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Student use of computers in the media center: does it support educational goals?

Janet B. Hill
Rowan University

Student Use of Computers in the Media Center:

Does it Support Educational Goals?

By
Janet B. Hill

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                                                                    Professor

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ABSTRACT

Janet B. Hill. Student Use of Computers in the Media Center: Does It Support Educational Goals? 1998. (Under the direction of Dr. Holly G. Willett, Program of School and Public Librarianship).

This study explored the ways students from study halls used computers in a media center at 22 student workstations. A shift toward use of computers and electronic resources for recreation and for research had been observed. A study was initiated to determine what students accomplish during these periods and if their use benefited learning.

The first research method employed was a direct observation of 1264 students visiting the media center during 64 different periods over a three-week time period. Students were observed and the kinds of applications used were counted. In a second method, ninety-seven students from across the school's population completed a questionnaire. Questions focused on student choice of computer applications and the satisfaction of their experience.

Of the 694 students observed using computers, 67% browsed the web and 10% were using the web for research. Sixty-four percent of the 97 students reported that their computer use satisfied some research need, supported some learning in a subject, enhanced learning in some way, and were interested in learning more using a computer. These numbers are indicative of the lure and appeal computers hold for youth. This study reinforces the need for innovative measures to maximize learning as an educational goal of computer use.

MINI-ABSTRACT

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A concern over student free time use of computers prompted this study that examined this use as to its benefit to student learning. The work confirmed the appeal computers, particularly the Internet, have to teens and that the media specialist must take proactive measures to maximize electronic resources for learning.

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Dedication

This work is dedicated in loving memory of my mother, Louise Melcher Buell, who started her work in libraries at the Carnegie Library in Swissvale, Pennsylvania in 1929. The influence she had in the life of this author and that of her pupils while a librarian in the Philadelphia Public Schools from 1957 to 1963 and at the Friends Central School in Philadelphia, Pennsylvania from 1963 to 1971 made an inestimable contribution to their life-long learning

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Introduction and background

Growth in the use of electronic resources in libraries or in this case, a school

media center, is dynamic and phenomenal: dynamic because of the constantly developed

and increasingly useful research tools and phenomenal in the proliferation of those tools.

Library automation, full-text information programs, electronic indexes, and high-speed

Internet connectivity combined with compatible, highly advanced hardware allow student

patrons to accomplish searches for materials or information within and without the walls

of the media center. In schools where it is available, this information technology brings

world-class learning opportunities to students from every sector of society. This study

explored how students use these resources in a media center where new library

automation, networked electronic information programs, and Internet connections are

combined with an existing print collection.

The World Wide Web (www) or the Web is what is usually meant when people

refer to the Internet. This exciting graphic resource is a network of networks. Scott

Brandt calls it "a vast information system of information systems" (1997, p.114).

Educators are encouraged and urged to implement its use in lesson plans and to integrate

it for educational purposes into the curriculum. School library media specialists (SLMS)

are often in the forefront of mastering the use of it as part of their electronic searches for

information. The SLMS finds that the media center is frequently among the first places in the school to be connected to the Internet. It then becomes a tool or resource that students depend on using regularly during the school day. A germane question is how are these students using computers and the Internet in the Media center? Some writers, within the body of literature surrounding student computer and Internet use, question the value of electronic resources and the inquiry being conducted.

The Problem

This thesis explored the use of computers by students in a high school library media center (LMC) in Wilmington, Delaware. One conclusion can be made through informal observation of students seated at workstations: teenagers are eager to use the Internet. Sometimes the purpose of their use may not seem to be educationally valuable as many choose to locate and navigate web sites that are not full of facts or are not reached to satisfy a "real" research question. A dilemma for the SLMS becomes how to keep students within the bounds of an acceptable use policy (AUP) directing that workstations be used for educational purposes or applications. School districts invest in computer technology not to entertain students but to increase student educational achievement. When students use computers recreationally or to pursue nonacademic interests, is this meeting the goals for use that the school district had in mind? This is part of a larger question that involves the premise of the "Library Bill of Rights" (1990, p. 140) and the "Statement on Intellectual Freedom" (p. 147) of the American Association of School Librarians policy that advocates intellectual freedom or freedom of inquiry for children. Yet, this may be a conflict between this premise and school district expectations for computer use that is to be educational in nature.

Included in this study was the question of student preferences of Internet web sites for recreational use and for information searches. Consequently, the topic of inquiry investigated student computer usage in the media center computer laboratory and how that usage fulfills the goals of the school district's acceptable use policy.

