

# An Evaluation of Technology in West Virginia Schools: Results from a Teacher and Student Survey

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**Prepared for:**  
Director of Education  
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## EXECUTIVE SUMMARY

### The Study

This report is an evaluation of the results of an on-line survey conducted by the West Virginia Governor's Office on Technology. There were almost six hundred responses from teachers representing all K-12 levels of instruction. This response is more than satisfactory to conclude the opinions expressed are representative of teachers in general

The student survey included slightly more than 125 students. While all grades were represented, the majority of responses came from grades 6, 7 and 8. Neither the sample size nor its grade distribution can provide as much confidence in the results as can the teacher survey. But since the student responses clearly parallel those of teachers, they represent an important insight into the perceptions, feelings and needs of students, particularly in middle school.

### Findings

Teacher Responses. The survey of teacher responses to the questions asked regarding their use of technology and what they viewed as the barriers to expanded use and increased effectiveness in using and teaching technology can be summarized as follows.

- The vast majority of teachers are enthusiastic regarding teaching and using technology for instruction and administrative purposes. The greatest use was for administration, but a solid majority was employing it for classroom instruction.
- The evidence was strong that teachers were not only using technology, but were anxious to improve their abilities. Many saw themselves as technology "savvy" and mentoring other teachers in technology.
- Almost all teachers saw the benefits to their students of receiving instruction in technology and providing assignments, reports and activities that required the use of technology. They saw technology as not only preparing students for the world of work they would be entering, but as a way to increase learning and enjoyment.
- One of the two greatest problems in using technology is inadequate numbers of computers. Most teachers do not have sufficient numbers of computers in their classrooms. While almost all taught in schools with computer laboratories these were generally not available when needed which limited the teacher's ability to assign technology based work or provide instruction.
- The second greatest problem was the age of the computers. From the responses, it appeared that many if not most of the computers were antiquated and not capable of running much of the educational software and more advanced programs.
- The age of the computers was a major factor in explaining the poor condition of the computers. Virtually all respondents noted concerns in fixing computer problems and obtaining replacements. With significant numbers of computers inoperable, the problems with inadequate numbers were intensified.
- There was inadequate technical support for teachers. The number of qualified technicians was severely limited meaning that machines remained unfixed, programs uninstalled and instruction interrupted or curtailed. The unreliability of computers and the inadequate

technical support reduced the willingness of teachers to more fully employ technology in their classrooms. This was a major reason why teachers did not make greater use of technology in their classes.

- Teachers expressed a need for more training. Most had six or fewer hours of instruction in technology and felt that amount to be inadequate. With new and often more complex interactive programs available, constant updating of technology skills was viewed as a must.
- By far the greatest felt need by teachers was for more training in ways to integrate technology into the subjects they taught. Just transmitting skills to students does not provide the type of relevant instruction that students need to make the subject come alive. Ways to integrate technology is a most pressing and immediate need according to the respondents.
- As a result of the problems noted, simple word processing was the most frequently used technology. Often the more advanced and interactive technologies were not used. Students also were receiving only very limited training in spreadsheets and data bases.

Student Responses. Students were asked about their use of technology and its availability. Their opinions on a variety of topics were solicited. The survey of student responses provided the following insights.

- Students in general were enthused about technology. They enjoyed using technology and often found it a better way to learn than traditional instructional styles. A very significant majority saw the importance of technology in their lives and future endeavors.
- While students made use of the internet for research and communication, most felt their access to the internet was too restricted. Often they could not get on the internet due to the machines not being capable or connections not being available. Many of the web-sites could not be accessed due to the age of the machines.
- Students were not receiving most of their knowledge or training about technology in school. Friends, classmates and self exploration were the most significant paths to acquiring knowledge.
- Most students did the majority of their technology based class work from home rather than from school. This was due to limited access at school and inability to fully use the internet.
- For students without home internet, they turned to homes of their friends and classmates which provided their primary source of access. But the significant number who did not have access from home or other alternative put those students at a clear disadvantage in gaining benefits from technology.
- Regarding on-line courses students responded with little enthusiasm. This was not surprising as a significant majority did not have on-line classes available to them or did not know if the on-line classes were available. Therefore, the majority would have no basis to evaluate their benefit.
- While not quite as concerned about the availability of computers as their teachers, many students did feel the lack of access inhibited their ability to use technology.
- One of the major complaints concerned the internet. Slow and limited access, particularly at school, was viewed as a significant problem.
- There was a general lack of available out-of-class technology activities such as after school programs, classes or clubs. An important means of gaining and reinforcing skills and knowledge was either absent or poorly publicized.

- While agreeing with teachers about the problems created by inferior tech support, students supported the development and use of trained student technicians. This was seen as having two benefits; first, to reduce the amount of computer downtime, and second, to expand the technology skills of the selected student technicians.

## **Conclusions**

There was general consistency between the responses of teachers and students to the survey. Those responses both critique the use of technology and point the direction that delivery of technology education in West Virginia should move forward.

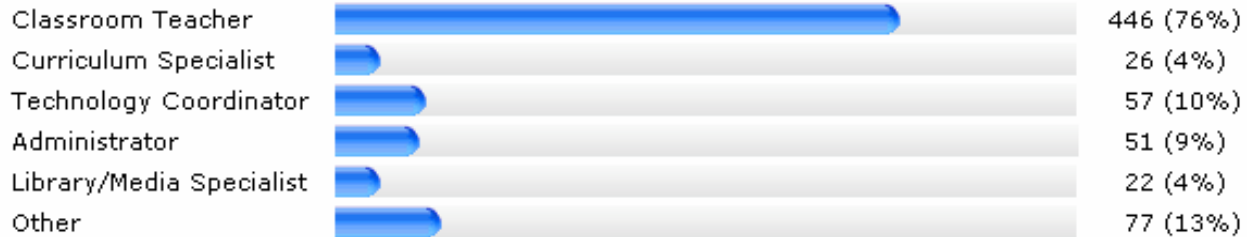
- More and better computers should be the first priority.
- Improved access at school and away from school is a necessity.
- Expanded ability to use the internet and more advanced software is essential.
- Emphasis on teacher training, particularly in integration and application is extremely important.
- Vastly improved tech support is vital.

Meeting these challenges will take increased resources. But even more, it will require vision and coordination. Preparing students for the new economy that is and will continue to be technology driven, is a challenge which must be met!

## TEACHER SURVEY

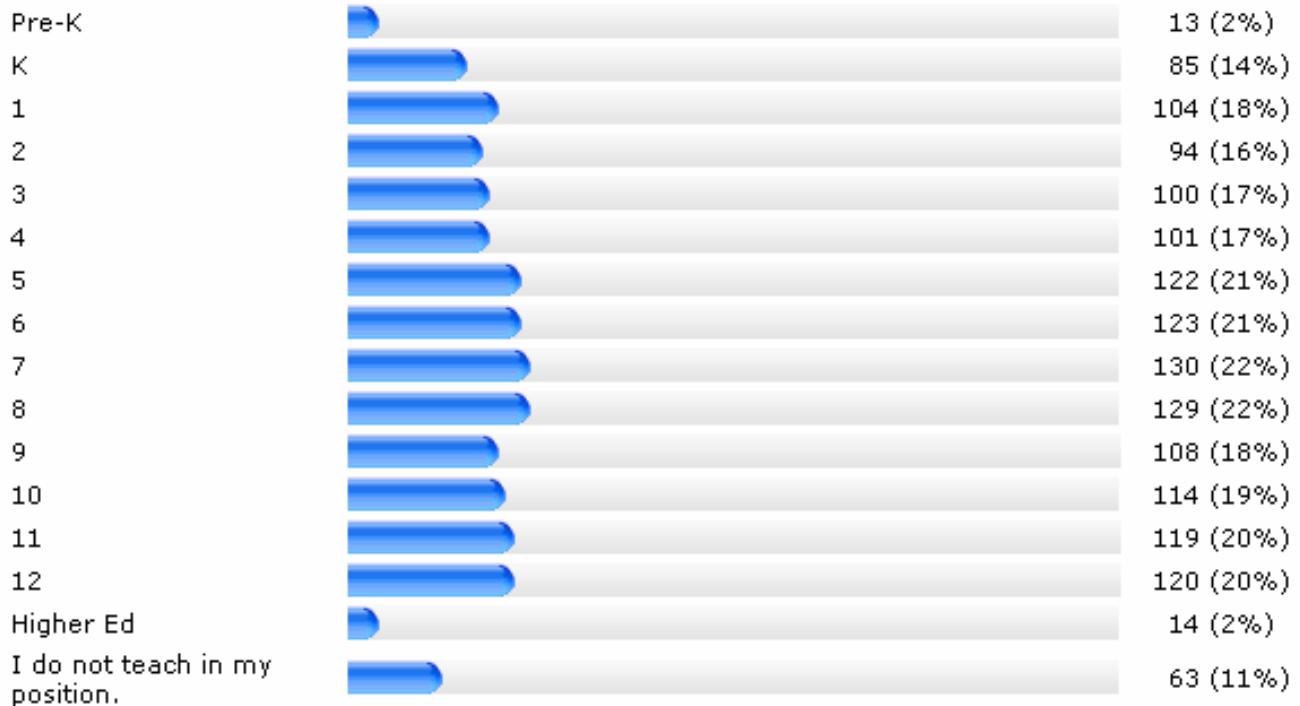
### 1. Which of the following are included in your job responsibilities? (Select all that apply).

The vast majority of the respondents were classroom teachers which gives particular credibility to the survey results. These are the individuals in the best position to evaluate the needs of students regarding technology instruction. The survey provides an accurate reflection of teacher needs and what will be the most productive use of monies spent on technology education.



### 2. What grades do you teach? (Select all that apply).

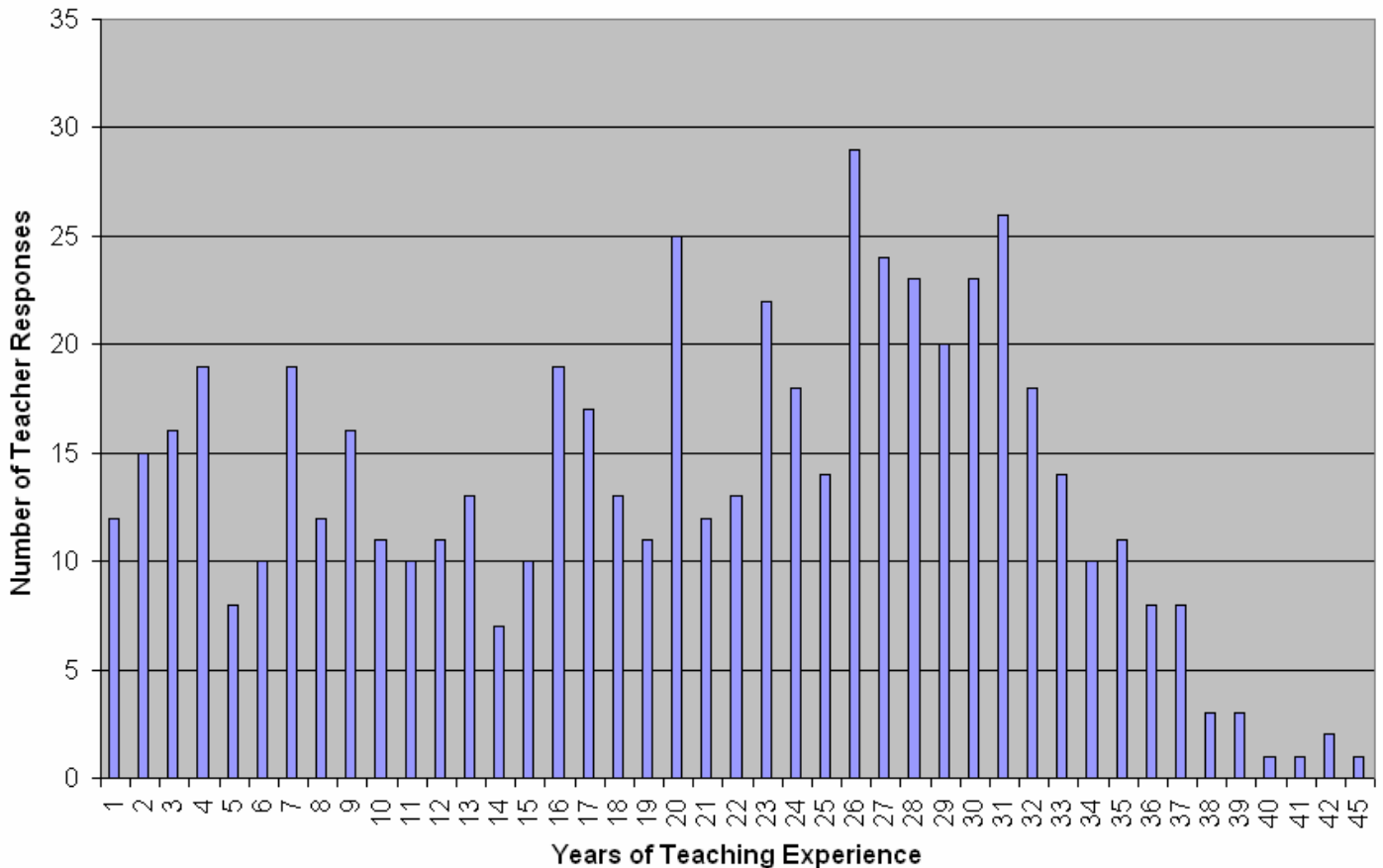
The respondents to the survey represented the full range of instruction from Pre-K-12. There are a sufficient number of respondents for each education level to provide conclusions which are applicable to the entire system of public education.



**3. At the end of this school year, how many years of teaching experience will you have?  
(Enter whole years only, enter 1 or 2 digits.)**

Teaching experience ranged from one to over forty years. A sizeable majority of the teachers had at least 10 years experience. This experience provides even more confirmation of the ability of the respondents to accurately assess the situation.

