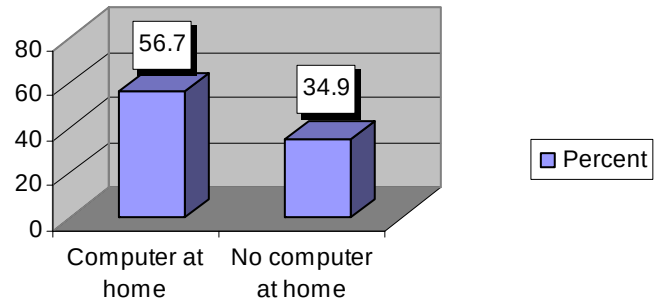
Most households have printers at home but do not use the iBook to print. According to the parents, 86 percent have printers at home. Of those with printers, 61 percent of parents indicated that they could not print at home with the iBook, 24 percent reported that they could, and 15 percent did not provide an answer.

Parents believe they know enough about the iBook. Less than half (38 percent) of parents whose children had iBooks want to learn more about them, 61 percent did not want to learn more, and one percent did not answer the question. This sentiment may be due to the helpfulness of the parent training held at school. A majority of parents (69 percent) indicated that the training was very helpful or somewhat helpful, 22 percent responded that it was not at all helpful, and 9 percent did not provide an answer.

3. Preferences

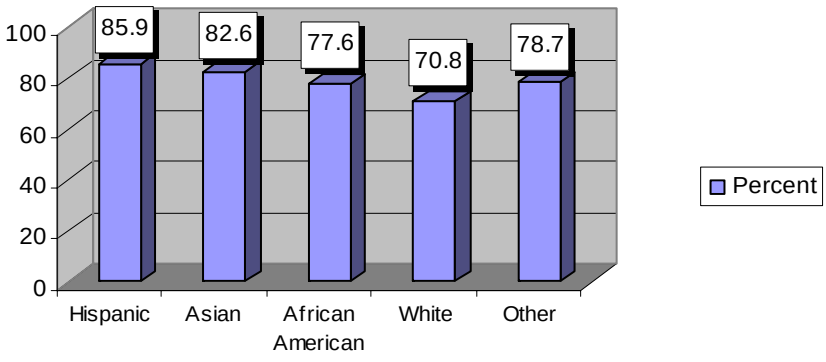
The majority of parents prefer that their children use Windows-based personal computers. Of parents whose children had iBooks, 54 percent preferred that their children used Windows-based, 11 percent selected Apple/Macintosh, 32 percent did not have a preference, and three percent did not answer the question. In addition, there was a meaningful difference on this question, depending on whether the parent already had a computer at home. As shown in the figure below, support for Windows was higher among those parents with a computer at home.

Figure IV-1
Parents who Preferred their Child to Use Windows-Based



There is strong support for continuing with the iBook or another similar program. Of parents whose children had iBooks, 74 percent supported continuing the current program or a similar program, 17 percent opposed the idea, seven percent did not have a preference, and two percent did not answer the question. As shown in Figure IV-2, support for the program was strongest among minorities.

Figure IV-2
Parents who Supported Continuing with the iBook Program or a Similar Program



Support for spending more money on the iBook program varies by magisterial district and race/ethnicity. Overall, 46 percent of parents whose children had iBooks strongly agreed or agreed that the schools should spend more money on the iBook program, 30 percent strongly disagreed or disagreed, 21 percent neither agreed nor disagreed, and three percent did not answer the question.

Among magisterial districts, the percentage of parents strongly agreeing/agreeing was: Fairfield (55 percent); Varina (50 percent); Brookland (43 percent); Three Chopt (41 percent); and Tuckahoe (39 percent). Comparing by race/ethnicity, the percentage of parents strongly agreeing/agreeing was: African-American (58 percent); Hispanic (58 percent); Asian (52 percent); White (38.2 percent); and Other (56 percent).

B. PARENTS OF NON-USERS

Parents whose children did not have an iBook were asked a limited set of questions about reasons for non-use, preferences for computer systems, and support for the iBook or similar program.

When asked about why their children did not have an iBook, parents were given three response alternatives, and many provided many open-ended responses. Among the options given, the percentages of parents giving specific responses were: Do not want to pay the insurance fee (21 percent); Do not see the use of having the iBook (15 percent); and My child already has access to a computer at home (five percent). The most common open-ended responses were: Student attends night school/GED class (four percent); Child accessed inappropriate Internet sites (two percent); and iBook not available at child's school (two percent).

Parents of children without an iBook were asked for their preference in computer systems. Windows-based systems were preferred by 45 percent, Apple/Macintosh by 16 percent, there was no preference by 25 percent, and 15 percent did not provide an answer. When asked about whether they would like the iBook or a similar program to continue, 52 percent said yes, 22 percent said no, 10 percent had no preference, and 15 percent did not provide an answer.

