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# The Elementary Classroom Computer Initiative: Software Survey Report

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**THE ELEMENTARY CLASSROOM COMPUTER INITIATIVE:  
SOFTWARE SURVEY REPORT**

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October 21, 1998**

**Elementary Computer Initiative Software Survey**  
September 1998

Henrico County Public Schools received funding in 1995 to place five computers and an ink jet color printer in each of its regular first through fifth grade elementary classrooms. The goals of the initiative were numerous but focused on: (1) increasing student performance, (2) addressing different learning styles, (3) providing students with daily access to computers, (4) increasing student proficiency with computers, and (5) preparing students for the future. This report examines the type of courseware/software being used by teachers to implement the Initiative.

**Teacher Demographics**

Three hundred eighty four (384) elementary school teachers participating in the Henrico Computer Initiative (hereafter Initiative) completed a survey probing for their opinions regarding the software commonly used to implement the Initiative in their classrooms. Ninety-six teachers provided additional comments at the end of the survey. The characteristics of these teachers are displayed on Table 1. The average teacher owns a computer is a Caucasian female with a degree in education who has ten years or more teaching experience. She has a class size between 20 – 25 kids and she has used the computer in instruction for 2-5 years. The sample is further described as follows:

[Table 1 about here]

- The majority of teachers responding were female (97%, n=371). Male teachers represented only 3% (n=11) of the sample. The teachers responding represented all grade levels except fifth (first 28%, second 25%, third 22%, fourth 23%). Thirty-four teachers representing 8% of the sample were African-American while the remaining 91% were Caucasian.
- Eighty-three percent (83%) of Henrico teachers majored in Education as an undergraduate. In addition, twenty-nine percent (29%) of those teachers that responded report that they have taught for ten or more years. Seventy-three percent (73%) of teachers have a class size of 20-25 students. Only fourteen percent (14%) reported having a class size of 25 or more students.
- Seventy-three percent (73%) of all teachers sampled stated that they have a computer at home and forty-nine percent (49%) of all teachers have used the computer in teaching for 3-5 years. Additionally, 28% of teachers have used the computer in their teaching for 6 – 9 years while only thirteen percent (13%) have used the computer in their teaching practice for 2 years or less.

Table 1: Demographics  
Software Usage at Intermediate Grades (3-4) and Primary Grades (1-2)

	Grade 3-4	Grade 1-2	Total
<b>Gender</b>			
Male	4%	2%	3%
Female	96%	98%	97%
N	208	175	383
<b>Ethnicity</b>			
Caucasian	92%	89%	91%
African-American	8%	11%	9%
Asian	0%	0%	0%
Hispanic	0%	0%	0%
Other	0%	0%	0%
N	206	173	379
<b>Undergraduate Major</b>			
Education	81%	85%	83%
Liberal Arts	7%	7%	7%
Psychology	10%	7%	8%
Science	2%	1%	2%
N	193	164	357
<b>Years Teaching</b>			
2 years or less	14%	23%	18%
3 – 5 years	31%	18%	25%
6 – 9 years	29%	28%	28%
10 – 13 years	27%	32%	29%
14 years or more	0%	0%	0%
N	94	79	173
<b>Computer at Home</b>			
Yes	73%	73%	73%
No	27%	26%	26%
N	207	174	381
<b>Number of Years Computer Used in Teaching</b>			
2 years or less	11%	15%	13%
3 – 5 years	49%	49%	49%
6 – 9 years	30%	25%	28%
10 – 13 years	9%	10%	10%
14 years or more	0%	0%	0%
N	195	171	366
<b>Grade Taught</b>			
First	0%	52%	28%
Second	1%	45%	25%
Third	48%	0%	22%
Fourth	51%	0%	23%
Fifth	0%	0%	0%
N	146	175	321
<b>Number of Students in Class</b>			
Less than 20	13%	15%	14%
20 – 25	68%	78%	73%
More than 25	19%	7%	14%
N	208	175	383

Note: frequencies may not equal 100 percent due to incorrect response patterns. Percentages based on valid responses.

## FINDINGS

Teachers were asked to rate twenty-nine (29) pieces of software provided through the Initiative. They were asked to indicate: (1) if they used the 29 types of software, (2) the amount of time they and their students used the software, (3) the motivational ability of the software, (4) the effectiveness in improving student learning, and (5) the software's ability to help students understand the topics. For some pieces of software, they were also asked to indicate if the software met county objectives. Teachers were able to respond to the prompts for each piece of software appropriate to their grade level (primary grades 1-2; intermediate grades 3-4). Some teacher comments indicated on the comment section of the survey that not all schools had each of the 29 types of software indicated on the survey.

### Application Software

Teachers were asked to respond to questions regarding the (1) types of application software they used, (2) amount of time they and their students used the software, and (3) motivational ability of the software, (4) effectiveness in improving student productivity, and (5) software's ability to help students understand the topics. Table 2 reports the responses from teachers in grades one and two and grades three and four.

[Table 2 about here]

Teachers at the intermediate level have access to more application software than teachers at the primary levels. Teachers in the primary grades use word processing software only. In contrast, teachers in the intermediate grades use database, spreadsheets and Hyper Studio in addition to word processing software; however, they also report little use of spread sheet and data base applications software. Hyper Studio and word processing are most often used application software in the intermediate grade levels.

Word Processing. Word processing is the favorite application software of teachers at the primary and intermediate elementary levels. They also rated word processing software as the most effective application software that they use.

- Teachers at both levels report that the word processing software is a moderately effective motivator for learning and is moderately effective in improving student performance.

Both primary and intermediate teachers report using word processing application software twice a week.