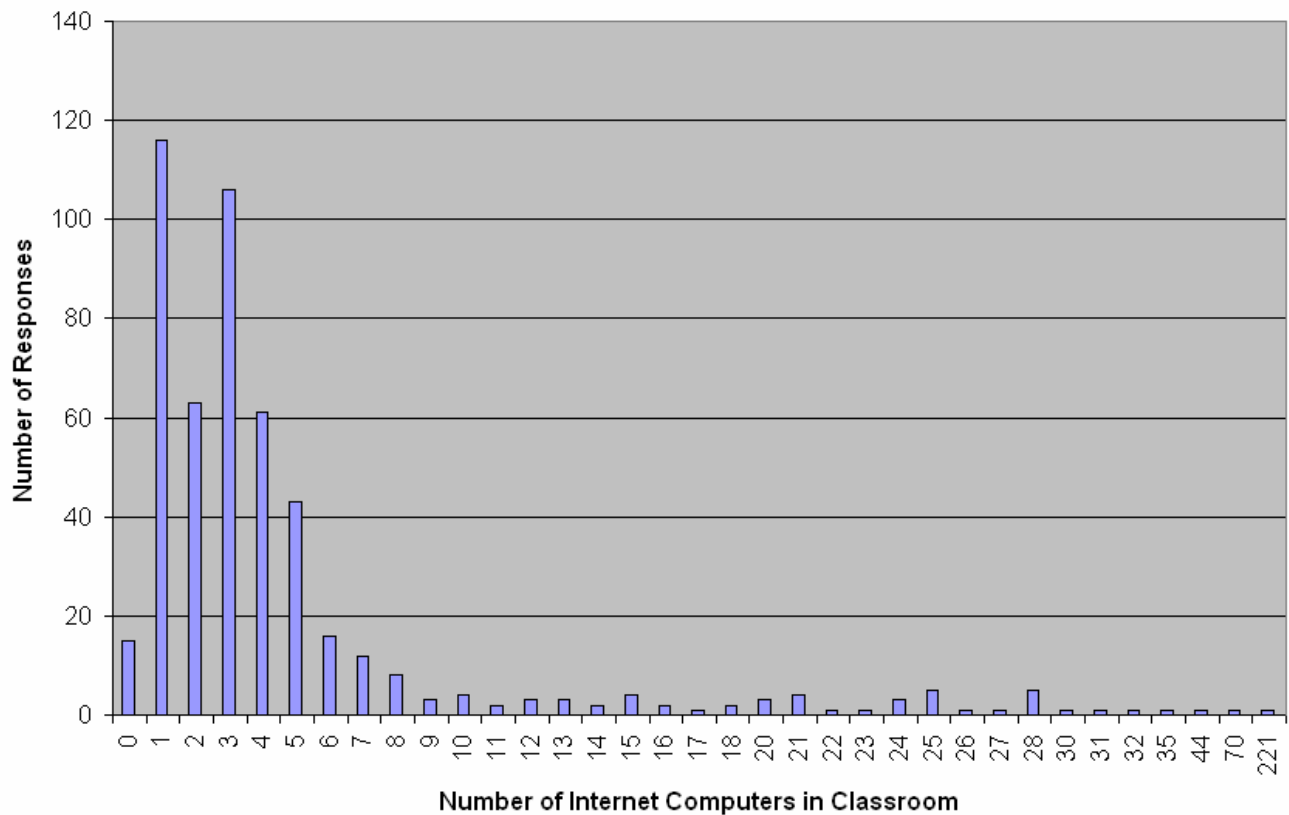
**3. At the end of this school year, how many years of teaching experience will you have?**



**4. My classroom has \_\_\_ Internet connected computers. I have regular access to a computer lab that is equipped with Internet connected computers.**

The responses to these two queries indicate that the vast majority of the respondents have internet connections in their classrooms, but only a few have more than five with the most having three or less. But the majority did indicate they had regular access to a computer lab that is equipped with internet connections. The small number of classrooms with more than a few computers available creates a problem of student access and use during regular classroom hours. While labs are available instruction will have to be driven by that availability and not by appropriate curriculum sequencing.

My classroom has \_\_\_\_\_ Internet connected computers.



**5. In which areas of your professional responsibilities has technology had an impact? (Rank order; assign 1 to the highest and 5 to the lowest.)**

Teachers use technology for the full range of their professional responsibilities. “Classroom Management Activities” and “Communications” are the highest ranked with “Teaching and Instructional Support” not far behind. “Student Assessment” and “Professional Development” rank well below the other uses. These results indicate significant room for expanded use of technology by teachers. The two highest ranked activities are the least interactive and learning based. The fact that professional development ranked at the bottom provides an indication for expanded use of technology for maintaining teacher competency.

Teaching and instructional support (i.e., presenting lesson plans, facilitating project-based learning, access to latest information)



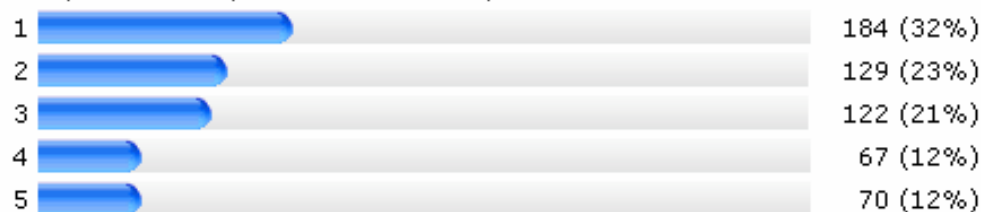
Student assessment (i.e., online testing, student portfolios)



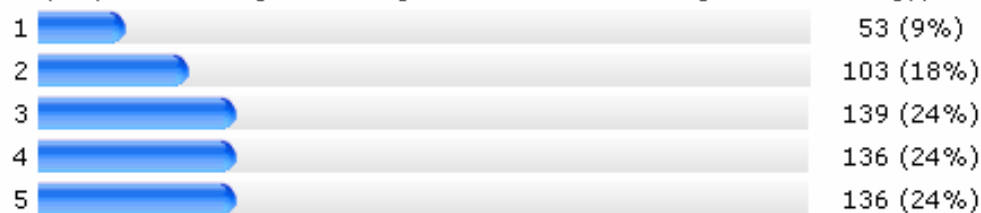
Classroom management activities (i.e., tracking attendance/grades, lesson planning)



Communications (i.e., email, newsletters, classroom website)



Professional development (i.e., skill training or reading articles about teaching with technology)



**6. If you have encountered obstacles in the use of technology and the Internet at school or home what suggestions do you have for overcoming them?**

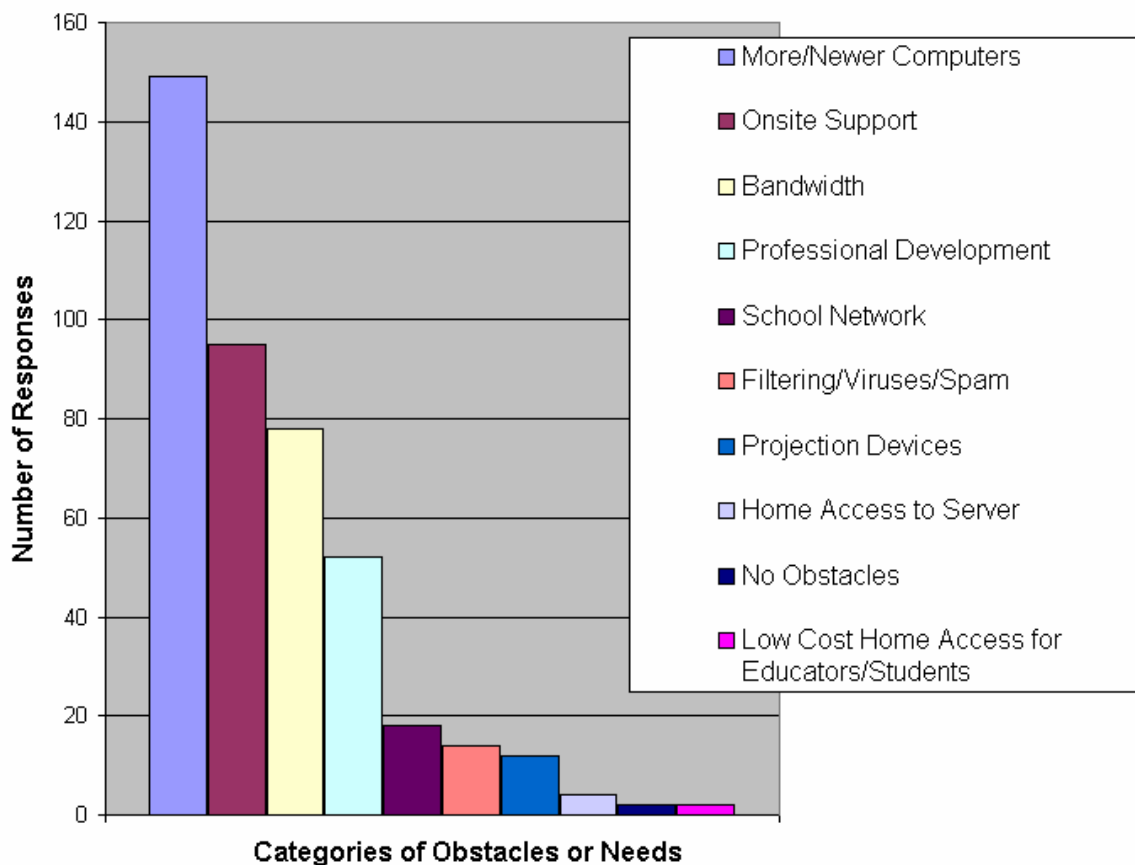
The responses of the teachers are provided in full in Appendix A. The following is a summary of those responses as graphed below. By far the greatest problem is inadequate and obsolete equipment and software. There was a prevalent complaint about lack of access due to insufficient computers in the classroom and inability to obtain adequate time in the computer lab.

This was compounded by the slowness of many systems and the amount of network down time. The dated machines and programs often made it impossible to use the materials available. The lack of adequate and properly trained support staff was also a very prevalent and frustrating

problem. lesser problems related to the need for greater bandwidth and for additional professional development.

Regarding professional development, many respondents indicated that they had neither sufficient time nor training to use the technology available. Many commented that they were swamped with new technology without time to learn it and even when they were trained the technology either was not available or could not be run on their classroom or home systems. What is clear is that the mere presence of computers and computer labs in no way equips the schools to prepare students in the use of technology.

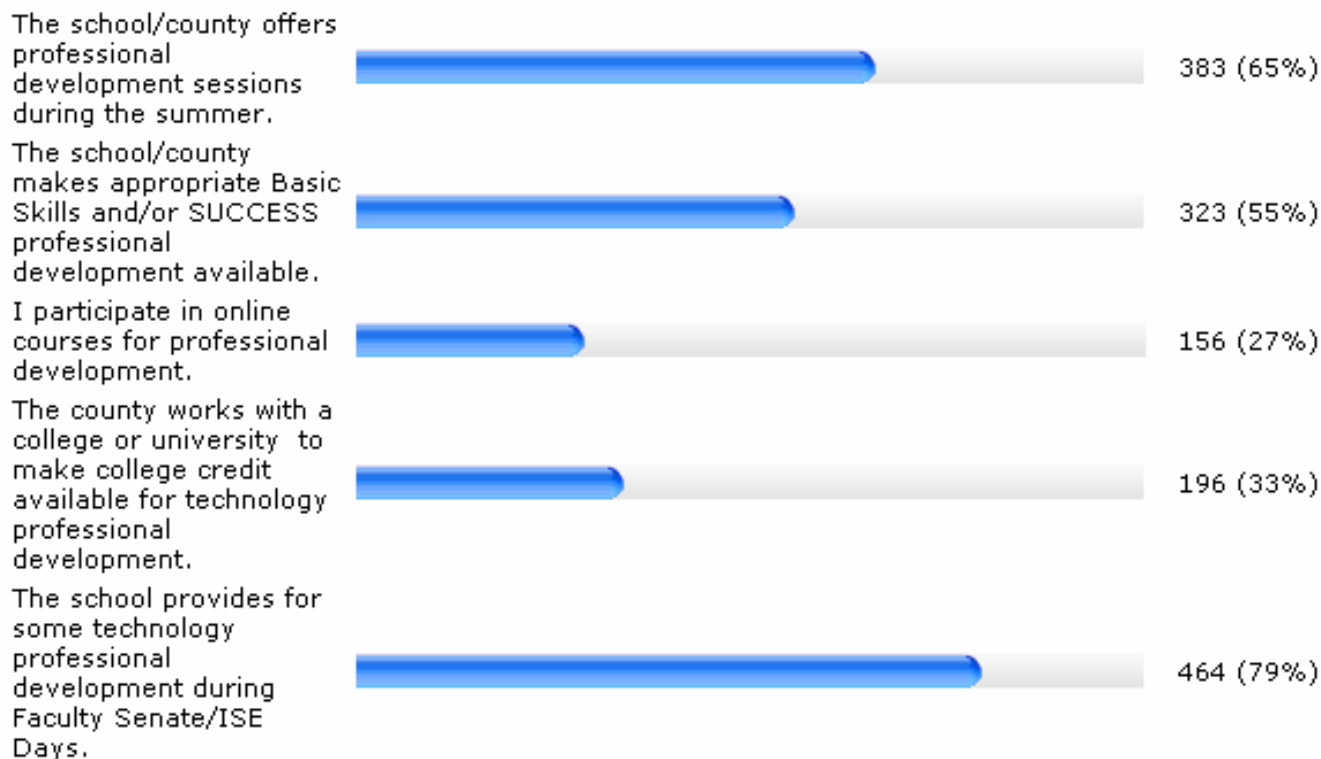
### Obstacles to Technology and Internet Use/Needs to Promote Such Use



### 7. How are you given the opportunity to participate in technology focused professional development at the school or district level?