CHAPTER V. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

In this chapter we present a summary of the findings, our conclusions about the stakeholders' views and key recommendations.

A. SUMMARY

In this part we present a summary of the findings for each population: students, teachers and administrators, and parents.

1. Students

The following summary of the student survey findings is presented by school level, followed by a brief summary of key contrasts in reporting between the middle and high school students.

a. Middle School Students

The middle school students have been successfully using their iBooks in school since 6th grade (over 9 in 10). There are no differences in iBook use by gender or free/reduced lunch status, however, there are small, differences in use by magisterial district and race/ethnicity. Middle school students use their iBooks primarily at school for class work and homework. Most also use Appleworks, Virtual Share, Quia, Larson's Math, and K12 Planet. They would like the program to continue and are divided on which type of system, to use: 4 in 10 favor the Apple Macintosh, over 3 in 10 favor a Windows-based system, and over 2 in 10 have no preference.

The majority of middle school students believe that the iBook makes research easier (9 in 10) and helps them to be more organized (7 in 10), but only 6 in 10 believe that the program helps them to do better in school. About half of the students believe that the iBook is very useful in the context of learning in specific subject areas. While student views on the utility of the program do not differ by gender, they do differ by magisterial district, race/ethnicity and free/reduced lunch. Users problems include the frequent need for repairs, at a rate of with 6 in 10 between September, 2004 and January, 2005, and the fact that 7 in 10 cannot print from their iBooks at home.

b. High School Students

Some 4 in 10 high school students have been using the iBook since 9th grade, over 2 in 10 began in 8th grade and another 2 in 10 in 7th grade. Nearly every student, over 9 in 10, reports taking the iBook to school every day, (however the teachers do not agree with this level of consistency) and using it in school every day. Like the Middle School students, they use the iBook for class work and homework. The majority also use it to conduct research via the Internet. Specific programs that are heavily used include Appleworks, Virtual Share, Beyond Books, Quia, and K12 Planet. While there are small in use among the magisterial districts and by race/ethnicity, there are no differences in use by gender or free/reduced lunch status. They favor continuing the program, and show a preference for a Windows-based system (5 in 10) over the Apple Macintosh (over 2 in 10), with another more than 2 in 10 reporting no preference.

The majority of high school students believe that the iBook makes research easier (9 in 10) and helps them to be more organized (7 in 10), but only 5 in 10 believe that it helps them to do better

in school. Over 5 in 10 believe that the iBook is useful in history class, and 4 in 10 feel that it helps in science classes and another 4 in 10 report that it helps in English or language arts. High school students' views on the utility of the program differ only by magisterial district and these differences are small. There are no student-reported differences in the utility of the iBook program by gender, race/ethnicity, or free/reduced launch status. User problems are the same as those experienced by the middle school students: over 5 in 10 had their machine repaired at last once between September, 2004 and January, 2005. Also some 8 in 10 cannot print from their iBook at home.

c. Contrasting Student Views

The vast majority of the students are using their iBooks successfully in a variety of educational activities. They primarily use them to access the Internet and complete school and homework. The two levels of students differ on four issues, the most dramatic difference being preference for type of operating system and opinions on the quality of the assistance provided by the Help Desk. More middle than high school students are satisfied with the Apple Macintosh. Of those who expressed a preference, 4 in 10 middle school students prefer the Apple Macintosh and 5 in 10 high school students prefer a Windows-based system. Regarding the efficacy of the Help Desk, over 6 in 10 middle school students reported that it "solves their problems," while over 4 in 10 high school students hold this view.

2. Teachers and Administrators

In this section we present a summary of the findings for teachers and administrators in separate parts.

a. Teachers

The teachers use the iBook and feel that it is a valuable tool. Some 8 in 10 reported having an iBook during the 2003-2004 school year and felt that they could use their own judgment in deciding how to integrate them into classroom instruction. While the technology program has increased teachers' workload, they feel that the program has made learning more interesting for their students, encouraged them to do research, and believe that students who do not use iBooks are at a disadvantage. However, only 1 in 4 teachers was interested in digital textbooks.

The amount of time teachers devote to the iBook for instruction is related to school level, with high school teachers finding more applications than middle school teachers. Overall, just under 2 in 10 use it every day, with 5 in 10 allocating less that 25 percent of classroom time to technology-based instruction. Some 6 in 10 have their students use the Internet once a week or less often. Over 6 in 10 never assign work that must be performed exclusively on the iBook and always make paper ("hard") copies of assignments available for students without a machine. They report that most often their students use the iBook to obtain information from the Internet, conduct research, and complete class work. There are small differences among magisterial districts in how much the iBook was used for instruction. Both the least and most experienced teachers gave the iBook lowest scores for the usefulness of the technology in helping students with their school work.