Table 2:  
Usage of Application Software in Primary and Intermediate Grades

Usage of Application Software in Primary and Intermediate Grades					
Prompt	Primary Grades	Intermediate Grades			
	Word Processing n=156 Me/Md/Mo	Word Processing n=190 Me/Md/Mo	Database n=191 Me/Md/Mo	Spread Sheet n=179 Mn/Md/Mo	Hyper Studio n=165 Me/Md/Mo
Teacher Time	2 / 2.0 / 1.0 2 x week	2 / 2 / 2 2 x weeks	2 / 2 / 3 3 – 4 x year	3 / 3 / 3 1 – 2 x year	3 / 3 / 3 1 x week
Student Use Time	2 / 2 / 2 20 minutes	2 / 2 / 2 20 minutes	N/A	N/A	3 / 2 / 2 15 minutes
Motivation	2 / 1 / 1 Moderately Effective	2 / 2 / 1 Moderately effective	2 / 2 / 2 Moderately effective	2 / 2 / 2 Moderately effective	2 / 2 / 1 Moderately effective
Performance	2 / 2 / 2 Moderately Effective	2 / 2 / 2 Moderately effective	N/A	N/A	2 / 2 / 2 Moderately effective
Understanding Topics	N/A	N/A	2 / 2 / 2 Moderately effective	2 / 2 / 2 Moderately effective	N/A

Note: N/A means that a question was not asked to address particular prompt within given type of software.  
Cell responses represent the mean.  
Me= Mean, Md = Median, Mo = Mode

**Database.** Intermediate teachers use database applications less than four times per year. They report that it is moderately effective as a student motivator and in helping students to understand topics.

**Spread Sheets.** Intermediate teachers report that they use spreadsheet applications less than two times per year. They report that it has little effect on student motivation and performance and is moderately effective in helping students to understand topics.

**Hyper Studio.** Intermediate teachers report that they use hyper studio applications at least one a week. Students use this application for fifteen minutes. Teachers see it as a moderately effective student motivator but as having little effect on student performance.

Teachers made the following comment about the application software:

Primary Teacher Comments	Frequency
“My students <u>loved</u> making graphs!”	1
“My second graders used Microsoft Works and Hyper Studio extensively this year.”	1
“Word Processing is not effective as it could be because typing is so time consuming for 1 <sup>st</sup> graders.”	1
Intermediate Teacher Comments	
“It would be helpful for rising 5 <sup>th</sup> graders to have some exposure to the “new” software Powerpoint, Excel, etc. so the children have one less surprise at the middle level.”	1
“My students love HyperStudio. They are able to relate their knowledge in a variety of ways.”	1

### **Reference Software**

Teachers were asked to respond to (1) the types of reference software they used, (2) the amount of time they and their students used the software, and (3) the motivational ability of the software, (4) its effectiveness in improving student productivity, and (5) the software's ability to help students understand the topics. Teachers reported no usage of World and/or USA Atlas CD, Encyclopedia of Nature CD and Encyclopedia of Science CD in either primary or intermediate grades. They did report using First Connections, World Book Multimedia Encyclopedia, World or USA Geography and World Book. Table 3 reports the responses from teachers in primary grades one and two and intermediate grades three and four.

[Table 3 about here]

- Teachers at primary and intermediate grade levels used the reference software for fifteen minutes once a week or less. Overall, the teachers perceived that the reference software was moderately effective in motivating students to learn, and that it was moderately effective in improving student performance or increasing student knowledge.
- Primary teachers (see table 3) restrict their reference software usage to First Connections. They report that they use it about once a week and students use it for fifteen minutes per week. They also report that it has a moderate effect as a motivator and is moderately effective for improving student knowledge.
- In contrast to the reported use of reference software by primary teachers, intermediate teachers report that World Book Multimedia Encyclopedia is their most used reference software. They use it about once a week while their students use it fifteen minutes or less per week. Intermediate teachers also report that it is moderately effective in motivating students and knowledge acquisition.
- Intermediate teachers use World or USA Geography reference software but less often than World Book, about one to three times per year. They report that their students use it fifteen minutes or less a week and that it has a moderate effect on motivation and knowledge acquisition.

[Table 4 about here]

- Intermediate teachers use and agree that the Encyclopedia of Nature and the Encyclopedia of Science and report that it meets the county's objectives while increasing student motivation and learning.

Table 3  
Use of Reference Software in Primary and Intermediate Grades

Use of Reference Software in Primary and Intermediate Grades				
	Primary Grades	Intermediate Grades		
	<u>First Connection</u>	<u>World Book Multimedia Encyclopedia</u>	<u>World or USA Geography</u>	<u>World and/or USA Atlas CD</u>
<b>Prompt</b>	n=154	n=180	n=162	n=127
Teacher Use Time	3 / 3 / 3 1x week	3 / 3 / 3 1 x week	3 / 3 / 3 1 – 3 x year	3 / 4 / 4 1 – 3 x year
Student Use Time	3 / 3 / 3 15 minutes	3 / 3 / 4 15 minutes	3 / 3 / 4 15 minutes	3 / 3 / 4 15 minutes
Motivation	2 / 2 / 1 Moderately effective	2 / 2 / 1 Moderately effective	2 / 2 / 2 Moderately effective	2 / 2 / 2 Moderately effective
Knowledge	2 / 2 / 2 Moderately effective	2 / 2 / 1 Moderately effective	2 / 2 / 2 Moderately effective	2 / 2 / 2 Moderately effective

Note: N/A means that a question was not asked to address particular prompt within given type of software.  
Me= Mean, Md = Median, Mo = Mode  
Cell responses represent the mean.

Table 4  
Use of Content Reference Software in Intermediate Grades

CONTENT SOFTWARE: REFERENCE		
<u>Intermediate Grades</u>		
	Encyclopedia of Nature	Encyclopedia of Science
<b>Prompt</b>	n=104	n=78
Meeting Objectives	Agree	Agree
Increases Student Learning	Agree	Agree
Motivates Students	Agree	Agree

Note: Responses represent the mean.

Teachers made the following comments about the reference software at the end of the survey:

Primary Teacher Remarks	Frequency
"I would love to have First Connections, First Amazing World Explorer and Dictionary and Millie..., Trudy..., Baily..., and Sammy... on the hard drive so five students could work at a time."	2
"First Connections, My First Amazing World Explorer, Trudy's Time and Place House and Sammy's Science House are excellent CD's."	1
"I do not like first Connections-too hard for 1 <sup>st</sup> graders to use independently." "1 <sup>st</sup> grade teachers need a version of 1 <sup>st</sup> Connections with less/easier to read text."	2



Teacher comments continued.