Purposes or Objectives

The support of the educational goal of learning is the purpose of student computer use. The research about which this thesis was written explored the students' choice of applications on the computers, the purposes of student visits to the media center, the subjects they were interested in investigating using computers, and the preferences they had for electronic resources in the media center. When computer users in the LMC were casually queried as to the purpose of their visit, a response of "to use the computers" was a common reply. The questionnaire as research tool elicited more specific responses and anonymity. A formal study was conducted to allow more exact answers. The research for this thesis aided in determining the importance student users placed on their time in the computer activities they chose or needed to accomplish. It was important to receive individual thoughts and input from those who visited occasionally or regularly about the choices made about activities undertaken in the media center. It was an opportunity to learn the specific electronic resources being used and to determine whether to continue including those information programs in the media center budget. The study helped verify that students were aware of those resources and were using them.

Finally, the basis of any library program is to serve or meet the needs of the users. A vital school LMC program promotes literacy and reading for pleasure, provides support for teaching and learning that fulfills curriculum requirements and personal

interests of patrons, and advocates and encourages life-long learning (American

Association of School Librarians, 1990). When feedback from student users of

computers was examined, some inferences were made of the adequacy of meeting student

needs and program aims through the use of computers. The purpose of the study was,

therefore, to explore and describe student computer use and explain the types of use, and

inform the reader of the results of this work (Babbie, 1998).

Theoretical or Conceptual Framework

For this study, a questionnaire was designed to ask student computer users about

the way they used computers. The theoretical framework for this emanates from the

various articles that assured the researcher that others have concerns about student

computer use in an educational setting and how it can be best managed or optimized for

the purpose of learning. Primarily, the Internet is the source of concern in the work of

others who have written about the use of electronic resources. Those who have written

reflect the thinking that users of the Internet and electronic databases can receive greater

benefit from those resources if instruction in information seeking processes and computer

literacy has been effective. Some work has been published with themes or questions

relevant to those posed here. Generally, school library media specialists or library and

information science educators have published work concerned with the effectiveness of

information searches or seeking by students using electronic resources. These authors

have varying perspectives and inform those reaching for answers about the best methods

and processes for garnering information from the Internet and CD-ROM databases. Gary

Marchionini's user-centered approaches in his work focuses on information seeking using

"personal information infrastructure"(Marchionini, 1995, p. 11). His theoretical

framework blends elements of Deweyism and Piaget's theory. Elliot Soloway and Raven Wallace question the value of the Internet for true student inquiry in their work with over 1,000 middle and high school students. Like others, they identified problems with the Internet that affect its usefulness to "Web-based inquiry" (Soloway & Wallace, 1997, p.12). The driving question is whether the Internet can be made a valuable tool for formal student inquiry through improvement in its structure and in instruction to use it. The constructivist mode applies creativity to the task of learning and understanding the Internet and how to use it (Brandt, 1997). This theory is particularly instructive in its use of background of experience in constructing mental models for learning.

Questions to be Answered

Since November 1997, when full utilization of the new facility was possible, a pattern of computer usage by students from study halls emerged. It appeared that the Internet was a resource for recreation more than a resource for research or school assignments. To learn if this was true, the direct observation of students using computers was utilized. One claim stood to be supported from this study. That is, students can benefit from open-ended use as well as directed use of the Web and other electronic information sources.

The majority of students coming from study halls who use the computers "to look at the Internet" satisfy a personal information need that is not directed by academic requirements or assignments. Further, their search experience on the Internet, while for some using rudimentary search strategies, provides a background of experience upon which to develop enhanced skills for formal research when required for academic work.

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Finally, the *information need* for which students seek is about matters of teenage interest during recreational or free-time computer use in the media center.

The media center being used for this study has new hardware and the latest in online and CD-ROM databases. Students who come to the media center from study halls are a heterogeneous group in their level of academic achievement, socio-economic level, ethnicity, and race, but some have poor attitudes toward school and learning. This is sometimes reflected in their behavior and demeanor towards authority figures. This researcher has wondered if students can learn much of value from their free-time computer use if the same students have difficulty achieving in school fall below acceptable levels in basic skills tests, or are unengaged in the learning process. Yet lower achieving student are like those who do achieve are drawn to using computers, especially the Web. How can students who are at-risk of failing or dropping out of school, or alliterate, or functionally illiterate make sense of these sources if they lack basic reading and writing skills, critical thinking skills, and computer literacy (Conte, 1998)? How does their use enhance their learning? Some writers, including Conte, wonder if technology is purchased instead of the educational assistance that at-risk students need more than technology. How much do these students need access to technology to be prepared for their futures?