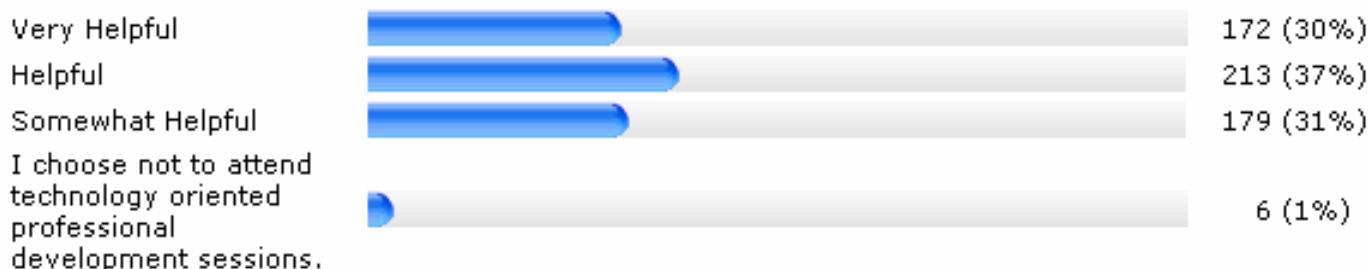
Two thirds of the teachers indicated the school or county offered professional development programs during the summer. This leaves a gap of one third of the teachers who do not have that opportunity. Only slightly more than half indicated they had available appropriate Basic Skills and/or Success professional development available. Almost half of the respondents did not have available to them the programs needed to improve their technology skills. Only about one quarter use on-line professional development. This may be due to either it not being available or to teacher

choice as to how they receive instruction. Only one third were in county’s working with colleges or universities for professional technology development, indicating an area where expansion should be encouraged. On the positive side almost 80 percent had professional development programs in technology available during faculty senate or ISE days.



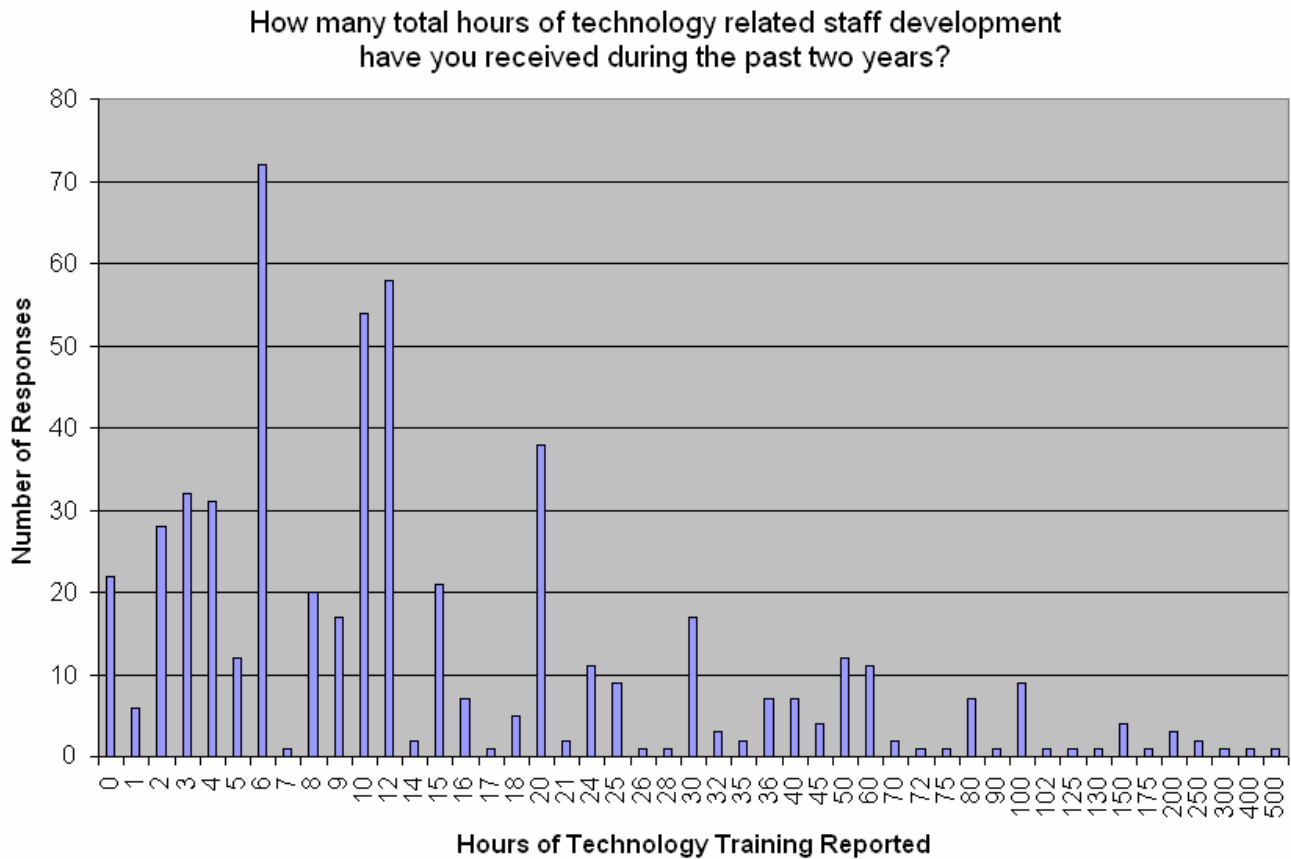
**8. At what level do you find these sessions to be helpful in your integration of technology and/or the use of technology for professional tasks?**

The almost unanimous opinion of the respondents was that the training received was at least somewhat helpful. There does appear to be room for improvement as only 30 percent found the programs “very helpful”. Further inquiry needs to be made as to the type of programs which produce the most positive responses and use these as models for future offerings.



**9. How many total hours of technology related staff development have you received during the past two years?**

Around half the respondents had received 12 or fewer hours of technology related training in the last two years. Almost a third had received six or fewer. This amount of training is not sufficient to keep teachers abreast of programs or applications. For teachers with little or no technology background the amount of training is clearly insufficient.

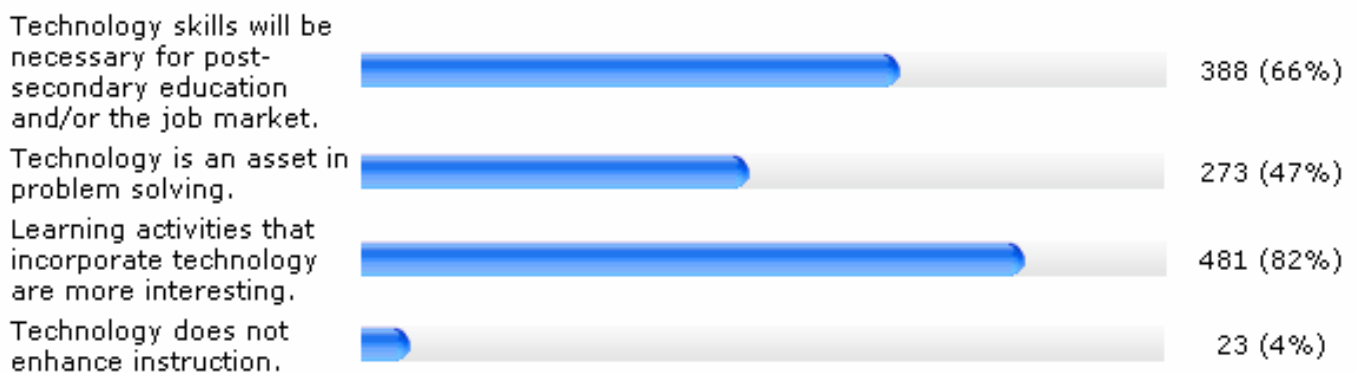


**10. How does effective use of technology rank as a priority for your school administrators this school year?**

Almost half of the respondents indicated that technology was a high priority with only 13 percent indicating it was low or no priority. This indicates a strong commitment to technology among administrators. The question remains as to how that commitment will be realized in practice.



**11. Which of these statements describe your perception of student attitudes toward technology?** From the responses it is obvious that students view technology as being important as well as making instruction more interesting. Student attitudes do not appear to be a barrier to use of technology in the classroom.



**12. How do you view the use of technology in meeting state and federal accountability requirements?**

Over 90 percent view technology as being positive in meeting accountability requirements. This accountability will take two forms; 1) Demonstrating that students are achieving at the proper level due to the results of using technology in instruction and 2) The ability of teachers to better document activities and results.



**13. Which of these statements describes your use of technology?**

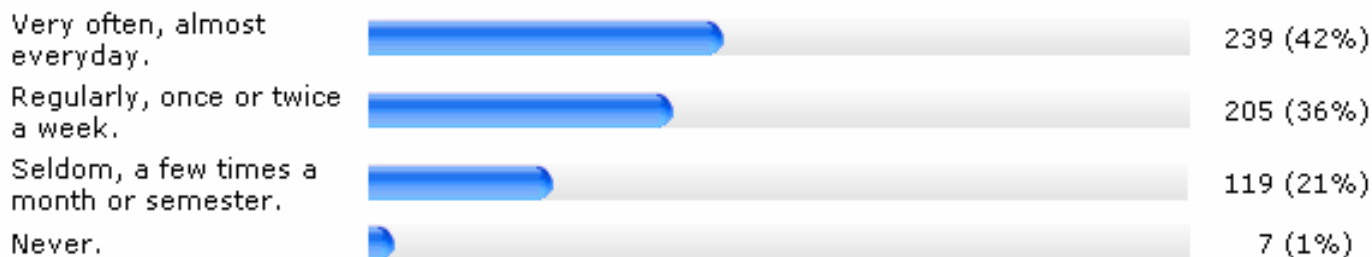
Respondents not only use technology but enjoy acquiring new technology based skills. Almost three quarters use technology in the classroom and half consider themselves to be technology

mentors to other teachers. This data strongly indicates that teachers are not only capable, but are employing technology in their personal and professional lives. It is to be anticipated that little resistance to expanded use of technology will be encountered from teachers.



**14. How often do you use technology for instruction?**

While gratifying that over 40 percent of respondents use technology every day, it is disappointing that 22 percent seldom or never use it for instructional purposes. These students are clearly being left behind. Even those students in the classes of 36 percent of the respondents who use technology only once or twice a week are not being as completely educated in technology as are their peers. This lack probably relates to the problems of access discussed above in question 6.



**15. If you were designing a new school which of these would be most important for teachers to have?**

The overwhelming responses to what should be in a “new school” reflect the frustrations the teachers have with their current situations. By far the most important element would be “adequate technology maintenance and support” followed closely by “onsite staff person to help with technology”. Other areas of higher priority (but not ranked one or two) were faster internet connections throughout the school and new computers for every teacher. As has been indicated in the responses to other questions, the greatest problem with using and teaching technology is insufficient support.

Fast Internet access throughout the school



Wireless access to the Internet



A new computer for every teacher



A computer lab, open on weekends and evenings



An onsite staff person to help with technology



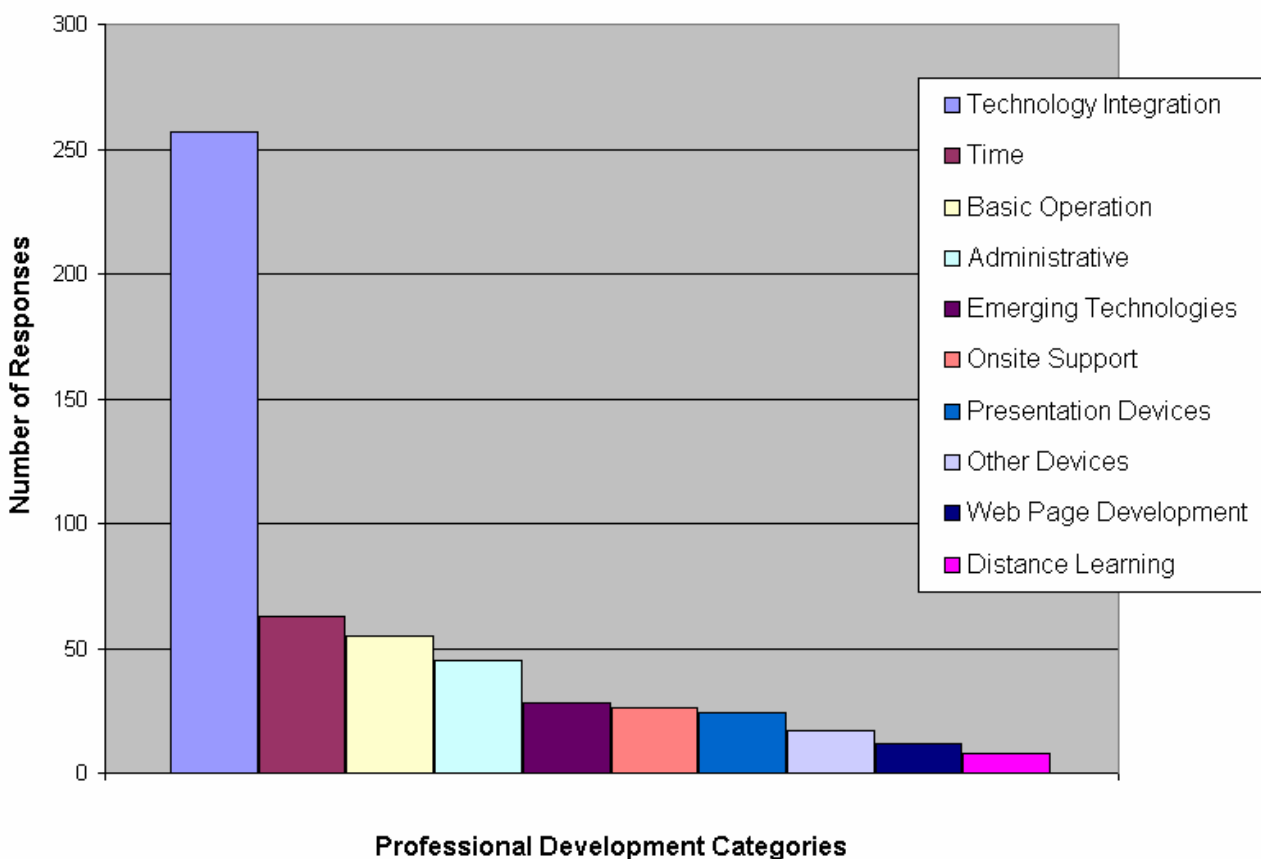
Scheduled release time for learning with technology