<p>"I would like additional classroom copies of First Connections. Having First Connections installed on all computers would be great especially for the many schools that have only 2 computers with CD's."</p> <p>"All 1st and 2<sup>nd</sup> grade classrooms need to have 2 First Connections CDs. (one for each computer)."</p>	3
<p>"I did not have the First Connections CD to use in the classroom. The students used the CD in the library. It's a great program."</p>	1
<p>"I did not have First connections in my classroom. It was available at my school, but was checked out to other classrooms. I do plan to use it next year though because of positive comments from other teachers."</p>	1
<p><b>Intermediate Teacher Remarks</b></p>	
<p>"The CD's mentioned are great! The World Book one sure beats sending a child to an old smelly set of encyclopedias."</p>	1

### Content Software

Teachers in primary and intermediate grades were asked to report their usage of content software for mathematics, language arts, science and social studies. In each content area they were asked to respond to the (1) types of content software they used, (2) amount of time they and their students used the software, and (3) motivational ability of the software, (4) effectiveness in improving student productivity, and (5) software's ability to help students understand the topics.

**Mathematics Content Software.** Teachers were asked about their usage of Math Keys, Millie's Math House and Toggle Trouble software to teach mathematics. Generally, teachers at primary and intermediate levels used software to teach math content once a week for fifteen minutes. They report that the software is moderately effective in motivating and improving student learning. Teachers at both levels report that their student's learning improved since using the software in each math content area. Their responses are reported in Tables 5 and 6.

Table 5 reports teacher perceptions of the Math Keys content software. Math Keys is composed of four instructional areas at the primary level: Whole Numbers, Probability, Geometry and Measurement. The intermediate level software contains an additional fraction component.

Although Math Keys is popular with teachers, care needs to be given when making assumptions about how often teachers used each component of the software. Although teachers report on the survey using each component weekly, many who provided comments indicated that the survey did not contain an appropriate response mode that represented their usage pattern and they did not want report not using the software. Most teachers who commented said they used each component throughout the year as it was appropriate to the curriculum and that they did not work on all Math Key components every week.

#### At the primary level:

- Teachers at the primary grade levels report using the Whole Number component more frequently than the others components of the software, about twice a week. However, teachers report using the other components frequently, about once a week.
- Students, at the primary levels, use all components of Math Keys around fifteen minutes a week.
- Primary teachers rate all Math Key components as moderately effective in increasing student motivation and learning.

[Table 5 about here]

Table 5  
Math Keys Usage in Primary and Intermediate Grades

MATHEMATICS CONTENT SOFTWARE : MATH KEYS										
Prompt	Primary Grades				Intermediate Grades					
	Whole Numbers	Probability	Geometry	Measurement	Whole Numbers	Geometry	Probability	Measurement	Fractions	
	Me/Md/Mo	Me/Md/Mo	Me/Md/Mo	Me/Md/Mo	Me/Md/Mo	Me/Md/Mo	Me/Md/Mo	Me/Md/Mo	Me/Md/Mo	e/Md/Mo
Teacher Time	2 / 2 / 3	3 / 3 / 3	3 / 3 / 3	3 / 3 / 3	3 / 3 / 3	3 / 3 / 3	3 / 3 / 3	3 / 3 / 3	3 / 3 / 3	3 / 3 / 3
	2 x week n=151	1x week n=162	1x week n=164	1 x week n=164	1 x weeks n=186	1 x week n=192	1 x week n=192	1 x week n=194	1 x week n=194	1 x week n=195
Student Use Time	3 / 3 / 3	3 / 3 / 3	3 / 3 / 3	3 / 3 / 3	3 / 3 / 2	3 / 3 / 2	3 / 3 / 9	3 / 3 / 2	3 / 3 / 2	3 / 3 / 2
	15 minutes n=161	15 minutes n=134	15 minutes n=155	15 minutes n=152	15 minutes n=162	15 minutes n=155	15 minutes n=135	15 minutes n=150	15 minutes n=150	15 minutes n=151
Motivation	2 / 2 / 1	2 / 2 / 2	2 / 2 / 2	2 / 2 / 2	2 / 2 / 2	2 / 2 / 2	2 / 2 / 2	2 / 2 / 2	2 / 2 / 2	2 / 2 / 2
	Moderately effective n=169	Moderately effective n=138	Moderately effective n=156	Moderately effective n=153	Moderately effective n=175	Moderately effective n=160	Moderately effective n=136	Moderately effective n=148	Moderately effective n=148	Moderately effective n=157
Performance	2 / 2 / 2	2 / 2 / 2	2 / 2 / 2	2 / 2 / 2	2 / 2 / 2	2 / 2 / 2	2 / 2 / 2	2 / 2 / 2	2 / 2 / 2	2 / 2 / 2
	Moderately effective n=168	Moderately effective n=136	Moderately effective n=157	Moderately effective n=152	Moderately effective n=175	Moderately effective n=159	Moderately effective n=134	Moderately effective n=151	Moderately effective n=151	Moderately effective n=158

Note: N/A means that a question was not asked to address particular prompt within given type of software.

Me= Mean, Md = Median, Mo = Mode

Cell responses represent the mode.

**At the intermediate level,**

- All Math Key components are reported to be used by teachers about once per week.
- Students at the intermediate level use Whole Numbers, Geometry, Probability, Measurement and Fractions around fifteen minutes a week.
- Teachers at the intermediate grade levels also report that all components of Math Keys are moderately effective for improving student performance.

At both levels, teachers report that all components of Math Keys are moderately effective in regard to their ability to motivate students.

Primary and intermediate level teachers report their perceptions of Millie's Math House and Toggle Trouble on Table 6. Teachers were asked if the software met county objectives, increased student motivation and learning.

[Table 6 about here]

- At the primary level, teachers agree that Millie's Math House meets county objectives, and motivates student learning and performance. They also agree that Toggle Trouble meets county objectives and that it motivates students and increases their learning.
- At the intermediate level, teachers agree that Toggle Trouble meets county objectives They agree that Toggle Trouble increases student motivation and learning.

Table 6  
Usage of Millie's Math House and Toggle Trouble: Primary and Intermediate Grades

	CONTENT SOFTWARE: MATH		
	Primary Grades		Intermediate Grades
	Millie's Math House	Toggle Trouble	Toggle Trouble
<b>Prompt</b>	n=96	n=141	n=179
Meeting Objectives	Agree	Agree	Agree
Increases Student Learning	Agree	Agree	Agree
Motivates Students	Agree	Agree	Agree

Note: Responses represent the mean.

N=Average number of responses to the set of questions regarding a type of software.