The range of student users varied from the disadvantaged, who usually don't have computers at home, to those who are advantaged enough to have computers in their homes. An assumption this researcher made is that although students may have computers with Internet access at home, they also like opportunities to browse the Web at school. Students have been overheard saying that they enjoy the free access at school

because their Internet access at home is limited or is costly. From observation, it can be assumed that students take pleasure from sharing favorite sites they have seen from home with their friends or classmates at school.

For student searchers, there remains the question if their searches satisfied the student's purpose. But a greater question was if the learning need or educational goal was satisfied by the use of the computer? Was the students' time at the workstation effectively used so the computer was the learning tool it should be? Those questions were germane to the purpose of the study.

Importance of the Study

This study was significant in examining the use students made of the media center computers. One purpose was to determine if the district goals for computer use in relation to learning were being satisfied (see Appendix A). The findings of this study may cause a shift in the media center computer policy or management.

Further, the Delaware Department of Public Instruction requires students who graduate in the year 2000 to earn a credit in computer literacy. The state maintains that employable workers in the twenty-first century must have competency in computer skills. Standards for the degree of literacy have been set forth and implemented in to the curriculum. Computer literacy includes skills learned through using the media center such as electronic sources for data gathering and using automated library services through manipulating these for their best research application (see Appendix B). Study of optional and assignment-driven uses is required before the class of 2000 nears high school completion to ascertain what they have learned to use and what needs to be learned.

An important outcome may be more effective methods of instruction for student

information searches or creation of models for student computer use. The full extent and

dimension of computer usage for educational purposes are unknown. This nascent and

developing technology has yet to be fully explored. This study can assist the work of the

media center staff in ascertaining how to instruct students better.

<u>Definition of terms</u>

Computer literacy means knowledge of how to use a computer and its software or

applications. In the media center, informational databases or programs and online access

are the pertinent applications and are prime tools that augment and, recently, have

supplanted many printed materials for research. The use of these databases, programs,

and online tools requires a degree of computer literacy. However, a basic need continues

to be for students to assess their information need and how to fulfill these needs. First,

information is "an assemblage of data in comprehensible form" (Prytherch, 1987, p. 381)

or "knowledge that was unknown to the receiver prior to its receipt; meanings assigned to

data by agreed conventions used in its representation" (Longley, 1986, p. 163).

Webster's New World Dictionary defines information as "something told or facts learned;

news or knowledge" (1987, p. 311), while one wonders if "something told" is always

informing in a positive sense. *The Librarian's Thesaurus* relates that information "aids in

decision-making, reduces uncertainty and makes a change in internal pictures; that one

finds informing" (Soper, 1990, p. 2). Marchionini refers to information concepts in four

ways: "the communication act, an increase or decrease in uncertainty, objects that may

impart information, and what one knows" (1995, p.5). To further elucidate the idea of

information, there is an "information need" which "refers to that which library services or

materials are intended to satisfy" (p. 2). Other terms relating to this study are those of information retrieval, information seeking, and information searching with each having a distinct meaning. Two of the terms existed before computerized resources. Information retrieval is a computer term meaning getting information from a computerized source that already has been stored or put aside for later use or return. *Information seeking* is what we do to search for information. That seeking is actually a behavior and state of mind. Seeking or searching is a process that is purposeful in gaining knowledge (Marchionini, 1995). When seeking or searching for information on computers, a mental process must occur just as it would for information in print format. (An important point will be brought to bear later in this work concerning the full range of print and non-print materials.) Again, Marchionini calls this information seeking process of "locating and applying information a component of being literate…fundamental to learning" (1995, p.7). *Information seeking* behavior itself connotes the patterns of the activity. The information need is the problem or question to be answered with facts, knowledge, news, and so forth. The action of searching is the seeking work. Storing, saving on a computer, or looking back at information already known is the action of information retrieval.

To retrieve, seek, or search, one must use search strategies or techniques. Techniques include the *Boolean search* accomplished by typing keywords in a search box as a single word or words in combination with *Boolean operators*, "and," "or," and "not" that connect the keywords. Other search strategies are the linking of text or *hyperlinking* accomplished by pointing and clicking the mouse on specific words, that produces a jump to relevant text; *category searching* to reach a specific area of text from a broader category or topic; and the *alphabetical word search* from an alphabetical list to which

one can type in a word or browse a list of words and reach the relevant text by the pointing and clicking method.