### 16. List your top three professional development needs.

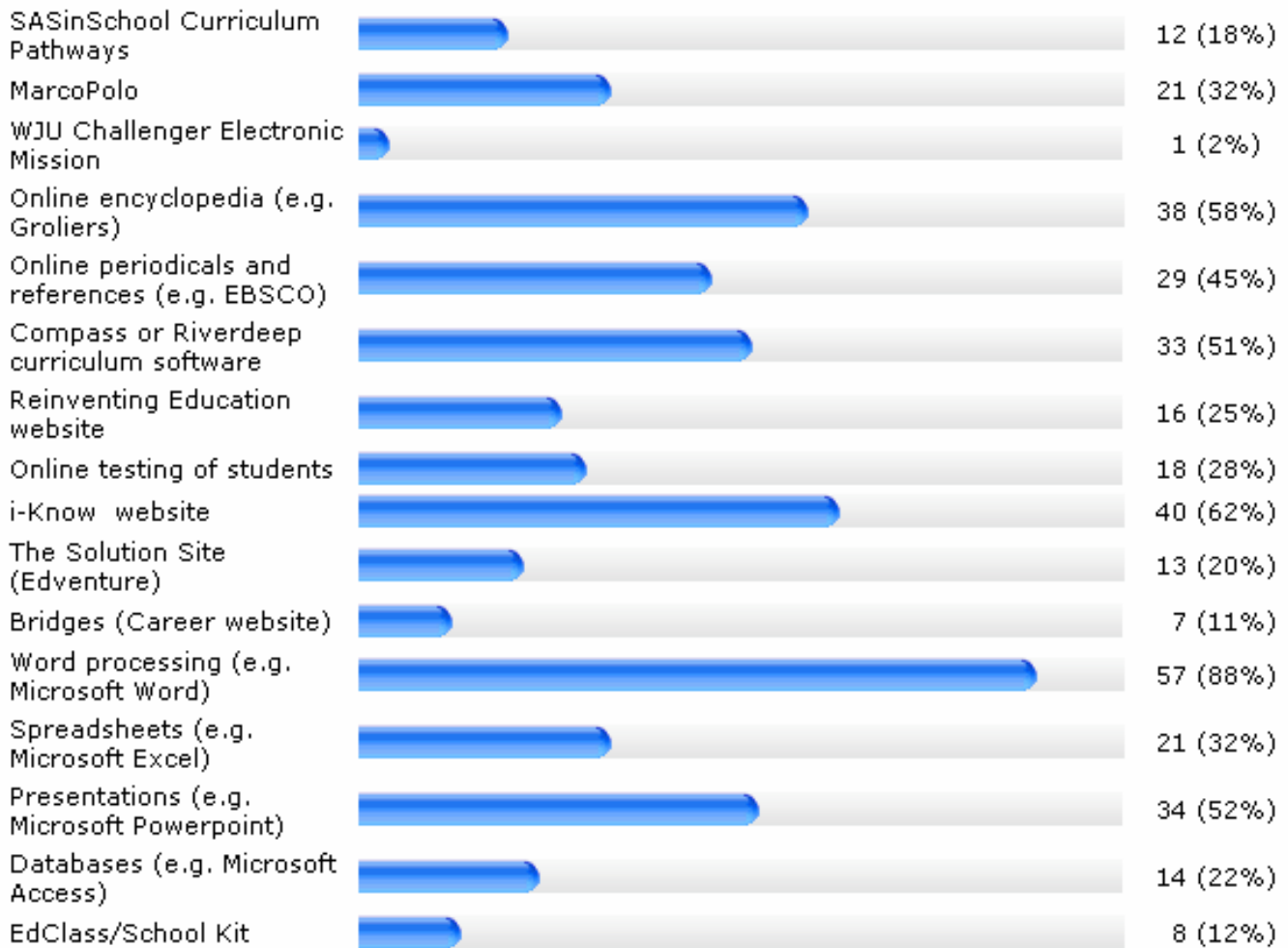
The individual answers from each respondent are provided in Appendix B. For easy reference they have been classified into 10 groups of responses. Of those ten “technology integration” is by far and away the greatest perceived need. This is consistent with answers given to other questions which revealed that teachers want to know how to apply technology to the subject matter they are teaching. Having this knowledge will make the technology meaningful to the students as they can see relevance to the subject matter being studied. This would make the class more meaningful and interesting for the students. In summary, tools are necessary but not sufficient for effective technology education, application is equally important.

#### Professional Development Needs



### 17. Which of the following technologies have you or your students used this school year?

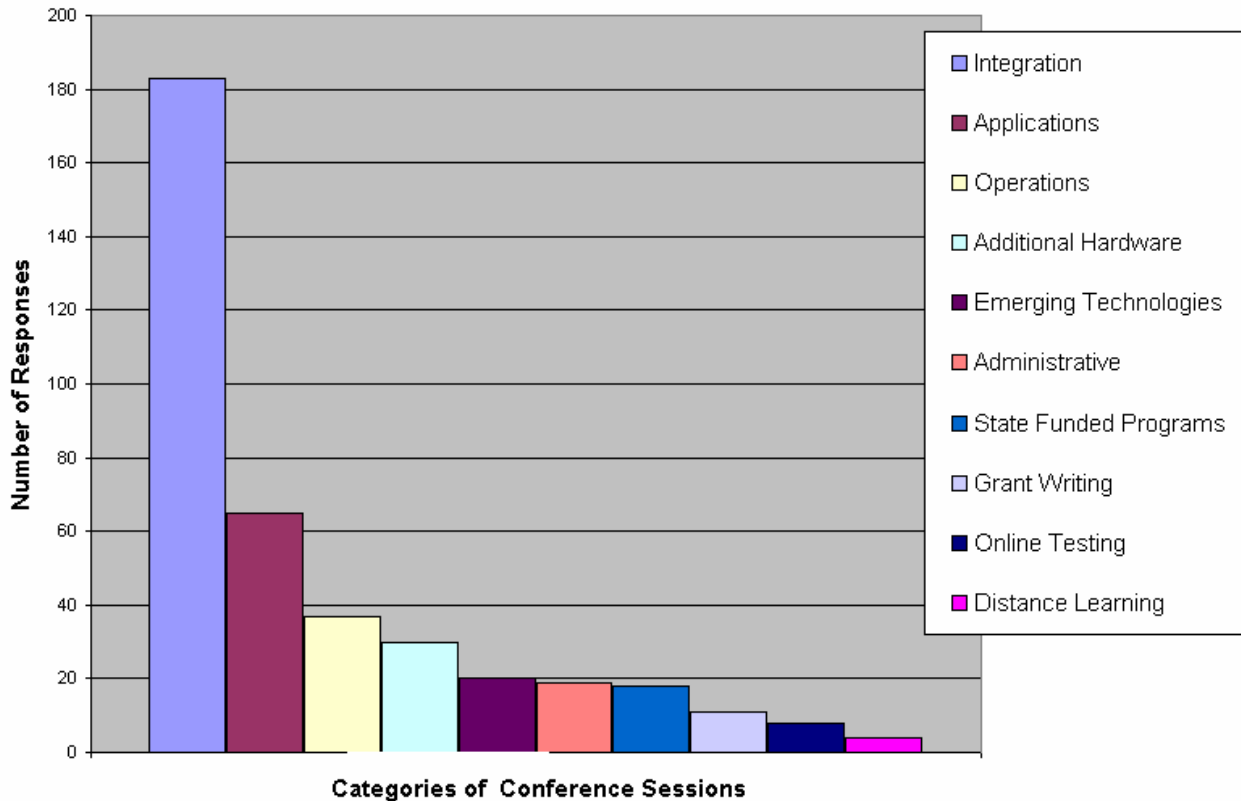
The most widespread use of technology involved word processing with almost 90 percent involvement. Research is the second most common employment but the use is around 60 percent covering various technologies (online encyclopedia, online periodicals, i-Know website). PowerPoint is also included in about half of the replies. More advanced and venturesome technologies have not been widely used. This may be due to a lack of familiarity by teachers with these or the inability of the school’s computers to handle the programs. A particular lack is training in spreadsheets and data bases.



**18. If attending a technology conference what topic would you most like to see presented?**

The answers to this question provide a firm direction for future teacher training in technology. The responses have been summarized under 10 categories. It is clear that respondents seek more enlightenment about how to integrate technology in the grade level or subject area they teach. A second request is for more training in applications. While there is limited support for other forms of training, these two areas should receive major emphasis. The responses of the teachers are in Appendix C.

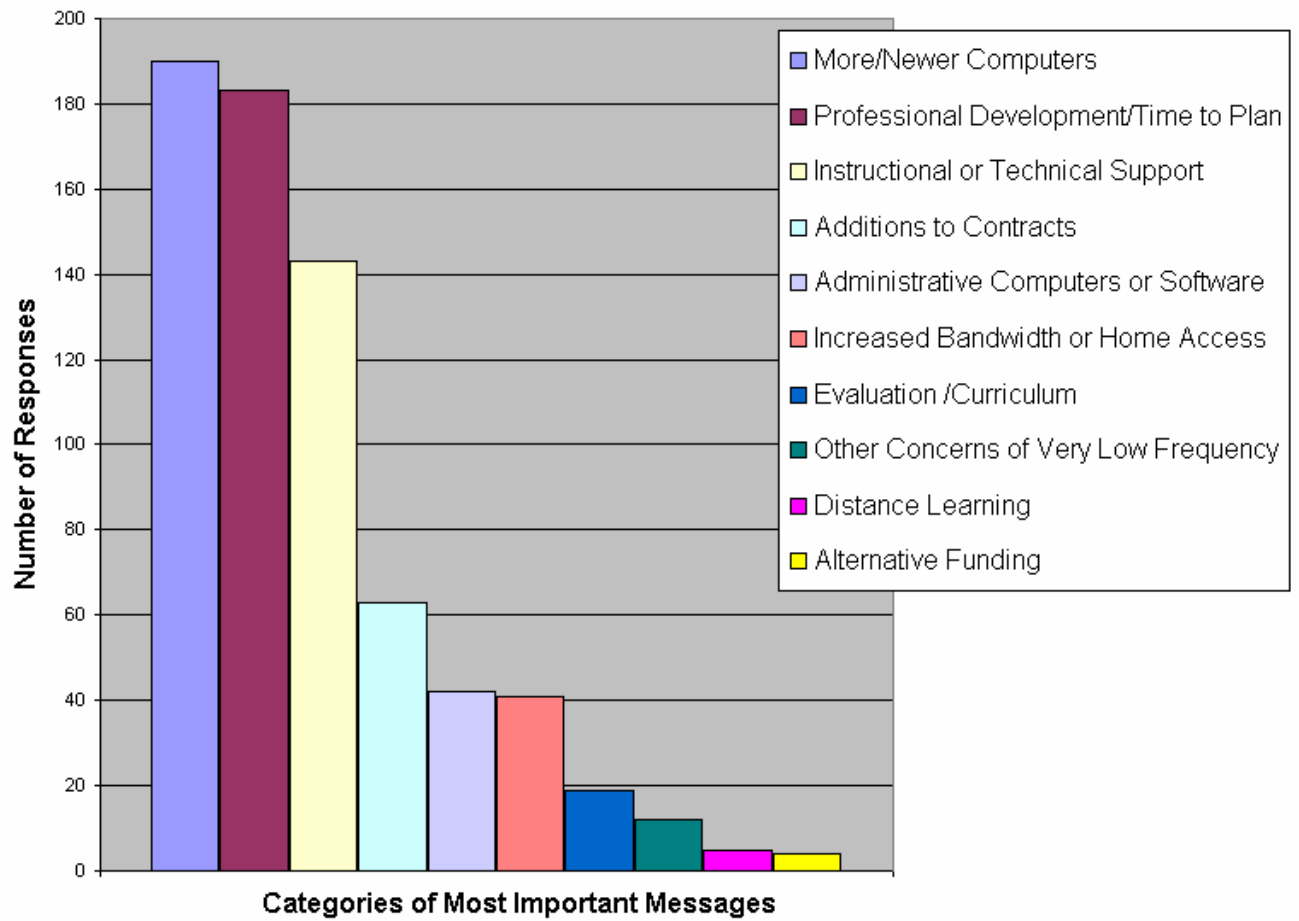
## Technology Conference Sessions Desired



**19. What is one thing you would like to tell West Virginia’s First Lady, Gayle Manchin, about how we can help you use technology more effectively?**

The answers to this query are consistent with the other results of the survey. The greatest request would be for more and newer computers. In reading the individual answers (See Appendix D), it again becomes apparent that the lack of classroom computers and the inability of the older computers to handle more advanced programs and major obstacles to effective technology education. Professional development and the time to plan ranked a very close second reflecting the problems teachers have in knowing how to integrate and apply the technology which is available. Also ranking high was the need for technical and instructional support. The lack of support staff and instructional technologists has been well documented before. As the teachers note, this leads to extensive downtime and inability to count on the technology being available when needed or planned.