The teachers reported some difficulties in implementing the technology program, for example, only 4 in 10 reported that the majority of their students bring their iBooks to class regularly and

nearly 6 in 10 noted that the filtering system designed to prevent student access to inappropriate websites is ineffective. Nevertheless, 6 in 10 believe that the program should continue.

Concerning their own use of the iBook, teachers most frequently use it to find information on the Internet, communicate with parents via e-mail, use the Appleworks software program, and create curricula. Over 5 in 10 teachers rated the training they received as relevant to their needs, 8 in 10 would welcome additional training, and over 6 in 10 specifically would like to learn more about creating digital curricula. Some 2 in 10 teachers reported that their iBook often malfunctions and over 7 in 10 believe that TST promptly provides assistance. Among those teachers who had a preference for type of operating system, they were evenly divided between the Apple Macintosh and a Windows-based operating system.

b. Administrators

The administrators' views and experiences with the iBook program strongly parallel teachers' with a few notable differences. They are quite involved in the program with some 5 in 10 reporting that they spend up to half of their time on the program, providing support to teachers, monitoring student use, and overseeing machine repairs. Approximately 1 in 10 said that they could spend up to 100 percent of their time on the program. They agree with the teachers on the value of the program: 8 in 10 believe that the iBooks make school work more interesting for students and view it as a useful educational tool. Also in agreement with the teachers, some 7 in 10 believe that the program should be continued.

Concerning program implementation, over 7 in 10 believe that every student should have an iBook and that those who do not are at a disadvantage educationally. They do not agree among themselves on whether or not students should be required to take the iBook home from school: 3 in 10 believe that the iBook should go home every day while over 4 in 10 do not. The administrators are concerned about student use of the iBook to access inappropriate sites, with 6 in 10 agreeing with the teachers that the filtering software is ineffective. Over 6 in 10 monitor student iBook use to direct them away from inappropriate sites: 3 in 10 do this frequently, 4 in 10 sometimes monitor.

The administrators' views on frequency of iBook use differ from the what teachers report. In terms of rank order, administrators agree with teacher reports that using information from the Internet is the most common application, followed by conducting research and completing class work. However, over 9 in 10 administrators believe that iBooks are used for homework while 7 in 10 teachers report ever requiring students to use iBooks for that purpose.

Administrators personal use of iBooks is very similar to teachers', with differences in volume of use. Administrators mainly use their iBooks to access the Internet - 6 in 10 do this daily. The also often communicate with parents by e-mail and use Appleworks. Over 5 in 10 administrators rated their iBook training as relevant to their needs and 8 in 10 would like additional training. The administrators had a strong preference for the Apple Macintosh computers.

c. Parents

The students' parents generally favor the technology program, but opinions vary, or are sharply divided, on some specifics. It is important to note that most student homes have Windows-based personal computers and this may influence parents' views.

The parents report that the students use their iBooks at home, for just under two hours a day, and access the Internet on it. Some 9 in 10 households have a personal computer and 9 in 10 of these are Windows-based. Approximately half of the parents believe that the iBook Internet filtering program works effectively to prevent their child from accessing inappropriate sites. They generally believe that the technology program is useful, however, these views differ by the racial/ethnic identity of the student, but do not vary by other characteristics, such as the student's school level, magisterial district, gender, or free/reduced lunch or special education status. Over 3 in 10 parents would like to learn more about the iBook, while 6 in 10 are satisfied with their current level of knowledge.

According to the parents, the chief difficulties their children experience with the iBook are the need for repairs and inability to print from home. Over 5 in 10 students' iBooks required repairs between September 2004 and January, 2005. The parents' out-of-pocket costs for these repairs were either nonexistent or very small. Over 4 in 10 parents feel that the $100 deductible is fair, while another 4 in 10 do not.

Over 7 in 10 parents support retaining the iBook program or a similar program. Support for retaining a technology program varies by the racial/ethnic identity of the student, but not by any of the other characteristics listed above. The parents are divided on whether HCPS should spend more money on the program, however. Some 4 in 10 favor spending more on the program while 3 in 10 are not. These differences of opinion vary by magisterial district and the racial/ethnic identity of the student. Over 5 in 10 parents prefer that their children use a Windows-based system, while 1 in 10 prefers the current Apple Macintosh and over 3 in 10 have no preference.

Among those parents whose children do not participate in the iBook program there are many, and diverse, reasons for this decision. Some 2 in 10 do not want to pay the insurance fee and over 1 in 10 don't see the program as necessarily beneficial. These parents do suggest that the program be offered in a Windows-based system (4 in 10), with 1 in 10 suggesting retaining the current Apple Macintosh and over 2 in 10 having no preference. Approximately 5 in 10 of the parents whose children do not participate in the program support the technology program's continuation.