Search engines are conventions within the world of the Internet that index web sites and perform the word searches that locate specific web sites. Examples of web search engines are Alta Vista, Yahoo, Excite, Hotbot, Webcrawler, and others. Metacrawler is an example of a search engine that searches search engines. The terms, Web "browsing" or "surfing the Net" suggest a casual, unhurried approach to finding information. Actually the aim is to discover sites of interest through sometimes random perusal or scanning of search results or hyperlinking from another website. The person who is surfing makes an adventurous attempt to find something that can be anything that person finds intriguing.

Assumptions and limitations

A major assumption underlying this investigation of student computer use in the media center was that all students attending this school have access to computers from personal, non-school availability or from undirected or directed activity prior to and during the school day in this high school. In addition, students have access from public libraries, community centers, and in the homes of friends, acquaintances, and extended family members. Students have opportunities to seek information through formal and informal learning situations in middle school and in high school. A further assumption was that most students are open and eager to use computers for varying applications with a primary interest in exploring the Internet or Web. The majority of these young people were not resistant to using computers for any tasks that computers will perform. From asking for a show of hands from students in some higher level of achievement classes, it

was found that many students who come with a class to perform information searches have computers at home. On the same informal basis of a show of hands, fewer students from classes with lower levels of achievement have computers at home. The higher the level of academic achievement, the more likely it is that there is a computer in the home.

Students use computers in various ways. When they use media center computers it is assumed that most students use the Web for enjoyment and some for research. Additionally, the school library media specialist, instructional aides, and teachers should be adept at using these resources so that they can present instruction and facilitate student searches and inquiry through ongoing formal and informal opportunities with these students throughout their high school years.

Limitations upon this research were opportunity and time. The students filling out the questionnaire were a varied group, but ones who regularly choose to use their study hall free time for media center attendance. Their attendance and their use of the facility are predictable as some have less challenging courses requiring less classwork and homework. Some of the students seemed to have little or no academic work to pursue and seemed to consider study hall as free time. Another limitation was access to the media center, as some study halls could not attend during the time of the study. During some periods of the day the media center, for valid reasons, was not open to allow them access.

Student replies were, in some cases, hastily constructed. That was especially evident in responses to questions needing a subjective reply. Finally, students were informed that filling out the survey and questionnaire was an optional activity. Some gave partial answers or no answer at all. Another reason was their desire to return to

computers or other tasks they came to accomplish during their free period. The cooperation of students was necessary and with some it was not forthcoming. In that way, it reflected their attitude toward school and those in authority in general. For others who returned partial surveys and questionnaires, a lack of experience with the Internet and seeking information from electronic resources limited their responses.

For the purpose of completing this thesis, this project was conducted in a short amount of time. In the ways that time affects work or studies of this kind, the brief duration of it did impact the development of the work.

Organization of the study

Chapter Two discusses research centered on the information search or seeking processes used with electronic resources and relevant issues. The methods used to study the questions and problem are explained in Chapter Three. Chapter Four describes and examines the data received from the research methods. Finally, Chapter Five summarizes the findings of the study and recommendations for the future.

Chapter Two

Literature Review

Much of the literature surrounding the topic of electronic resources including the Internet in Media centers involves issues. These issues demonstrate the diversity in levels of connectivity among school districts within the United States. While some articles address the issue of funding for computers indicating a basic need for computers there is the other end of the spectrum. That is, articles that discuss the need for upgrades in hardware and software. The aggregate of technology is a manifestation of a phenomenon that requires more and more availability for equity among students, workers, and citizens while requiring more and more funding to keep up with its hardware and software advancements. Much writing in library, media center, or education oriented publications focuses on those subjects. That is, how to provide access to, evaluate electronic resources, build web sites, write acceptable use policies, the rights of users, Internet censorship, filtering software, and so forth.

In relation to the study in this thesis, there have not been studies of free time in school use of computers as shown in this work. Much of the writing assumes that students have research or directed assignments to accomplish using computers. Therefore, open-ended or self-directed computer use has not been addressed in other work in the way seen in this study. The literature receiving focus here relates to how electronic resources can be used for educational benefit, information skills strategy, and

use of the Internet for student inquiry.