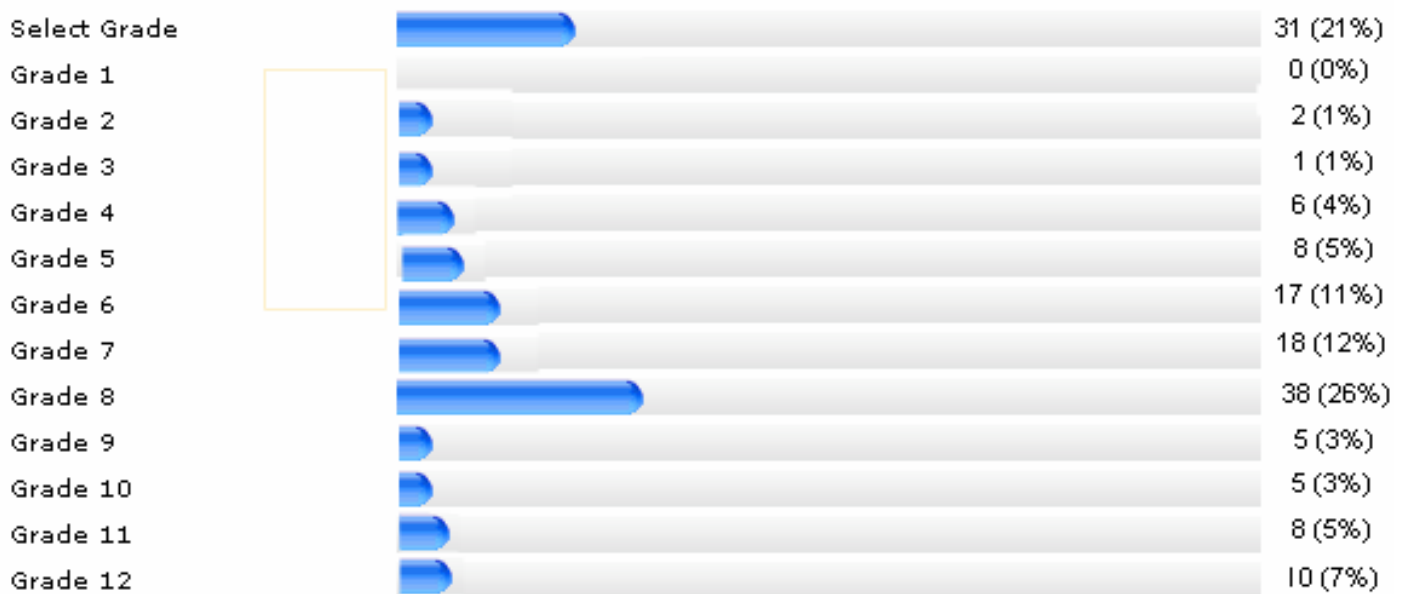
### Most Important Message on Using Technology More Effectively



## STUDENT SURVEY

### 1. What grade are you in?

A sizeable percentage of the student respondents did not indicate a particular grade. The largest single representation was grade 8 accounting for slightly more than one quarter of the respondents. The only other sizeable representations were from grades 7 and 6. These statistics indicate that the results may only be significant for middle school students and can not be considered representative of all grade levels.



### 2. In a typical week, which of these technology products do you use during normal school hours?

The only technology product with significant student use appears from the responses to be the desktop computer. There are several technologies with limited use (laptops, cell phones, digital cameras, video game player and text messenger). It is not clear if these were used in the classroom as part of the curriculum or used for pleasure during breaks or lunch periods. In any case it appears that use of technology in the classroom is well confined to a single technology.

Desktop computer	134 (82%)
Laptop computer	17 (10%)
Cell phone	32 (20%)
PDA or Blackberry-type device	3 (2%)
Digital camera	20 (12%)
Video camera	7 (4%)
Scanner	7 (4%)
DVD/CD burner	13 (8%)
MP3 player or iPod-type device	12 (7%)
Video game player	19 (12%)
Text messenger or pager	19 (12%)

### 3. In a typical week, which of these Internet tools do you use during normal school hours?

There were a variety of internet tools used by the students with bookmarked websites, game sites and search engines being the only ones used by half or more of the respondents. It can be questioned as to what extent on-line game sites were used for instructional purposes. It does appear that student use of the internet is relatively limited, but probably appropriate for instructional level.

Specific Internet websites that have been bookmarked	82 (50%)
Personal site (e.g. My Yahoo)	27 (16%)
Search engine (e.g. Google)	99 (60%)
News website	30 (18%)
Instant Messenger (IM)	11 (7%)
Message boards	5 (3%)
Chat rooms	6 (4%)
Web logs (blogs)	4 (2%)
Online game sites	53 (32%)
Email	12 (7%)

### 4. Thinking about the other students at your school, do you consider yourself. . .

Over three fourths of the students considered themselves to be an average user compared to other students. Only a small minority (9%) considered themselves below comparative average.

an advanced tech user-- more expert than most of the students at your school.	23 (16%)
an average tech user--the same as most of the students at your school.	111 (76%)
a beginning tech user-- below the skills of most of the students at your school.	13 (9%)

**5. How do you usually find out about new technologies and websites and how to use them?**

Student response indicates three primary sources of information: teachers/classes in school, friends, and self exploration. Since friends are the dominate information source this reveals a level of networking which is typical of most technology intensive enterprises. The fact that only 28 percent listed school as their primary source for information indicates increasing emphasis in these areas may be appropriate.

Teachers or classes in school	41 (28%)
Classes at a community center or after-school club	2 (1%)
My family	12 (8%)
My friends	44 (30%)
I explore on my own	34 (23%)
Television, radio, magazines, newspapers	14 (10%)

**6. When you are using technology to help with your schoolwork, where are you most likely to be?**

Over fifty percent of the respondents indicated that home was where they used technology to help with their schoolwork, while 37 percent indicated the place was school. This response raises a major question. Are those students who do not have access to computers and/or the internet at home being disadvantaged compared to their peers who do? Also do the problems with computer access in the classrooms noted in the teacher’s responses limit the achievement of those who must depend primarily on school based technology?

At home	82 (56%)
At my school	55 (37%)
At the public library	4 (3%)
At a community center or after-school club	2 (1%)
At the home of a friend or relative	4 (3%)

**7. Which of these activities do you expect to do online this year during normal school hours?**

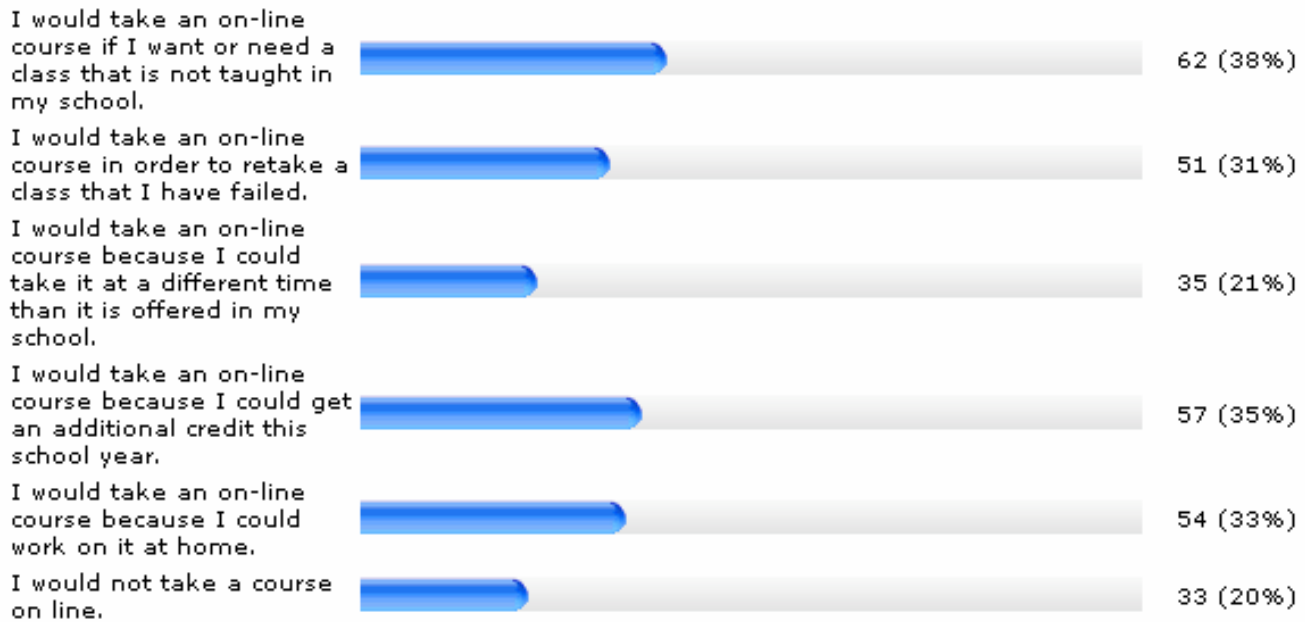
Two thirds of the students responded they would go on-line to obtain information related to class work. Substantial minorities expected to take tests on-line and to go to school/class established websites. Other possible uses elicited only sporadic responses. This indicates that technology’s on-line use is being primarily limited to traditional activities and student usage could and should be expanded.

Use information from the Internet for homework, class assignment, or a report	109 (66%)
Get help from an online tutor	8 (5%)
Take a test online	75 (46%)
Go to websites that have been set up for my school or class	74 (45%)
Create a web page for a school project	19 (12%)
Use IM (instant messaging) to talk to a classmate about a class project	18 (11%)
Contribute to a web log (blog)	3 (2%)
Email a teacher	17 (10%)
IM a teacher	7 (4%)
Use an online textbook	28 (17%)
Take a class online	20 (12%)
Create a movie	7 (4%)
Download a study guide	20 (12%)
Apply to college	14 (9%)
Check on a grade for a class	25 (15%)
None of the above	17 (10%)

**8. Which statements best describe your interest in taking on-line courses?**

Taking courses on-line appeals only to about one third of the students irregardless of the motivation for being enrolled. Twenty percent of the students indicate no interest at all in on-line instruction. This may reflect a lack of familiarity or availability with on-line instruction, past bad experience, inadequate preparation or incompatibility with the student’s preferred learning style. It could be anticipated that acceptance of on-line courses will grow as more and better designed classes become available, but there should be no expectation in the near future that on-line instruction will replace the teacher-student interaction which takes place in the classroom. Research demonstrates that effective on-line instruction, particularly for younger students, still requires considerable interaction between student and instructor.

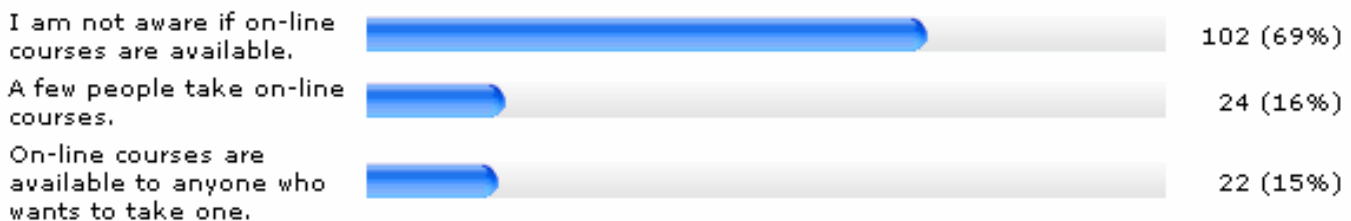
### Question 8



### 9. How available are on-line courses in your school?

From the responses it is clear that on-line courses are not widely available at least for the students covered in the survey. Almost 70 percent were not aware of any on-line courses being available. Only 15 percent felt that on-line courses were available to anyone who wants to take them. This may explain, in part, the less than enthusiastic responses to question 8 regarding student interests in on-line courses. If they are not available it is unlikely that students will have any interest in taking them. An expansion of well designed and highly interactive on-line courses with appropriate teacher support may be warranted. This may be particularly true for enrichment and other classes not available in the student's classroom setting.

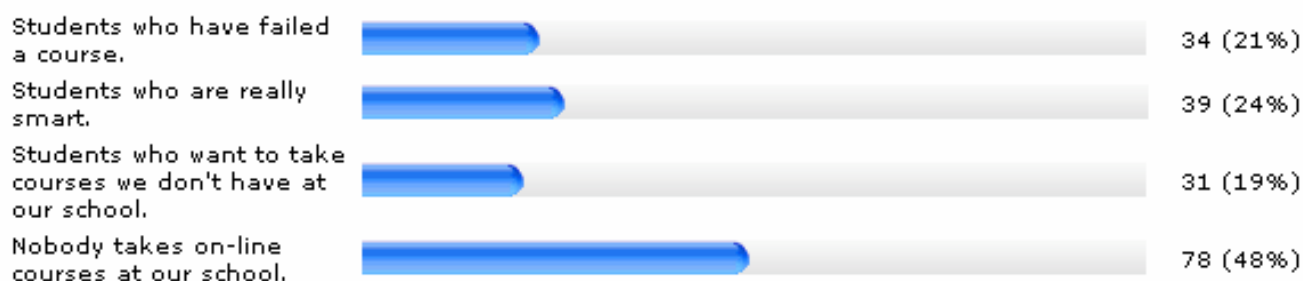
### Question 9



## 10. Who do you think takes on-line courses in your school?

Almost half reported “nobody takes on-line courses”. This is not surprising given the lack of availability of on-line instruction noted in question 9. Responses regarding other reasons were almost evenly divided among students who “failed a course”, “are really smart” or “want to take courses we don’t have at our school”.

### Question 10



## 11. What qualities and skills should a student have in order to take a course on-line?

Two thirds of the respondents indicated “good computer skills”. It is not clear from the wording of the answer what this answer includes. What are the computer skills that are needed? One skill is mentioned in a separate response “good keyboarding” which was viewed positively by almost 40 percent of the students. A more detailed investigation with more in-depth questions appears appropriate.