Teachers made the following comments about the Math content compact disks and software:

Primary Teacher Remarks	Frequency
"Toggle Trouble was difficult but very motivating."	1
"One of the most effective programs for first grade math was math Keys: Unlocking Whole Numbers. It helped the children with patterns, addition and subtraction facts, money, numeration, and place value. I found it to be a highly effective tool in the classroom." "Math Keys is an outstanding program for first grade."	3
--Difficult Response Pattern <i>Most teacher comments indicated that they used math keys programs, but could not answer the survey appropriately to indicate their use pattern because the choices offered did not reflect using the software in a thematically integrated fashion. This was mentioned most often with Math Keys but was also mentioned 6 additional times in no relation to particular software at the primary level.</i>	12
"Used Math Keys during units when they were appropriate." "I found it difficult to answer the questions on the survey pertaining to the number of times per week students used a given program. For example I used Math Keys: unlocking geometry consistently during the math units that had related objectives and sporadically at other times throughout the year for review. I did not feel justified in marking "once a week" even though I feel I did use the program often this year."	
"Toggle Trouble is not appropriate for 1 <sup>st</sup> graders. The other programs are very effective." "Toggle Trouble was too hard for students until the very end of the year."	2
"Millie's Math House is more appropriate for kindergarten essentials."	2
<b>Intermediate Teacher Remarks</b>	
--Difficult Response Pattern <i>Most teacher comments indicated that they used math keys programs, but could not answer the survey appropriately to indicate their use pattern because the choices offered did not reflect using the software in a thematically integrated fashion. This was mentioned most often with Math Keys but was also mentioned 9 additional times in no relation to particular software at the intermediate level.</i>	10
"The survey questions about Math Keys needs to reflect that these topics are not covered all at once. I used these programs as a resource when teaching the concept. All concepts were not taught simultaneously."	
"I do not feel that the Math Keys programs are that valuable as a teaching tool for new concepts. I use the Math Keys in my room only for reinforcement after a skill has been taught. (very little).	1
"Grade 4 - I would like to have some math software installed on the hard drive that handles larger multiplication and division problems than math Keys is capable of."	1
"Keep the CD's coming! My students love math because of Math Keys."	1
"My only request is that we get some better drill and practice for math facts."	1
"I did not teach fourth grade math this year. We rotated classes for science, English and math. Hence, I did not use math keys."	1
"I wanted to use Math Keys more often, but it was difficult to use it in our lab since that required changing to a 32-bit memory and restarting each computer, then changing the memory back so the next class could use the IIE program."	1

**Science Content Software.** Teachers were asked if the content software to teach science met county objectives, increased student motivation and learning. Table 6 displays their responses. It should be noted that teachers were asked for responses on nine pieces of science content software. Teachers provided no responses for five pieces of software which indicates they did not have access to, or took advantage of, all of the software included on the survey. For example, teachers did not respond to the survey prompts for Oceans Below CD, Magic School Bus CD, San Diego Zoo CD, Insects CD, and Mammals CD software to teach science. However, they did respond that they used two pieces of software at the primary level (Mammals and Sammy's Science House) and the intermediate level (Body-Scope and The Way Things Work) to teach science. Their responses on these four pieces of software are found in Table 6.

[Table 7 about here]

At the primary level, teachers used Mammals and Sammy's Science House software to teach science. They agreed that Mammals and Sammy's Science House meets county as well as motivates students and increases student learning.

At the intermediate level, teachers used Body Scope, Way Things Work, Oceans Below, Magic School Bus, San Diego Zoo, Insects, and Mammals to teach science. They agree that all meet county learning objectives and motivates student learning and motivation.

Table 7  
Usage of Science Content Software: Primary and Intermediate Grades

	SCIENCE CONTENT SOFTWARE USAGE			
	Primary Grades		Intermediate Grades	
	Mammals	Sammy's Science House	Body Scope	Way Things Work
<b>Prompt</b>	n=75	n=110	n=154	n=167
Meeting Objectives	Agree	Agree	Agree	Agree
Increases Student Learning	Agree	Agree	Agree	Agree
Motivates Students	Agree	Agree	Agree	Agree

Note: Responses represent the mean.  
N=Average number of responses to the set of questions regarding a type of software.

Table 7 continued.

	SCIENCE CONTENT SOFTWARE USAGE continued				
	Intermediate Grades				
	Oceans Below	Magic School Bus	San Diego Zoo	Insects	Mammals
<b>Prompt</b>	n=63	n=52	n=64	n=75	n=96
Meeting Objectives	Agree	Agree	Agree	Agree	Agree
Increases Student Learning	Agree	Agree	Agree	Agree	Agree
Motivates Students	Agree	Agree	Agree	Agree	Agree

Note: Responses represent the mean.  
N=Average number of responses to the set of questions regarding a type of software.

Teachers made the following comments about the Science content compact disks and software:

<b>Primary Teacher Remarks</b>	<b>Frequency</b>
"K-1 is assigned Sammy.. and Trudy... but I bought [them] to use with 2 <sup>nd</sup> [grade]-excellent."	2
"I did not have: Sammy's Science House..."	1
"I would love to have Sammy's Science House on the hard drive so 5 students could work at a time."	1
"Sammy's Science House... is an excellent CD!"	1
"Need copies of Mammals for all 5 computers."	1
<b>Intermediate Teacher Remarks</b>	
"Many of the Science software was not used in my classroom because I do not teach science. The students go to another classroom for that."	1
Several of the CD's were missing from our school like Ocean Below and Encyclopedia of Science. They would have been helpful.	1

**Language Arts Content Software** Teachers were asked if six types of language arts content software met the county objectives, motivated students and increased learning. Their responses are reported in Tables 8 and 9.

- Teachers at the intermediate levels report strongly agree that the Accelerated Reader testing program meets county objectives, and increases student motivation. During the school year, students complete between 17 and 26 test books compared to the primary level's 7-16. Even though the primary level students complete fewer books, these teachers also strongly agree that the software increases student motivation and learning and meets county objectives.

[Table 8 about here]

Table 8  
Use of Accelerated Reader at Primary and Intermediate Grades

<b>USE OF ACCELERATED READER AT PRIMARY AND INTERMEDIATE GRADES</b>		
	<b>Primary Grades</b>	<b>Intermediate Grades</b>
<b>Prompt</b>	n=165	n=206
Meets Objectives	Strongly Agree	Strongly Agree
Increases Learning	Strongly Agree	Agree
Motivates Students	Strongly Agree	Strongly Agree
Number of books/tests completed by average student during year	7-16 books/tests per student	17-26 books/tests per student

Note: Responses represent the mean.