The Internet began as a way to electronically transfer both text files and e-mail. The most interesting and newest part of the Internet, the World Wide Web (www), has the capability to deliver multimedia, that is sound, video, and still pictures and is viewed with graphic browser programs like Microsoft Internet Explorer™ and Netscape Navigator™. When the Internet is discussed it probably refers to the www or the Web for much of the public hasn't used other parts of the Internet. The desire by the public to participate in the use of this graphic information resource has caused massive development in software and hardware requirements. For instance, the first www browser, called Mosaic, was initiated in 1993 (Galbreath, 1997, 42). In 1994, there were fewer than 200 web sites that grew to over 100,000 in 1996 (42). Galbreath predicts that 20,000,000 web sites will be available by the year 2000 and calls this growth "explosive" (p. 42). This growth in usage and applications of the Internet in daily life and business necessitates educators must teach the young to use electronic resources. Further, it seems that young people are part of the group causing a growth in the Internet. How effectively they use it depends on access, computer literacy, and information literacy.

Access to technology for education is essential for the preparation of young people to be able to perform work and cope with daily living. Media centers are favored locations within schools, as public libraries are within communities, to place this technology because of the implied ease of access and openness of the facilities. Further, many library functions and information sources are highly compatible with electronic applications and are now well developed programs.

The Web contains a vast array of informational sites that are worthwhile to document in research. Therefore, school library media specialists or librarians are most aware, informed and probably practicing the art of searching electronic resources.

Well-known experts in the field of information skills education or information literacy advocate the integration of the use of electronic resources into the media center curriculum. Michael Eisenberg recommends that the library or media center not be seen as separating print and electronic sources in the research process (1996, 5). He says, "Information searches shouldn't separate 'using the library' and then 'using the Internet'"(p. 5). Students should be taught that thorough research means using all resources print and electronic. For the researcher, any resources available should be considered a "full range of resources" (p.5). Eisenberg is notable for his work with the "Big Six Skills" to which he suggests the Internet can apply. In this way he believes the Internet can be "meaningful in helping to achieve educational goals" (p.7). That the Internet can be useful or made useful in meeting educational goals is the very crux of the problem even for free time use.

To make the Internet a meaningful learning resource requires much work by school library media specialists. The idea of the "full range of resources" requires good access to those resources through their integration (p. 6). To provide integration of resources, print and non-print materials including electronic resources should be catalogued on an online catalog with technological interface to the Internet. Pertinent web sites should be catalogued with material records that allow linking right from the online catalog. In this manner, an electronic resource can be better construed as part of the unified library. Then, with this vast range of information services, the school library

media specialist who is compelled to use the Internet in context can be more confident that use of the Internet better fits the educational goals set by the district.

Elliot Soloway and Raven Wallace did a study that examined the purpose and barriers to "authentic" student research using the Internet. The task of inquiry, as Soloway and Wallace discovered, is difficult to perform using the Internet in its current form (p. 11). Answering "authentic questions" was difficult because of the barriers to effective use. This study credits various web sites as most worthwhile but the process is too difficult with the Web in its present form. These researchers "designed and implemented inquiry-based curriculum units" for use with over 1,000 young teens in Ann Arbor, Michigan middle and high schools (p.12). They were able to identify several issues that create hurdles to student Internet searchers must overcome. This caused them to make some conclusions about students searching the Web: the "connection refused" messages and the long wait that wastes precious online and class time; the idea of "navigating" the web was a problem although students mastered the browser programs easily; the "nonlinear" mind had problems as well as the sequential thinker (p. 13); students had difficulty getting back into previously reached sites without using the bookmark feature; and problems reaching sites that took students nowhere or moving everywhere. The researchers found students took the easy way out by rewriting the questions that they posed to fit the information they did find (p.14). Further difficulties met were too many matches, irrelevant hits, zero hits, and error messages. Boolean or analytical searches were not as helpful as expected even after instruction. Soloway and Wallace reported that the most fruitful resource were the "pathfinders—or hot lists of hits that others have created by investing hours in searching and searching" (p.15). A thought

echoed in chapter five is the "answer" was not on one web page. This misconception, that the answer would be found on one web page, leads to inordinate time spent searching for that <u>one</u> page that did not exist. This they term the "one-shot query"(p.17). Their conclusion is that the Web is a worthwhile even now but does not at present "support inquiry" in the scientific or research sense; that it can provide a truly unique learning experience" and specific sites reveal information and present it in a more valuable format than a textbook (p.17). The challenge, they say, is for those who work with the Web, including Library Media Specialists, to devise and innovate strategies and systems that make the Web more useful in teaching and learning (p.17).