### Question 11

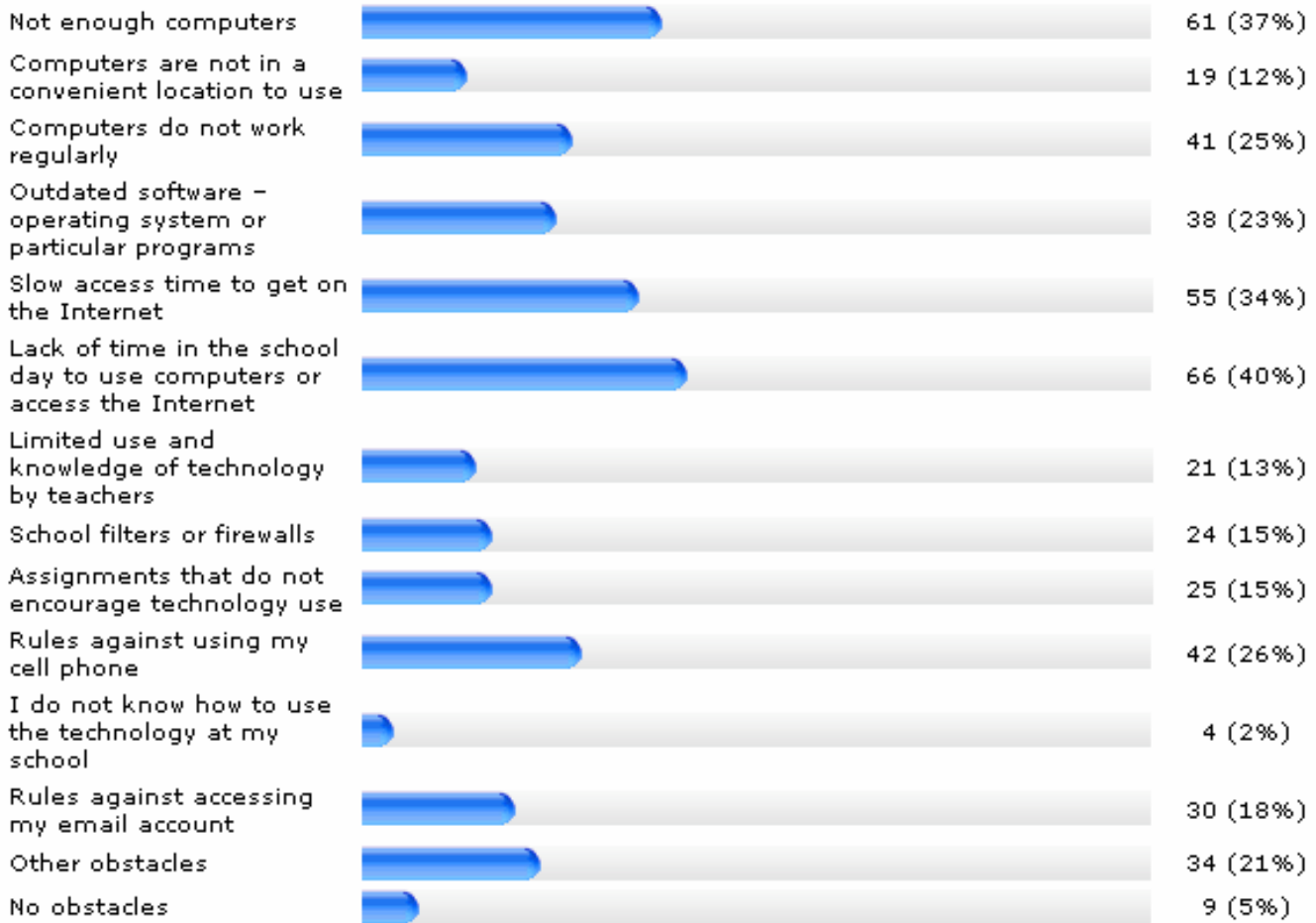


## 12. What are the main obstacles you face in using technology at your school?

Responses varied with no single obstacle dominating. There appears to be a disconnect between the perceptions of students and those of teachers regarding the nature and significance of the obstacles. While insufficient numbers of computers was listed by 37 percent of the students, it does not appear to be as big a barrier as one would have expected from the teacher responses which ranked it near the top. When taken together, the complaints about the internet, slow access time, and lack of time to access appeared to be the most troublesome area. Less than a quarter of the students viewed outdated software or programs as a problem, while teachers saw it as a major hindrance. This may be due to students not being aware of what is available and/or instructors

“teaching around” the problems created by obsolete systems and programs. Only a small minority of students evaluated either their technical capabilities or those of their teachers as being of significance.

**Question 12**



**13. Does your school have a formal program (a class, club or after-school activity) where students help with technology use or problems?**

It is surprising and troublesome that the most frequent response was “not sure”. This can be interpreted as either not available or poorly promoted. Only one third of the students reported the presence of these activities. These can be important ways for students to learn and to teach each other. Considering that most students indicated in the question that their friends were a valuable source of information regarding technology, expansion of these activities would be profitable. It is entirely possible that responses to this question would have been different if more high school students had participated in the survey.

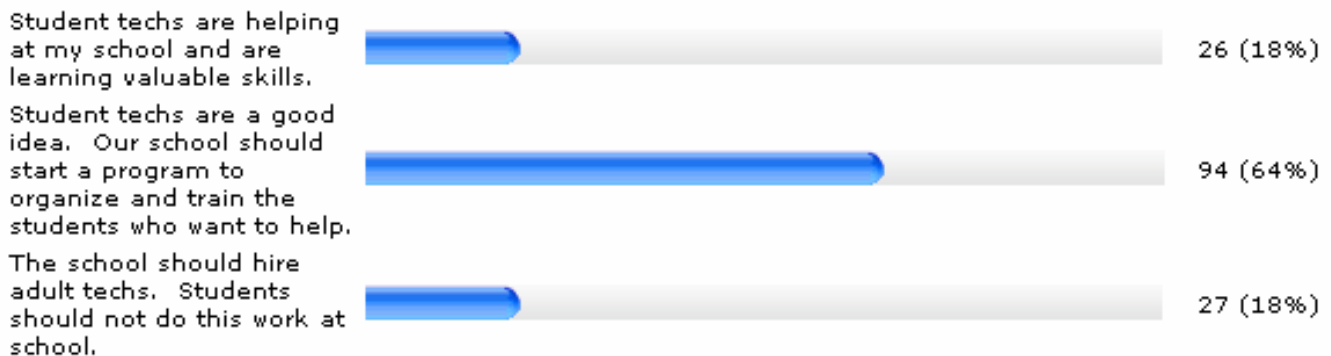
### Question 13



### 14. Which statement best describes your feelings about students providing technology support services at your school?

Almost two thirds or the student respondents felt this was a good idea and the school should train students with an interest in technology. An additional eighteen percent were in schools where student technologists were being used and learning valuable skills. Only a minority of 18 percent did not embrace the concept. While there may be limitations on the skills which students can be taught at various ages, this may prove to be a partial solution to the lack of adequate technical support cited by the respondents to the teacher survey as a major problem.

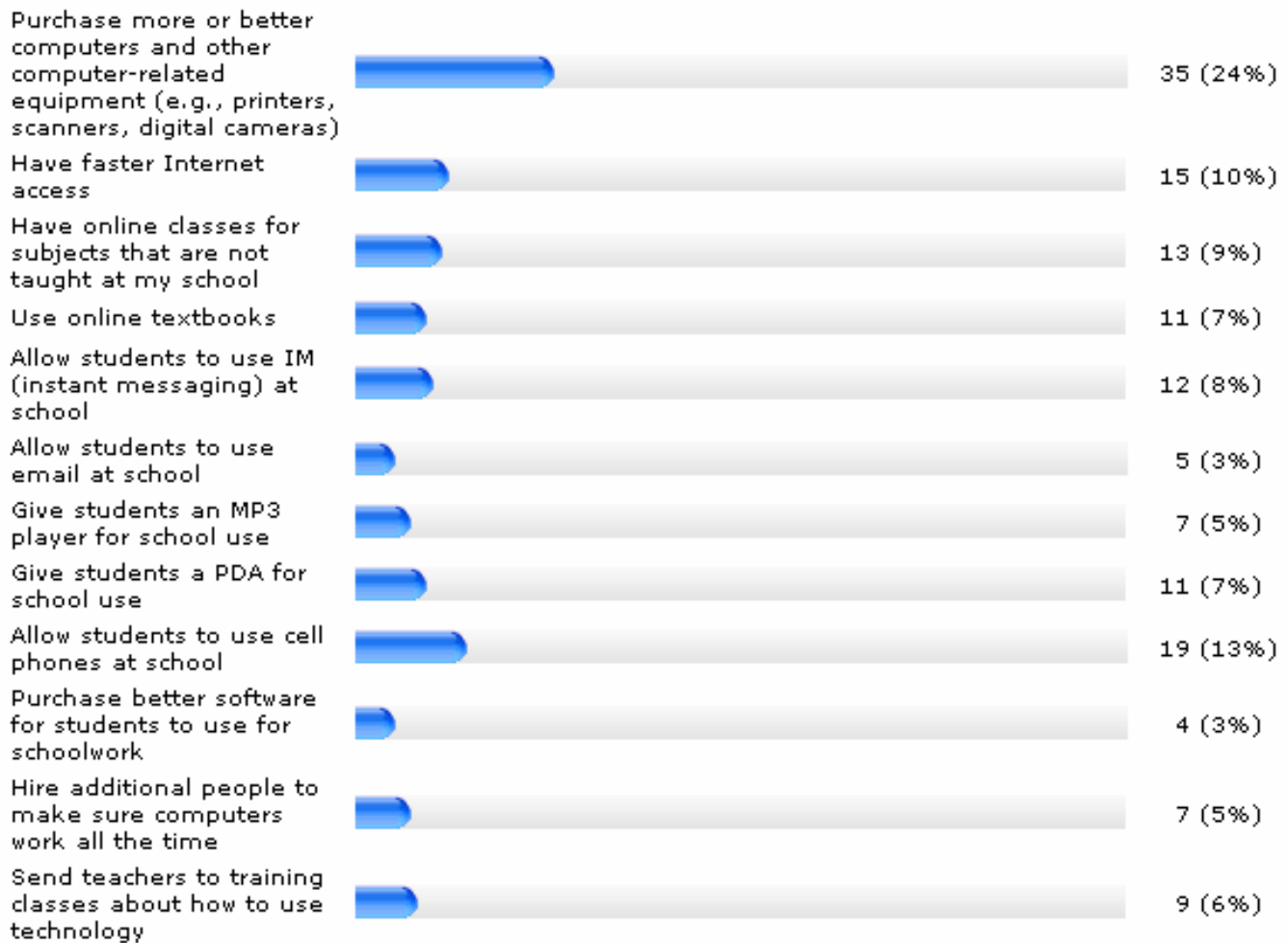
### Question 14



### 15. If you could change one thing about how technology is used at your school today, what would that one thing be?

There is no dominant answer to this query. The most frequent response, cited by only 24 percent of the students, was for more and/or better computers and peripherals. The response given regarding faster internet connections given by only 10 percent of the students is not wholly consistent with the response in question 12. The vast majority of students do not feel their teachers lack appropriate training, but they are probably not in the best position to judge.

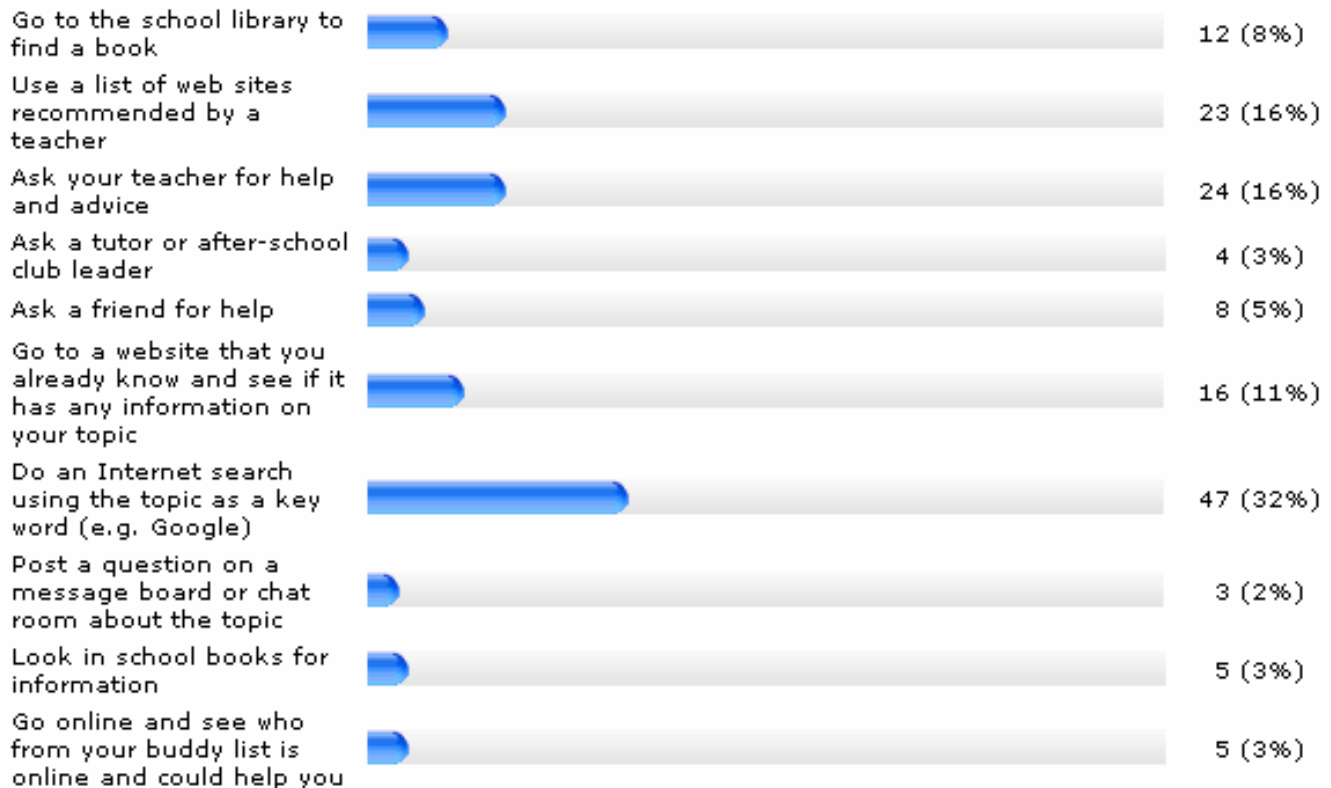
### Question 15



### 16. If you had to write a report or essay today about a topic that you knew little or nothing about, what would you do first?