N=Average number of responses to the set of questions regarding a type of software.

- Teachers at the primary grade level agreed that Word Munchers, Dr. Suess' ABC's, and Bailey's Book House and Simon Sound it Out meets the classroom objectives and increases student learning and motivation.
- At the intermediate level, teachers agreed that Odell Down Under met the county objectives, and increased student motivation and learning.

[Table 9 about here]

Table 9

USE OF LANGUAGE ARTS CONTENT SOFTWARE					
Prompt	Primary Grades				Intermediate Grades
	Word Munchers n=162	Dr. Suess' ABC's n=72	Bailey's Book House n=84	Simon Sound it Out n=82	Odell Down Under n=172
Meeting Objectives	Agree	Agree	Agree	Agree	Agree
Increases Student Learning	Agree	Agree	Agree	Agree	Agree
Motivates Students	Agree	Agree	Agree	Agree	Agree

Note: Responses represent the mean.

N=Average number of responses to the set of questions regarding a type of software.

Teachers made the following comments about the Language Arts content compact disks and software:

Primary Teacher Remarks	Frequency
"K-1 is assigned Sammy.. and Trudy... but I bought [them] to use with 2 <sup>nd</sup> [grade]-excellent."	2
"I chose not to use Dr. Suess-too easy for students."	1
"I did not have: Bailey's Book House or Simon Sound It Out...."	1
"In Language Arts -someone was on the computer either using word processing, research, or a program that went along with what we were doing."	1
"Don't like Accelerated Reader-too detail oriented."	1
"My Accelerated Reader was used ALL the time! Over 600 tests were taken! Definitely had an impact on reading skills."	1
"I would love to have Baily's...on the hard drive so 5 students could work at a time."	1
"I understand that Bailey's Book House, and Simon Sounds It Out are very effective programs. Our first grade teachers loved them. I would like to have copies for my second grade class."	1
"Word Munchers would be more effective if the words were all true to phonics rules taught-no 'outlaws'."	1
"Word Munchers was too hard for students until the very end of the year -1 <sup>st</sup> grade."	1
"Simon Sound it Out did not run on our computers."	1
<b>Intermediate Teacher Remarks</b>	
"Odell Down Under is very effective in meeting county curriculum objectives but only 2 of them."	1

**Social Studies Content Software** Teachers were asked if three types of social studies content software met the county objectives, motivated students and increased learning. Their responses are reported in Table 10.

[Table 10 about here]

- Primary level teachers **strongly agreed** that World Explorer increased student learning and motivation while meeting county objectives. Primary level teachers **agreed** that Time and Place increased student learning and motivation while meeting county objectives.
- Intermediate level teachers **strongly agreed** that the Ancient Lands CD meets county objectives, and increases student learning and motivation.

Table 10  
Usage of Social Studies Content Software at the Primary and Intermediate Grades

USAGE OF SOCIAL STUDIES CONTENT SOFTWARE			
	Primary Grades		Intermediate Grades
	Time and Place	World Explorer	Ancient Lands CD
<b>Prompt</b>	n=111	n=133	n=82
Meeting Objectives	Agree	Strongly Agree	Strongly Agree
Increases Student Learning	Agree	Strongly Agree	Strongly Agree
Motivates Students	Agree	Strongly Agree	Strongly Agree

Note: Responses represent the mean.  
N=Average number of responses to the set of questions regarding a type of software.

Teachers made the following comments about the Social Studies content compact disks and software:

Primary Teacher Remarks	Frequency
"I just tired Trudy's Time and Place House. It is the best CD I have ever found to teach geography skills! First and second graders love it!"	2
"I did not have: Trudy's Time and Place House..."	1
"I would love to have First Amazing World Explorer and Trudy's Time and Space on the hard drive so 5 students could work at a time."	3
"First Amazing World Explorer...is an excellent CD!" "The First Amazing World Explorer is the best CD. Each second grade teacher needs his/her own copy. It incorporates almost all social study essentials."	2
"My class particularly loved using Amazing world Explorer this year."	1
<b>Intermediate Teacher Remarks</b>	
"I do not have a copy of World Book nor do the other teachers, here, as they were stolen. We use Groliers."	1
"I wish we had more Ancient Lands CD's. Two CD's for seven teachers is not easy to schedule."	2

In addition to the comments made in relation to specific Initiative software, teachers made general remarks that about issues surrounding the use of technology in their classroom.

*Equipment:* Three intermediate and ten primary teachers made comments on the low CD/student, CD/computer, and student/computer ratio. One intermediate teacher complained that there is not enough memory in the computers to run the CD's. Eight primary teachers complain of the same student/computer/CD ratio problems. Additionally, one primary teacher would like more management ideas regarding how to effectively use a single copy of a CD in the classroom and another reports that the computers are broken often and the software is not available.

*Programs and Software:* Some teachers used more software than provided by the Initiative and report what software worked for them. Others report needing more software.

Additional Software Used and Mentioned

- How Many Bugs in a Box
- Print Deluxe
- Ruff's Bones
- Just Mom and Me

Additional Software Needed

- A US map CD for younger students that is easy for them to use
- Math metric system measurement
- Math programs that review basic skills
- Software to teach essentials
- Math skill and drill and phonics programs
- Number Munchers to help students understand adding and subtracting fractions

*Training:* Five primary and four intermediate teachers commented that they would like more in-service training sessions to become familiar "step by step" with the new programs and to allow them time to play with the CD's.



## CONCLUSIONS

Of the **application software** included the survey, both primary and intermediate grade level teachers find the word processing software to be most effective for implementing the Initiative in the classroom. The intermediate grade level teachers found the Hyper Studio software to be the second most effective. The application software is thought to facilitate the development of work-study skills, which contribute to student achievement levels.

**Reference software** is a tool to create knowledge as opposed to instructional software designed to teach content skills. Primary teachers used First Connection software in class approximately once a week, and felt it was moderately effective in increasing student motivation and in increasing student knowledge. Introducing another reference software product might address student and teacher needs or increase their interest in using reference software. Intermediate grade level teachers found the World Book Multimedia Encyclopedia to be the most useful of the three software products they were given. Both grade levels used the reference software approximately once a week. Intermediate teachers agree that the Encyclopedia of Nature and the Encyclopedia of Science are motivating and meet county objectives. However, it is unknown how often the teachers used these products.