B. CONCLUSIONS

In this part we present our conclusions for each population in turn, and on preferences for type of operating system.

1. Students

The students are successfully using their iBooks for a variety of educational activities. The frequency of needed repairs is a more significant problem for students since the several day repair time means they may not have an iBook for class for as many as three days. Student iBook use differs by magisterial district and race/ethnicity. While these differences are small, they are

real. Similarly, students' opinions on the usefulness of the technology program also vary by magisterial district. Finally, the students are not entirely convinced that the technology program helps them to do better in school.

2. Teachers and Administrators

a. Teachers

Overall, the teachers are using the iBooks for classroom instruction and see benefits to their students in the program, despite the increase in their workload related to implementing the technology program. Their use of iBooks in the classroom differs by magisterial district. The teachers are not ready for an all-electronic format, as suggested by the use of digital textbooks. This may be due to the fact that most classrooms rarely have a full complement of iBooks and instruction must be conducted in two media: electronically and on paper. Note that the administrators and parents do not seem to be aware of this and believe that the students use their iBooks more often than the teachers report that they do. A second, and equally persuasive factor for delaying the implementation of digital textbooks, is the stage of development of the program. Most teachers would like more training and specifically, training on developing digital curricula. They personally use their iBooks, notably to find information for themselves and to keep in touch with parents via e-mail.

b. Administrators

The administrators believe in the value of the technology program and are frequent iBook users themselves. Their key concern is keeping the students focused on the educational uses of the iBook and controlling access to inappropriate Internet sites. They consistently overestimate the level of iBook use in the classroom compared to the teachers' reports. The administrators, too, are very interested in additional training.

3. Parents

The parents generally support the technology program. The parents of minority students support the program more strongly than the parents of non-minority students. Their views on the overall usefulness of the program also vary by the race/ethnicity of the student, with the minority students' parents seeing the program as more useful than do the parents of non-minority students. Level of interest in retaining the program and in increasing its funding also follow this pattern: overall support, with more support among the parents of minority students. It is important to note that the parents have more confidence in the effectiveness of the filtering software to prevent their child from accessing inappropriate sites than do the teachers and administrations. Some 5 in 10 parents have confidence in the filtering program while 6 in 10 teachers and 6 in 10 administrators rate the program as ineffective. Finally, while 6 in 10 parents feel well enough informed about the iBook, 3 in 10 would like to learn more.

4. Preferences for type of operating system

Each group has a different preference profile when choosing between the Apple Macintosh and a Windows-based system. Among students the middle schoolers prefer the Apple Macintosh by 4 in 10 to 3 in 10 for Windows, while the high school students report the reverse: 2 in 10 prefer the Apple Macintosh and 5 in 10 prefer Windows. The teachers are evenly divided in their

preferences. The administrators overwhelmingly prefer the Apple Macintosh. Finally the parents prefer Windows.

C. RECOMMENDATIONS

Overall

While there are differences among magisterial districts, substantively they are not large. However, they should be addressed. It is likely that the additional training sought by teachers and administrators as well as implementing a policy to ensure that every child has an iBook in every class, every day, will reduce these differences.

1. Students

Ensure that every student has an iBook in every class, every day. One approach to this goal would be to study the need for iBook repairs to determine if the repair system can be improved. Can the frequency of some types of repairs be reduced? For example, if battery failure is a common problem, do the students' iBooks need stronger batteries? Can the repair turn-around time be increased by making some changes in staffing or coverage?

2. Teachers

Continue to develop the program by providing additional training and encouragement for teachers with a goal of reducing their workload relative to the technology program. To enable teachers to fully implement it, ensure that every student has an iBook in every class, every day. This would eliminate the need for teachers to implement each lesson on two media: electronically and on paper. Also, consider reviewing software that permits the teacher to have more control over what is on each student's screen (block access to everything but the lesson at hand). Some of this administrative software also permits the teacher to see, from her/his monitor, what is on any and every student's screen and to give each student feedback and support, via a headset, from his/her desk

Once the technology program has been fully implemented and operating for two full years or so, conduct a sample survey on satisfaction using this survey design and these findings as baseline data.

3. Administrators

Offer requested training. Also improve the ability of the filtering system so that the administrators do not have to spend so much time monitoring the students for inappropriate Internet use.

4. Parents

Provide more information and training on the iBook program for those parents who desire it; as noted above this is about 3 in 10 parents. Make a concerted effort to include the parents of racial and ethnic minority students, who are strong supporters of the technology program, in information and training classes and other technology- program related activities.

5. The operating system issue

If the School Board decides to retain the Apple Macintosh system, explain that Unix-based machines are less susceptible to e-mail spam than Windows-based machines, and give other solid reasons for retaining the iBook. Note that these two systems are becoming more compatible.