In looking at the educational or learning value students derive from free access and self-directed computer use, a question arises as to the effects of excessive amounts of time spent on computers by some youngsters. Students who use the media center computers before and after school as well as a period or two a day may also be using them at home for unknown amounts of time. Qualms about school time spent in this way instead of on directed schoolwork are valid. Sherry Turkle, author of <u>Life on the Screen: Identity in the Age of the Internet</u>, addresses the concern of time on the Internet or in cyberspace. She does not favor young people replacing time with peers or family with online activity. She believes in using the Internet, whether for schoolwork or communications, youth are "choosing to not spend time doing other things that could be less helpful to their overall development and learning" (1996, 42). The Internet makes people feel powerful especially when they are "chatting" or "assuming an online persona" (p. 42). This power and the ability to explore seemingly infinite web sites has allure for people that makes it difficult for those who are undisciplined to disconnect

from the Internet. However, Turkle doesn't believe that kids become addicted rather

"they respond to the holding power"(p. 43). Kids spending time on computers are doing

more favorable activities like reading and writing which is more positive than passively

watching television. Overall, this psychologist views the time young people spend in

cyberspace as not harmful unless interpersonal relationships suffer (p.43).

Chapter Three

Methodology

Introduction

Students in the media center often used three computer applications: word

processing, the Internet, and CD tower programs. One knows from watching the rush

toward the computer lab area of the media center that students visiting from study halls

and students visiting from a class enjoy using computers, especially the Internet.

However, as a means of free reading or as a research tool, there remains the question if

student searches of the Internet or research programs satisfy their purpose. This study

intended to learn whether students browse or research the Internet, the purpose of their

searches, and how satisfactory their search results were for a topic. The subjects students

prefer to search for recreational browsing or open-ended searching is primary in purpose

as well as subjects searched for directed research.

Description of the Methodology

A descriptive method was used to learn about student computer use. An

unobtrusive direct observation was conducted one time per period during 64 observation

periods throughout the month of March 1998. This determined the actual numbers of

students using computers in differing ways. This method allowed the researcher to

witness each student's activity at the workstations. The technique of counting student

activity ensured that the study would reflect a visually verified baseline of student use.

This was important as a method to view exactly what students were doing. The activities

that were observed were studying, doing homework, and reading by students not using computers. The categories of student computer use that were counted were surfing the Web, research using the Web and using online programs, and word processing.

At another time in early April 1998, student use was investigated through a questionnaire of those attending the media center from study halls, or sent for free time from a class. These students completed questionnaires regardless of the purpose of their visit. They were only asked to fill out the questionnaire one time although some returned on occasion during the study. The questionnaire asked basic questions about the student without revealing identity. Students wrote the purpose of their visit and whether they came from a study hall, a class or were visiting for a brief time. The questions pertaining to computer use asked specifically about the applications that were chosen for that period and whether the purpose was satisfied or success achieved in the students' opinion. A question about which web site was used sought a specific answer of an address or name of a site.

A questionnaire was applied to this situation to allow students the opportunity to tell how they use time in the media center and hopefully to learn about their computer use. In light of student use of computers, only students know what they have done or have accomplished. This tool allowed students to impart that which is true about their use of computers.

Design of the Study

The design of this study was intended to allow insight by visual observation as well as student responses to queries about their computer use. These approaches were appropriate for measuring the activities students perform during their visits to the media

center. The first part of the research project involved direct observation of student computer users seated at workstations. The researcher chose one five-minute interval during each of sixty-four periods to physically circulate among the 18 workstations in the computer lab area. The brief interval was timed to be at approximately 20 minutes into the class period to allow students to settle into their activity. The screens on the monitors were viewed to determine the activity the student was performing. Then, students using the Internet were verbally asked if they were using the web for a school assignment or browsing for their own interest. Students many times responded that they were "just surfing" or "looking around". These responses were marked as browsing the Internet. Other students indicated they were searching for information on a certain topic. Some students in this category had already sought assistance in seeking information upon their arrival in the media center.   Students were assured that no limitation or judgement was being imposed upon their immediate use because of this observation other than the limitations imposed by the AUP (see Appendix A).

The students present during the research were largely from study halls and were present the entire period. Some student library aides chose to participate for they often use computers when they are not assigned a task. This questionnaire was given to examine how all students intended to use their time in the media center. All students were asked if they use a computer at home. If the student came to use a computer, the student was asked which applications would be used. If research was the intent, the student was asked if complete information was found and the program that was most effective or gave complete information. Users of the Internet were asked to fill in the name of a site or web address that is preferred as well as subjects of interest on the

Internet. Then, four statements reflecting the district's goals for computer use were listed and a request for a yes or no response (see Appendix D). The final question elicited a subjective reply about what the student thought was learned from the computer session.