The **content software** covers four subjects: math, science, language arts, and social studies.

### (Math)

Teachers found the whole numbers segment of the Math Keys software most useful at the primary level. Primary teachers also found Millie's Math House very useful in meeting county objectives, and increasing and motivating student learning. Intermediate grade level teachers agreed that all components of Math Key and Toggle Trouble meets their needs.

Again, teacher usage time on Math Keys should be viewed cautiously. Ten percent of the teachers who completed the survey remarked that the response options were not adequate for addressing their usage patterns. Many teachers chose to report using the software components once a week rather than reporting that they did not use it at all.

### (Science)

Intermediate grade level teachers did not prefer one science software over another. They agree that all meet county objectives, and increase student learning and motivation. All science software that was used at the primary grade levels met both the teacher and students' interests.

### (Language Arts)

Accelerated Reader was strongly favored by Intermediate teachers and was used more frequently than primary grade teachers. Primary grade teachers strongly agree that Accelerated Reader meets county objectives, and increases student motivates and learning. Primary teachers and intermediate teachers agreed that all language arts CD's used meet county objectives and increases student motivation and learning.

### (Social Studies)

Primary grade level teachers favored World Explorer software of the two software packages represented in the survey and Intermediate grade level teachers favored Ancient Lands.

Dear Teacher of Grade 1 or 2:

During this school year, you have had many experiences with your students. We would like for you to reflect on their use of the computer software used during the year and provide us your perceptions. You may have received a survey like this in previous years. The responses of teachers the previous two years has given a very important perspective on the implementation of this technology. Each year the survey information was helpful to make adjustments. We need your help one more year to complete this perspective.

We will give much attention to your responses to the questions/statements on the following pages. We will also carefully review any additional feedback that you write on the comment sheet. Your responses will be totally anonymous.

**Use the accompanying "HENRICO COUNTY SCHOOLS Response Sheet" to answer the items in this survey with a No. 2 pencil. (Do not mark your name or other identifying information on the answer sheet.) There is a separate comment page that you may return with the Response Sheet.**

Please return your responses to Research & Planning Department on the Pony by June 10, 1998.

We have made arrangements with the Metropolitan Educational Research Consortium (MERC), based at VCU to assist in this survey which explains why their name is found below.

**WE THANK YOU FOR YOUR ASSISTANCE AND PROFESSIONALISM IN COMPLETING THIS SURVEY.**

**Software Usage Survey: Elementary Classroom Computer Initiative  
for 1st and 2nd Grade Teachers**

**Prepared by the Metropolitan Educational Research Consortium (MERC)  
for Henrico County Public Schools**

**Demographic Information about you as the Teacher**

1. Gender  
A. Male                      B. Female
  
2. Ethnic Group  
A. Caucasian  
B. African-American  
C. Asian  
D. Hispanic  
E. Other \_\_\_\_\_
  
3. Undergraduate major degree in  
A. Education  
B. Liberal Arts  
C. Psychology  
D. Science  
E. Other \_\_\_\_\_
  
4. Number of years teaching  
A. Less than 2 years  
B. 3-5  
C. 6-9  
D. 10-13  
E. 14+
  
5. Computer at home for personal use  
A. Yes                      B. No
  
6. Number of years you have used computers teaching  
A. 2 years or less  
B. 3-5  
C. 6-9  
D. 10-13  
E. 14+
  
7. What grade do you teach (if more than one grade, mark lowest grade)?  
A. First  
B. Second  
C. Third  
D. Fourth  
E. Fifth
  
8. How many students are in your class?  
A. Less than 20  
B. 20 - 25  
C. More than 25

**Software Usage Survey (Grades 1-2): Henrico County Public School's  
Elementary Classroom Computer Initiative**

**Section 1.**

The following questions assess your perceptions of WORD PROCESSING PROGRAMS in general (i.e., Kidworks, The Writing Center, and Story Book Weaver).

9. How often did your students use word processing programs in your class?  
 A. Not at all (go to item #13, Section 2)  
 B. Once a week  
 C. Twice a week  
 D. Three times a week  
 E. Four times a week or more
10. How much time on average did individual students use word processing programs in your class (in a day)?  
 A. 10 minutes or less  
 B. 15 minutes  
 C. 20 minutes  
 D. 25 minutes  
 E. 30 minutes or more
11. At motivating students to write, how effective were word processing programs for a majority of your students?  
 A. Not at all effective  
 B. Only a little effective  
 C. Moderately effective  
 D. Very effective
12. To improve writing skills, how effective were word processing programs for a majority of your students?  
 A. Not at all effective  
 B. Only a little effective  
 C. Moderately effective  
 D. Very effective

**Section 2.** The following items assess your perceptions concerning CONTENT software programs that you may use at times during your instruction. Report your level of agreement with the statements below. If you have not used the program before please mark "E".

- |   | Strongly<br>Agree | Agree | Dis-<br>agree | Strongly<br>Disagree | Don't use<br>this prog. |
|---|-------------------|-------|---------------|----------------------|-------------------------|
| 13. Troggle Trouble is effective in meeting county curriculum objectives. | A                 | B     | C             | D                    | E                       |
| 14. I think the use of Troggle Trouble increases students' learning.      | A                 | B     | C             | D                    | E                       |
| 15. The use of Troggle Trouble motivates students to learn.               | A                 | B     | C             | D                    | E                       |

		Strongly Agree	Agree	Dis-agree	Strongly Disagree	Don't use this prog.
34.	<b>Simon Sounds It Out</b> is effective in meeting county curriculum objectives.	A	B	C	D	E
35.	I think the use of <b>Simon Sounds It Out</b> increases students' learning.	A	B	C	D	E
36.	The use of <b>Simon Sounds It Out</b> motivates students to learn.	A	B	C	D	E
<hr/>						
37.	<b>First Amazing World Explorer</b> is effective in meeting county curriculum objectives.	A	B	C	D	E
38.	I think the use of <b>First Amazing World Explorer</b> increases students' learning.	A	B	C	D	E
39.	The use of <b>First Amazing World Explorer</b> motivates students to learn.	A	B	C	D	E
<hr/>						
40.	<b>Mammals: A Multimedia Encyclopedia</b> is effective in meeting county curriculum objectives.	A	B	C	D	E
41.	I think the use of <b>Mammals: A Multimedia Encyclopedia</b> increases students' learning.	A	B	C	D	E
42.	The use of <b>Mammals: A Multimedia Encyclopedia</b> motivates students to learn.	A	B	C	D	E