The student responses indicate the most popular choices involve use of the internet. Although no one alternative has a response rate above one third, those involving use of the internet, over half would turn first to some form of internet inquiry. The answers do show that the more traditional forms of research such as use of the library have been replaced with technology.

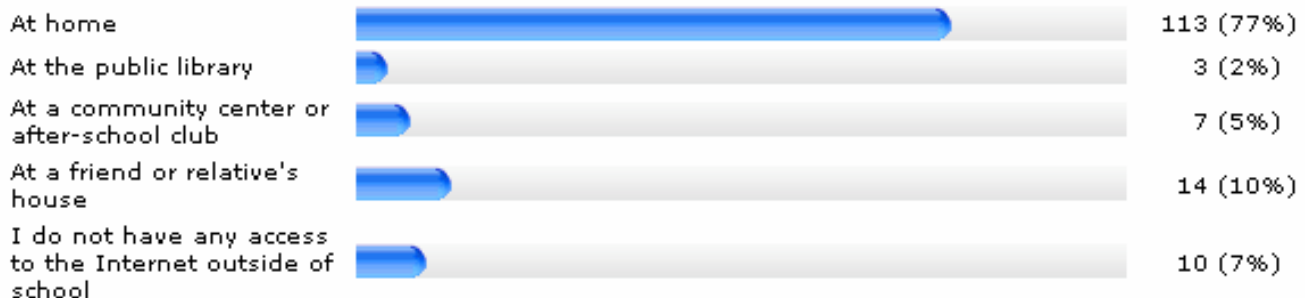
### Question 16



### 17. Outside of the school day, where do you usually access the Internet?

Over three fourths of the responding students indicated their access was at home. For the remaining respondents a variety of sources were used but 10 percent indicated no access at all. This result further asks the question about students without home access being left behind.

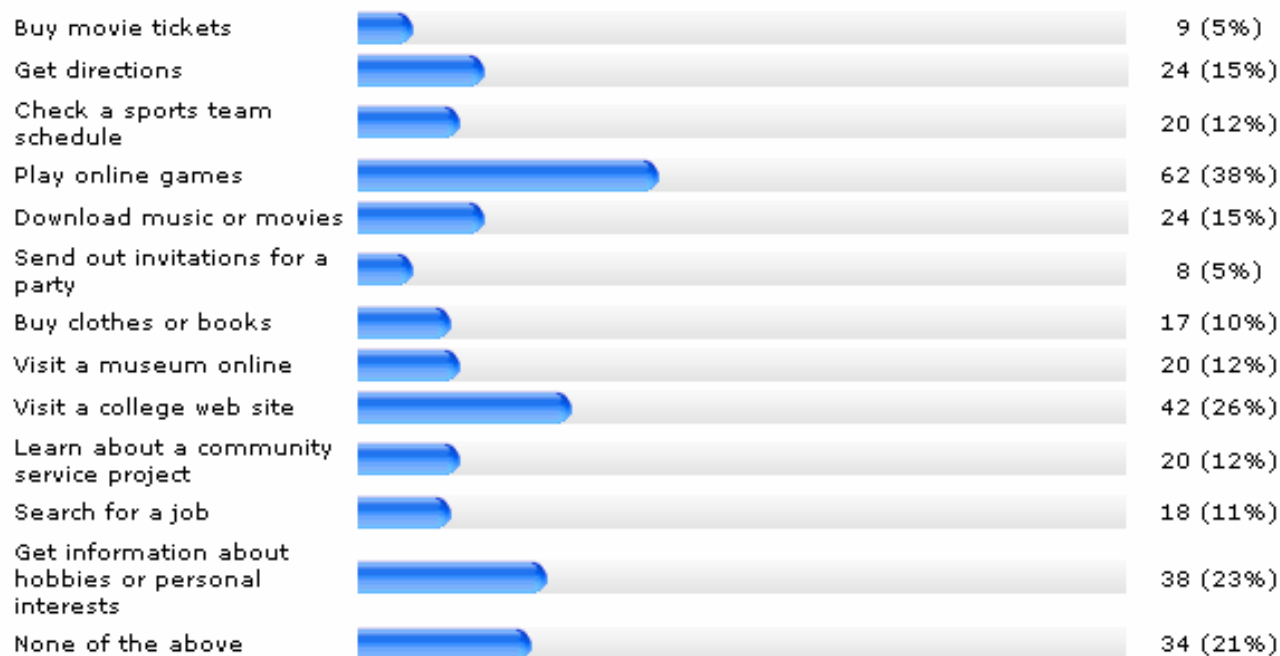
### Question 17



### 18. What do you like best about using technology to complete school assignments?

Students expressed many different “likes” about technology use although no single answer predominated. All involved increased efficiency in completing assignments. The answers provide evidence that using technology enhances learning.

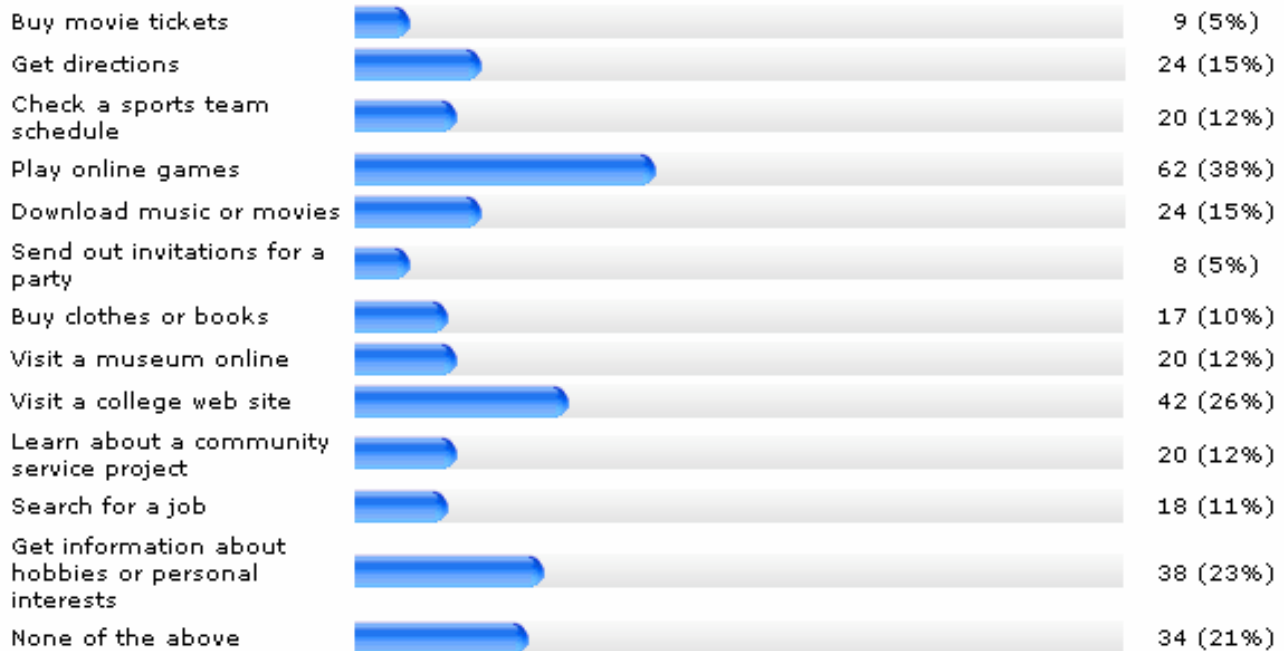
#### Question 19



### 19. Which of these activities do (sic) you expect to do online this year during normal school hours?

Most of the options given the students do not relate to normal instructional activities but to personal interests. The possible exceptions are visiting a museum, learning about community service projects and visiting college web sites. Again no single activity dominates the student answers although “playing on-line games” with 38 percent had the greatest response. From these answers it does appear that during school hours students will be making use of technology for personal pursuits which may not be bad unless it is a distraction from using technology for school work.

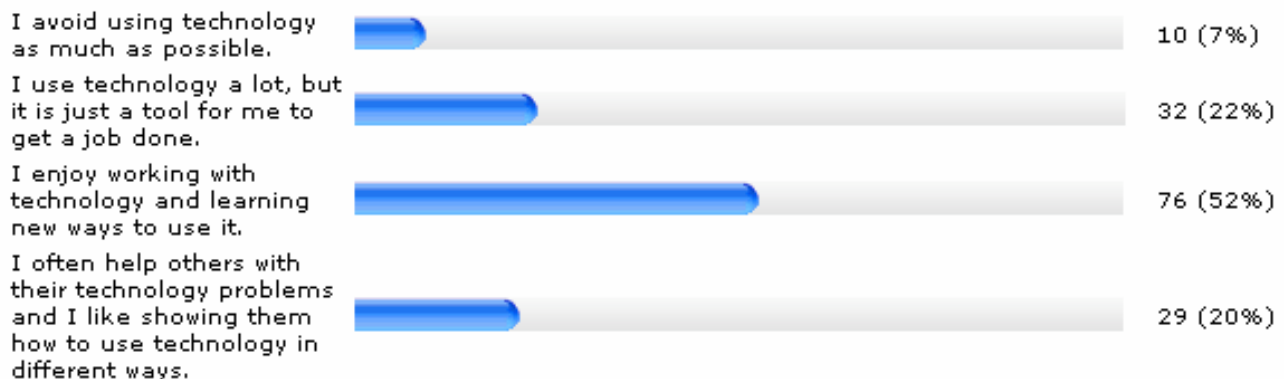
### Question 19



### 20. Which of these statements best describes your feeling about using technology?

With 52 percent of the respondents indicating they enjoyed working with technology and another 20 percent indicating satisfaction with assisting other students with technology issues, it is clear that these respondents feel positive and comfortable using technology. A mere seven percent indicated they avoid using technology. Assuming these results are typical, schools and their instructors are creating a favorable environment and attitude toward using technology.

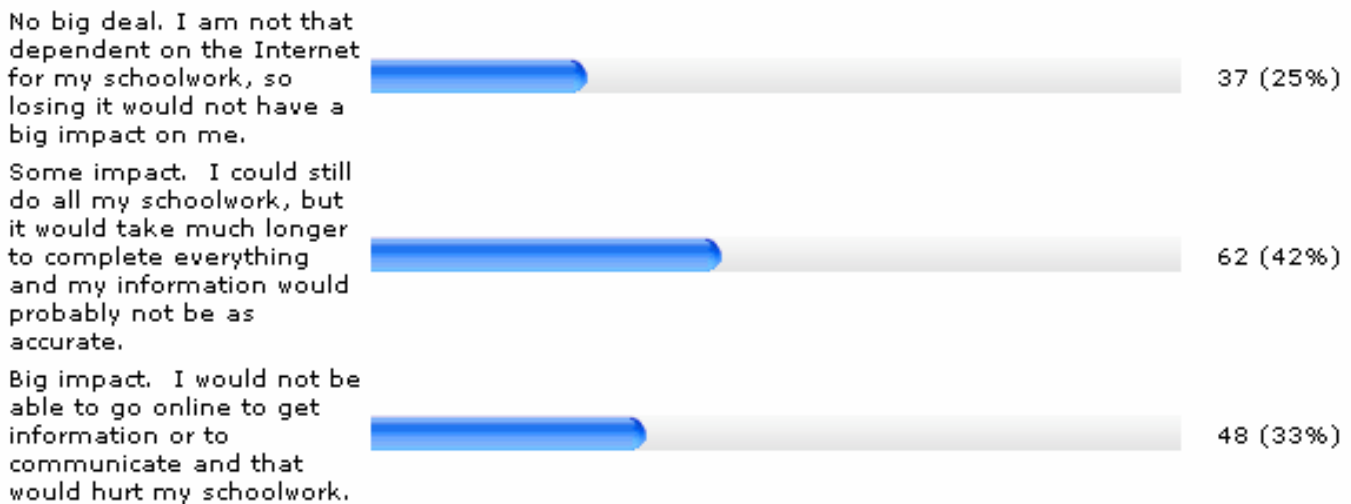
### Question 20



## 21. Imagine that you no longer had access to the Internet anywhere, what would be the impact on your schoolwork?

Over two thirds of the respondents indicated that it either would have no effect at all or would only force them to take more time to complete their work. About one third indicated that it would have a significant deterrent effect. This result can be interpreted as an indication that the use of technology has not become so fully integrated into the classroom that its use is essential.