Babbie points out that unobtrusive measures can include looking for or observing clues to behavior which humans leave behind (308). One convincing measure is the clues left behind on computers students use in the media center that can be found on the Microsoft Internet Explorer™ program. This Internet browser program that students must use contains a "History" feature. This feature tracks and lists the web sites that have been reached each day. The History would allow a researcher to count the number of times different web sites have been used by student users. However, the design of the study did not include this method of research. In a future study, this method should be employed to learn which web sites are most popular with student browsers.

Some factors affected the students involved in the study. At most times during this period of research all eighteen workstations were working properly. Students wanting to use computers could do so from good, efficiently working workstations with many excellent electronic resources. Students were unaccustomed and unfamiliar with these recently installed electronic programs. This would have impact on their use or choice of programs to favor.

Another factor was that students counted in the observation had the option of coming to the media center for that period. Students who were present wanted to be in the media center for that period of the study.

Sample and Population

The population of this study was drawn from the students who visit the media center as personal election from study halls or from free time from a class. Students from study halls that were part of the unobtrusive observation were in a self-selected group who opted to spend the period in the media center. Again, students taking the questionnaire were those who chose to visit for the period. Students scheduling a full course-load of challenging classes, like honors courses, usually do not have a free period for study halls. So, it can be assumed that many students who came from study halls to the media center and who participated in this study were not from the highest academic echelon. Most high achievers visit for specific directed research from a class or before or after school.

Instrumentation

Two self-made research instruments were used for this study for the purpose of describing types of student computer activities. For the direct observation, a simple set of boxes for marking slashes for each student's observable activity was prepared including categories of activity (see Appendix D). The data gathered from this tool gives numbers of random student users and averages of students doing certain computer tasks.

The questionnaire consists of personally relevant questions or closed-ended questions asking how computer tasks are performed, and those requiring personal opinion or open-ended questions (see Appendix D). In all, there are fourteen questions of which four were open-ended.

This second research tool, the questionnaire, was administered to all students in the media center during periods in which no special directed class research was

conducted. Respondents were seated at the study tables giving them writing space and comfortable chairs. Questionnaires and pencils were distributed. Ample time was allotted for responses to the questionnaire before the students returned to their prior activity.

Data Collection and Analysis

To record data from the direct observation of students in the media center, an Excel™ worksheet was created to allow easy counting and averaging of some figures. Some raw data was put in tabular format by hand. The data denoted the 694 people observed and results in a simple table showing the types of applications with which they worked. The report from this observation was suitable for a count of those computer activities, the number of people present in the media center, and those not using computers.

The questionnaire was more detailed in drawing data from responses. The subjective answers were read and rated as to the most frequent and similar types of responses. Similar answers were grouped in categories in each of the four subjective questions (see Appendix E). Each statement type was coded and input onto a spreadsheet for counting. Objective responses were input onto an Excel™ spreadsheet for counting and sorting.

The purposes of student visits to the media center were counted and categorized (see Appendix E). Data comparing student ages and gender from four grade levels were gauged to determine who comprised the group. Some evidence of the most highly used programs and the programs chosen for research can be ascertained. Some responses aimed at learning about favorite or preferred personal interest topics and web sites were

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measured through responses coded on a spreadsheet. The results are examined in the findings of the study.

In closing, this thesis project explored an area that many specialists are just entering. That area is the real, practical application of electronic resources and the usage students make of them for research and recreation in free time in school. Many specialists still are focusing on how to obtain hardware, software, and support. It is hoped that the present situation at this school regarding the proliferation of educationally beneficial technology is meeting the district's goals for use of the technology.

Chapter Four

Findings and Results

<u>The Setting</u>

The high school where this study was conducted had a racially diverse population of 1250 ninth through twelfth graders taking courses from a comprehensive curriculum of educational studies. The school facility recently underwent a thorough renovation of the physical plant including the addition of wiring to provide the capability for the latest in instructional technology including T1 lines and coaxial cable throughout the building. Over two hundred new, fully equipped computers were purchased and installed for computer access for each of seventy-three classrooms, three computer labs, the Media Center, Technology Education labs, and the Art lab. The 15.2 million-dollar project funded through local referendum and matching state funds was conceived and promoted as providing for twenty-first century education and for the educational future of pupils who will someday compete in a global economy.