**Section 3. The following items assess your perceptions of ACCELERATED READER program.**

		Strongly Agree	Agree	Dis-agree	Strongly Disagree	Don't use this prog.
43.	The <b>Accelerated Reader</b> program is effective in meeting county curriculum objectives.	A	B	C	D	E
44.	I think the use of the <b>Accelerated Reader</b> program increases students' learning.	A	B	C	D	E
45.	The use of the <b>Accelerated Reader</b> program motivates students to read.	A	B	C	D	E
46.	For the <b>Accelerated Reader</b> program, how many books/tests has the average student in your class completed during this school year? A. 0-6                      D. 27-40 B. 7-16                     E. 41 or more C. 17-26					

54. To increase the achievement of a majority of your students, how effective was the use of **Math Keys: Unlocking Whole Numbers**?
- A. Not at all effective
  - B. Only a little effective
  - C. Moderately effective
  - D. Very effective
- 
55. How often did your students use **Math Keys: Unlocking Probability** in your class?
- A. Not at all (go to item #59)
  - B. Once a week
  - C. Twice a week
  - D. Three times a week
  - E. Four times a week or more
56. How much time on average did individual students use **Math Keys: Unlocking Probability** in your class (in a day)?
- A. 10 minutes or less
  - B. 15 minutes
  - C. 20 minutes
  - D. 25 minutes
  - E. 30 minutes or more
57. To motivate a majority of your students, how effective was the use of **Math Keys: Unlocking Probability**?
- A. Not at all effective
  - B. Only a little effective
  - C. Moderately effective
  - D. Very effective
58. To increase the achievement of a majority of your students, how effective was the use of **Math Keys: Unlocking Probability**?
- A. Not at all effective
  - B. Only a little effective
  - C. Moderately effective
  - D. Very effective
- 
59. How often did your students use **Math Keys: Unlocking Geometry** in your class?
- A. Not at all (go to item #63)
  - B. Once a week
  - C. Twice a week
  - D. Three times a week
  - E. Four times a week or more
60. How much time on average did individual students use **Math Keys: Unlocking Geometry** in your class (in a day)?
- A. 10 minutes or less
  - B. 15 minutes
  - C. 20 minutes
  - D. 25 minutes
  - E. 30 minutes or more

Dear Teacher of Grade 3, 4, or 5:

During this school year, you have had many experiences with your students. We would like for you to reflect on their use of the computer software used during the year and provide us your perceptions. You may have received a survey like this in previous years. The responses of teachers the previous two years has given a very important perspective on the implementation of this technology. Each year the survey information was helpful to make adjustments. We need your help one more year to complete this perspective.

We will give much attention to your responses to the questions/statements on the following pages. We will also carefully review any additional feedback that you write on the comment sheet. Your responses will be totally anonymous.

**Use the accompanying "HENRICO COUNTY SCHOOLS Response Sheet" to answer the items in this survey with a No. 2 pencil. (Do not mark your name or other identifying information on the answer sheet.) There is a separate comment page that you may return with the Response Sheet.**

Please return your responses to Research & Planning Department on the Pony by June 10, 1998.

We have made arrangements with the Metropolitan Educational Research Consortium (MERC), based at VCU to assist in this survey which explains why their name is found below.

**WE THANK YOU FOR YOUR ASSISTANCE AND PROFESSIONALISM IN COMPLETING THIS SURVEY.**

**Software Usage Survey: Elementary Classroom Computer Initiative  
for 3rd, 4th, and 5th Grade Teachers**

**Prepared by the Metropolitan Educational Research Consortium (MERC)  
for Henrico County Public Schools**

## Demographic Information about you as the Teacher

1. Gender
  - A. Male
  - B. Female
  
2. Ethnic Group
  - A. Caucasian
  - B. African-American
  - C. Asian
  - D. Hispanic
  - E. Other
  
3. Undergraduate major degree in
  - A. Education
  - B. Liberal Arts
  - C. Psychology
  - D. Science
  - E. Other
  
4. Number of years teaching
  - A. 2 years or less
  - B. 3-5
  - C. 6-9
  - D. 10-13
  - E. 14+
  
5. Computer at home for personal use
  - A. Yes
  - B. No
  
6. Number of years you have used computers teaching
  - A. 2 years or less
  - B. 3-5
  - C. 6-9
  - D. 10-13
  - E. 14+
  
7. What grade do you teach (if more than one grade, mark lowest grade)?
  - A. First
  - B. Second
  - C. Third
  - D. Fourth
  - E. Fifth
  
8. How many students are in your class?
  - A. Less than 20
  - B. 20 - 25
  - C. More than 25



		Strongly Agree	Agree	Dis- agree	Strongly Disagree	Don't use this prog.
16.	<b>Odell Down Under</b> is effective in meeting county curriculum objectives.	A	B	C	D	E
17.	I think the use of <b>Odell Down Under</b> increases students' learning.	A	B	C	D	E
18.	The use of <b>Odell Down Under</b> motivates students to learn.	A	B	C	D	E
19.	<b>Bodyscope</b> is effective in meeting county curriculum objectives.	A	B	C	D	E
20.	I think the use of <b>Bodyscope</b> increases students' learning.	A	B	C	D	E
21.	The use of <b>Bodyscope</b> motivates students to learn.	A	B	C	D	E
22.	<b>Oceans Below CD</b> is effective in meeting county curriculum objectives.	A	B	C	D	E
23.	I think the use of <b>Oceans Below CD</b> increases students' learning.	A	B	C	D	E
24.	The use of <b>Oceans Below CD</b> motivates students to learn.	A	B	C	D	E
25.	<b>Magic School Bus Explores the Human Body CD</b> is effective in meeting county curriculum objectives.	A	B	C	D	E
26.	I think the use of <b>Magic School Bus Explores the Human Body CD</b> increases students' learning.	A	B	C	D	E
27.	The use of <b>Magic School Bus Explores the Human Body CD</b> motivates students to learn.	A	B	C	D	E
31.	<b>San Diego Zoo Presents: The Animals CD</b> is effective in meeting county curriculum objectives.	A	B	C	D	E
32.	I think the use of <b>San Diego Zoo Presents: The Animals CD</b> increases students' learning.	A	B	C	D	E
33.	The use of <b>San Diego Zoo Presents: The Animals CD</b> motivates students to learn.	A	B	C	D	E
34.	<b>The Way Things Work CD</b> is effective in meeting county curriculum objectives.	A	B	C	D	E
35.	I think the use of <b>The Way Things Worked</b> increases students' learning.	A	B	C	D	E