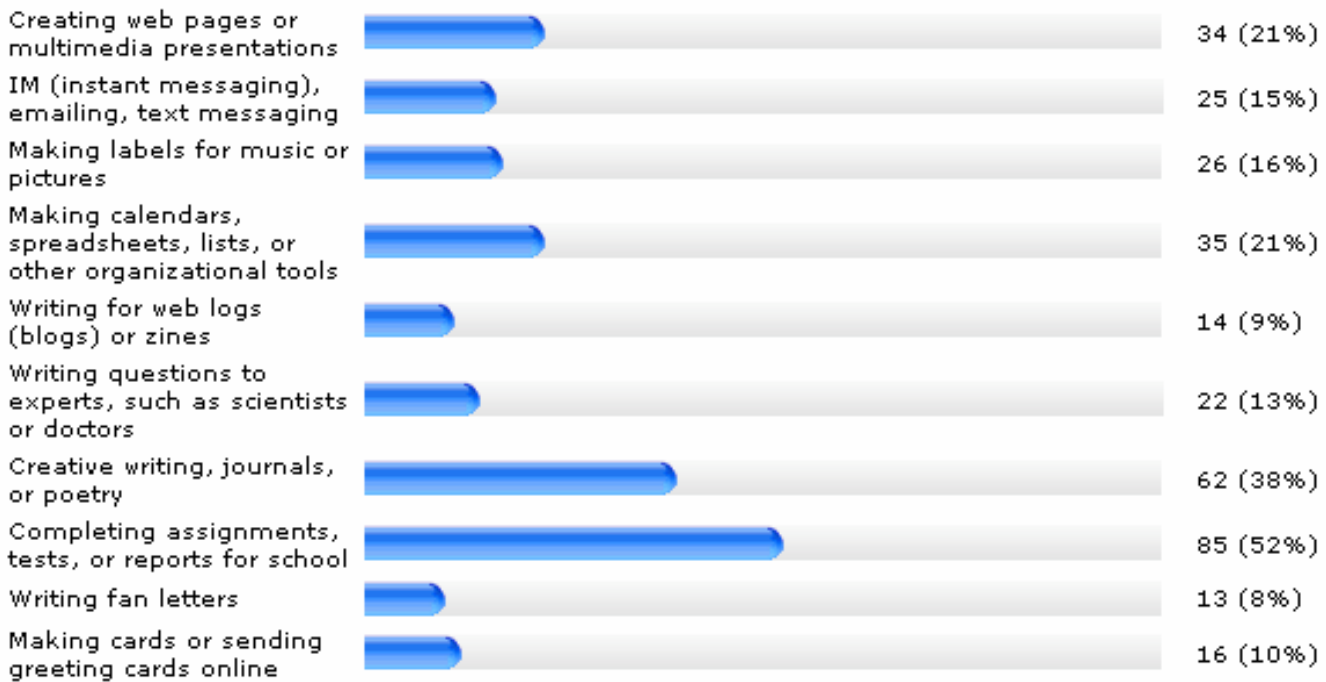
### Question 21



## 22. What types of writing do you use technology for during normal school hours?

The most frequent type of writing using technology in the classroom is to complete assignments with slightly more than half the students giving this response. The other uses with significant responses included creative writing, creating web pages and organizational tools. Technology appears to have a wide variety of classroom uses which is consistent with the familiarity students indicated they had with word processing.

### Question 22



### 23. When you are using technology, what percentage of the time are you writing something?

Sixty percent of the respondents indicated that writing consisted of between 25 to 75 percent of the time they used technology. Twenty two percent used it less than 25 percent and 18 percent used it more than 75 percent.

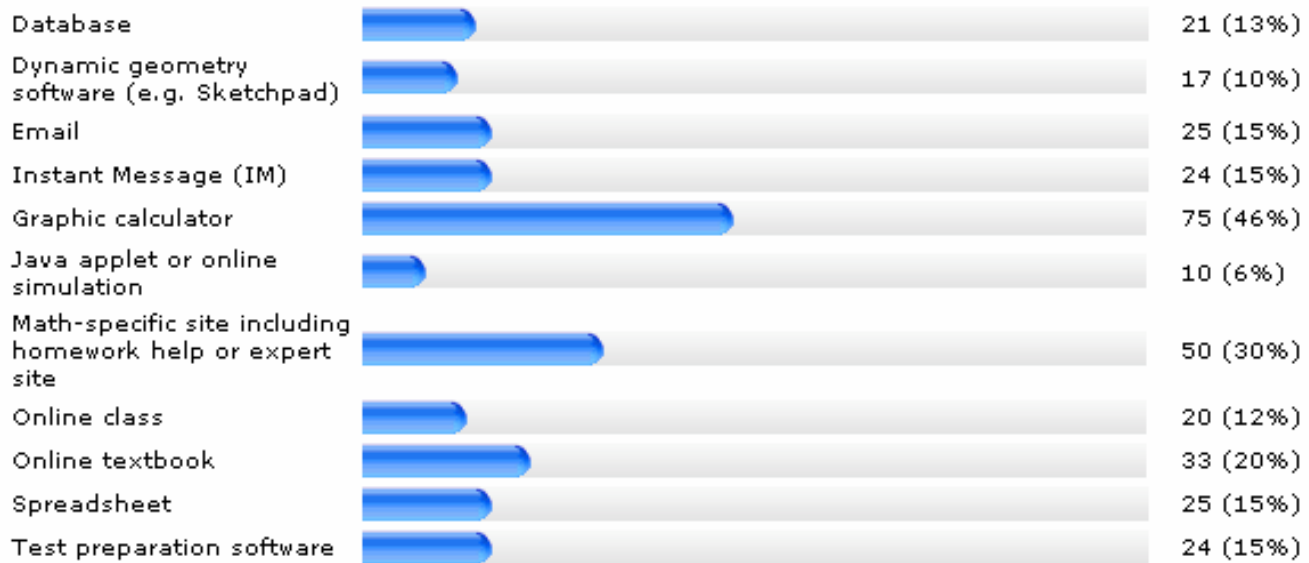
### Question 23



### 24. When you are doing math assignments or homework, which of these technologies are you most likely to use?

Almost half of the respondents indicated use of graphic calculators. No other use received was significant with the possible exception of math specific sites. There was little use of data bases or spreadsheets which is consistent with the earlier finding regarding instruction in these technologies. While this may reflect the age groups of most respondents, it does reveal a need for expanded instruction and integration in these programs.

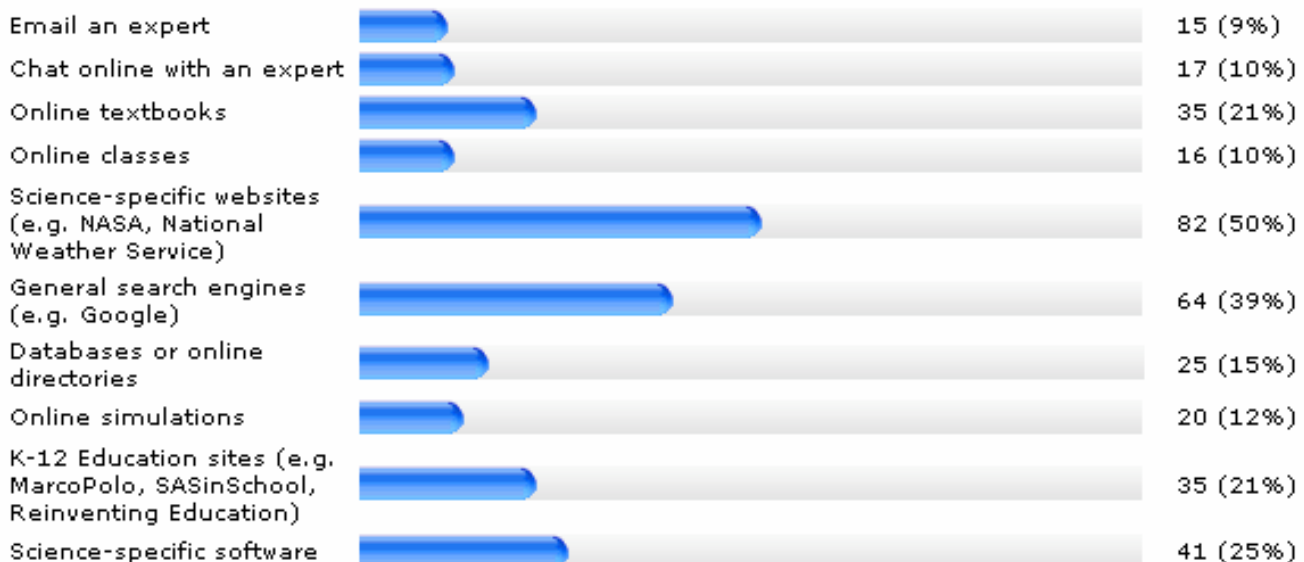
#### Question 24



#### 25. How do you use technology to help you learn about science?

The use of science-specific websites was the most frequent response with half the students indicating these were used. “General search engines” was reported by almost 40 percent. The other alternatives did not garner more than 25 percent usage. The fact that only 21 percent used “K-12 Education sites” indicates an area where more emphasis in both teacher training and student instruction should be placed.

#### Question 25



**26. How important do you think having access to technology is to your education and your future job and career opportunities?**

It is gratifying that over 90 percent of the responding students realized how important technology will be in their futures. Combined with the enthusiasm and acceptance shown for using technology (see question 20), it is safe to conclude these students have the potential for success in the new economy which is characterized by use and application of technology.

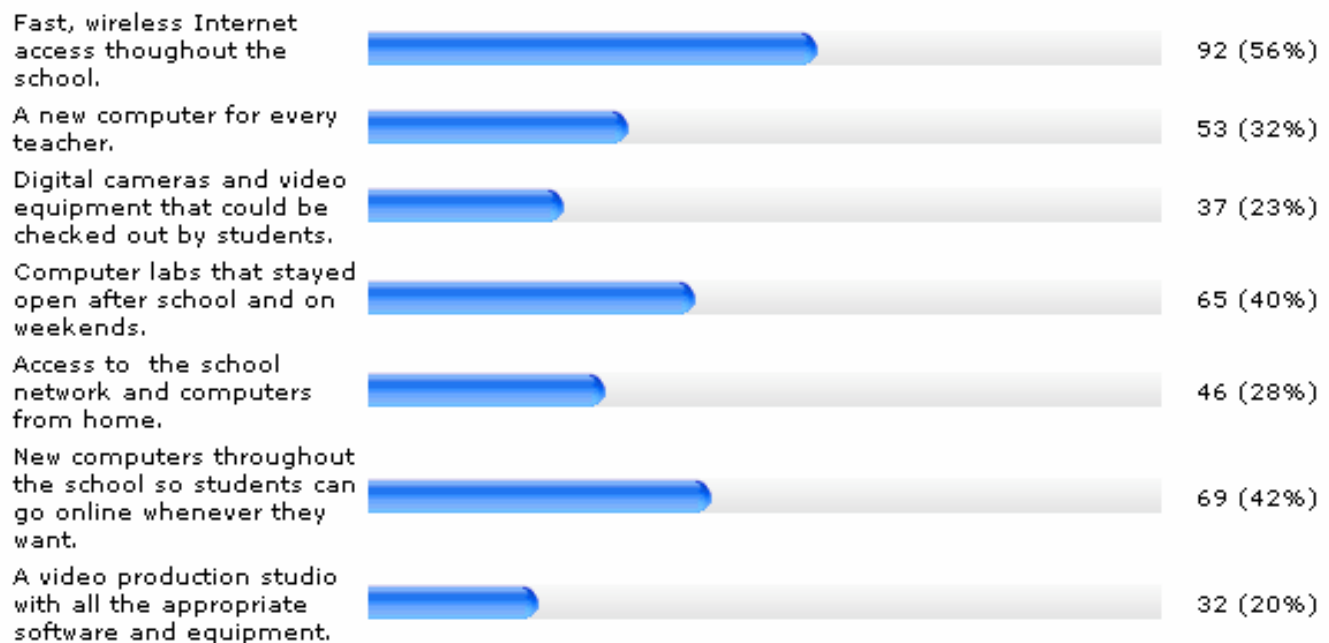
**Question 26**



**27. If you were designing a new school for students just like yourself, which of these would be most important?**

New computers either for themselves or for the teachers was given by 74 percent of the students. This reflects the continuous theme of both the student and teacher surveys, that new and faster computers are needed. With 56 percent of the students indicating they would have fast wireless internet access and the lack of access to computer labs in after school hours cited by 40 percent of the respondents were significant concerns which further demonstrated the need for improved and more convenient access. Video cameras and video production studios also received some limited mention as being included in the design for a new school.

**Question 27**



**28. What is the one thing you would like to tell the governor about you (sic) use technology for learning?**

Appendix E provides all of the responses from the students in the form they were received. There are two major themes which can be summarized from these responses: First, students enjoy using technology and find it valuable particularly in doing research and completing assignments. They appreciate the flexibility it provides in allowing them to complete assignments on their own time and outside of class. Many find technology more stimulating than traditional lectures. Using technology as a means of communication between students was also a source of value to them. Being able to access sites of interest and using software such as power point were also viewed as important uses. Second, most students continued to complain about antiquated and inadequate numbers of computers. Lack of access in school and especially by those who had no home access was also a source of frequent comment. Students wanted access to more sites and better, speedier internet connections.

**29. Today you and your fellow students are important users of technology. In the future, you will be the inventors of new technologies. What would you like to see invented that you think will help kids learn (sic) in the future?**

All the responses are provided in Appendix F. Many of the answers were general focusing on the need to invent more and better software as well as faster and more responsive networks. Some students cited a need to invent less expensive computers so everyone could afford them. A frequent comment was the need for laptops and/or for miniature computers like PDAs which could "go anywhere". There was a desire to invent replacements for computer screens with goggles or other devices which could be worn. Many wanted textbooks to be replaced with either books on disk or on-line text books particularly to reduce the cost and inconvenience of conventional text books. Others wanted instructional aids which would be easier for students to use for self instruction. These were to be designed at the appropriate grade level. As could be expected, a few students wanted inventions which would think or do their homework for them.