**Section 3. The following items assess your perceptions of ACCELERATED READER program.**

- |     |   | Strongly<br>Agree | Agree | Dis-<br>agree | Strongly<br>Disagree | Don't use<br>this prog. |
|-----|---|-------------------|-------|---------------|----------------------|-------------------------|
| 52. | The Accelerated Reader program is effective in meeting county curriculum objectives.  | A                 | B     | C             | D                    | E                       |
| 53. | I think the use of the Accelerated Reader program increases students' learning.   | A                 | B     | C             | D                    | E                       |
| 54. | The use of the Accelerated Reader program motivates students to read.   | A                 | B     | C             | D                    | E                       |
| 55. | For the Accelerated Reader program, how many books/tests has the average student in your class completed during this school year?<br>A. 0-8<br>B. 9-16<br>C. 17-26<br>D. 27-40<br>E. 41 or more |                   |       |               |                      |                         |

**Section 4. The following items assess your perceptions of additional programs that you may use during your instruction (i.e., MS Works: Database and MS Works: Spreadsheet).**

56. How often did your students use a database in your class this year?  
A. Not at all (go to item #59)  
B. 1-2 times  
C. 3-4 times  
D. 5-6 times  
E. 7 or more times
57. In motivating your students to collect and analyze data, how effective was the use of a database?  
A. Not at all effective  
B. Only a little effective  
C. Moderately effective  
D. Very effective
58. In helping your students to understand selected topics, how effective was the use of a database?  
A. Not at all effective  
B. Only a little effective  
C. Moderately effective  
D. Very effective
- 
59. How often did your students use a spreadsheet in your class this year?  
A. Not at all (go to item #62)  
B. 1-2 times  
C. 3-4 times  
D. 5-6 times  
E. 7 or more times
60. In motivating your students to collect and analyze data, how effective was the use of a spreadsheet?  
A. Not at all effective  
B. Only a little effective  
C. Moderately effective  
D. Very effective

68. To motivate a majority of your students to do research, how effective was the use of **World Book Multimedia Encyclopedia**?
- A. Not at all effective
  - B. Only a little effective
  - C. Moderately effective
  - D. Very effective
69. To increase knowledge for a majority of your students, how effective was the use of **World Book Multimedia Encyclopedia**?
- A. Not at all effective
  - B. Only a little effective
  - C. Moderately effective
  - D. Very effective
- 
70. How often did your students use **World and/or USA Geograph** in your class this year?
- A. Not at all (go to item #74)
  - B. 1 to 3 times
  - C. 4 to 5 times
  - D. 6 to 7 times
  - E. 8 times or more
71. How much time on average did individual students use **World and/or USA Geograph** in your class (in a day)?
- A. 10 minutes or less
  - B. 15 minutes
  - C. 20 minutes
  - D. 25 minutes
  - E. 30 minutes or more
72. To motivate a majority of your students, how effective was the use of **World and/or USA Geograph**?
- A. Not at all effective
  - B. Only a little effective
  - C. Moderately effective
  - D. Very effective
73. To increase knowledge for a majority of your students, how effective was the use of **World and/or USA Geograph**?
- A. Not at all effective
  - B. Only a little effective
  - C. Moderately effective
  - D. Very effective
- 
74. How often did your students use **World and/or USA Atlas CD's** in your class this year?
- A. Not at all (go to item #78)
  - B. 1 to 3 times
  - C. 4 to 5 times
  - D. 6 to 7 times
  - E. 8 or more times

82. How often did your students use **Math Keys: Unlocking Geometry** in your class?
- A. Not at all (go to item #86)
  - B. Once a week
  - C. Twice a week
  - D. Three times a week
  - E. Four times a week or more
83. How much time on average did individual students use **Math Keys: Unlocking Geometry** in your class (in a day)?
- A. 10 minutes or less
  - B. 15 minutes
  - C. 20 minutes
  - D. 25 minutes
  - E. 30 minutes or more
84. At motivating a majority of your students, how effective was the use of **Math Keys: Unlocking Geometry**?
- A. Not at all effective
  - B. Only a little effective
  - C. Moderately effective
  - D. Very effective
85. To increase knowledge for a majority of your students, how effective was the use of **Math Keys: Unlocking Geometry**?
- A. Not at all effective
  - B. Only a little effective
  - C. Moderately effective
  - D. Very effective
- 
86. How often did your students use **Math Keys: Unlocking Probability** in your class?
- A. Not at all (go to item #90)
  - B. Once a week
  - C. Twice a week
  - D. Three times a week
  - E. Four times a week or more
87. How much time on average did individual students use **Math Keys: Unlocking Probability** in your class (in a day)?
- A. 10 minutes or less
  - B. 15 minutes
  - C. 20 minutes
  - D. 25 minutes
  - E. 30 minutes or more
88. At motivating a majority of your students, how effective was the use of **Math Keys: Unlocking Probability**?
- A. Not at all effective
  - B. Only a little effective
  - C. Moderately effective
  - D. Very effective

96. At motivating a majority of your students, how effective was the use of **Math Keys: Unlocking Fractions and Decimals**?
- A. Not at all effective
  - B. Only a little effective
  - C. Moderately effective
  - D. Very effective
97. To increase knowledge for a majority of your students, how effective was the use of **Math Keys: Unlocking Fractions and Decimals**?
- A. Not at all effective
  - B. Only a little effective
  - C. Moderately effective
  - D. Very effective

Thank you for persevering to the end of this survey! Your responses and those of your colleagues will provide a much greater understanding of the effectiveness of technology and different software in our important process to teach the students that are entrusted to us! Future decisions about technology and software packages will be affected by the responses to this survey. Feel free to include additional comments on the attached sheet. Thank you,

sur35g00.hen