The dream of networked computers using CD-ROM software and that link efficiently and speedily to the Internet had become a reality at this school. However, much work needed to be done to effectively implement these educational tools through professional development for teachers and staff to use computers to facilitate student instruction. Students required teacher guidance and training to apply this technology to their educational benefit.

The media center was planned to contain twenty-two student accessible, networked workstations. The addition of this system required a change in responsibility for the school library media specialist. Managing and directing pupils during scheduled class periods for formal research meant more involvement with computers. A greater range of resources was welcomed but could become burdensome for one to supervise.

Individual students were permitted and encouraged to come from study halls to read, research, and study. Study hall students freely used the computers for recreational purposes, for research, and for spreadsheet or word processing applications. There was generally open access to the workstations as long as a class was not scheduled to use them for a specific project.

The Direct Observation

March was an appropriate month to carry on this study as there was a pause between research projects at the end of a marking period when assignments were due for completion. The numbers of students from study halls remained fairly constant. During this time there were fewer urgent requests for research assistance from students dropping in from classes or from classes scheduled to research for term projects. Study hall students were the majority of the visitors during this study. Study halls are assigned to students when a scheduled course is unobtainable or no other courses are available. Students sometimes opt to schedule a study hall to allow themselves free time during the school day. Many teenagers need this time to do schoolwork as they carry a normal course load and have paying jobs after school or in the evenings.

This study aimed at examining the computer activities of students who visit on a regular basis and prefer the atmosphere and space of the media center for quiet work and

the computers. During the direct observation, a total of 1264 students visited over the sixty-four periods of the day over a three-week period or about fifteen days. This number represents not the total school population of 1250 individuals but the students who happened to come to the media center during the periods the study was conducted. Some of the students were repeat visitors, as they were regulars from study halls.

The School's Schedule

The rotating schedule followed by the school allows four half-hour lunch periods thus solving a logistical problem of feeding 1250 students in a cramped cafeteria. Students may take seven courses but are scheduled to attend six periods a day. The periods range from fifty minutes to forty-three minutes with the period over lunch devoting ninety minutes to class time. Each period meets at a different time of the day on a seven-day rotating schedule starting at eight a.m. and ending at 2:15 p.m. Therefore, each period of the sixty-four periods met at differing times of the day.

Data from the Direct Observation

Out of the students who attended during the direct observation study, 694 or 55% used computers in various ways for all or part of the period (see Table 1). For all periods the mean number of students occupied with computers was 10.84. The 45% of the students who were not using computers preferred to use their time for study, homework, schoolwork, and for reading magazines, newspapers, and books. That meant that 570 students or a mean of 8.91 students per period were in reading table areas apart from the computer lab pursuing their purpose for visiting the media center. The mean number of students attending from study hall or free periods from class for each of the sixty-four periods was 19.75.

Table 1

Students Attending the Media Center from Study Hall and Classrooms
During 64 Periods of Observation (N = 1264).

Students	n	%	Mean per period
Using Computers	694	55	10.84
Not Using Computers	570	45	8.91
Totals	1264	100	19.75

Of the 694 students who chose to use computers during a period of the study, 464

or 66.85 % were browsing or surfing the web, a mean of 7.25 per period (see Table 2).

Seventy-two were doing research using the web or 10% of the computer using

group at a mean of 1.125 per period. Web researchers might have been using a web

search engine to locate a web site or linking to an online subscription information

program (see Appendix C). Nineteen students or 3% of computer users chose the CD

tower with its selection of five networked CD-ROM discs at a mean of .3 users per

Table 2

Programs and Applications Chosen by

Students Using Computers (N = 694).

Applications	n	%	Mean per period
Browsing Web	464	67	7.25
Web research	72	10	1.125
CD Tower	19	3	.30
Word Processing	139	20	2.17
Totals	694	100	10.84

period. Finally, word processing was the choice application of 139 students at 20% or a

mean of 2.17 performing word processing per period.

March, the time of the study, was a month when most seniors and juniors had completed their major required research papers. Some students needed access to the media center computers to complete the word processing of late papers or revise unacceptable papers. This was a new dimension of service for the media center this year. Tables 1 and 2 demonstrate the observable activities of the 1264 students present during the study for full or partial periods in the media center. In Chapter Five, the implications with regard to the data will be discussed.

The Questionnaire

The questionnaire data reflected the answers of 97 respondents. Of the ninth graders who finished the questionnaire, eight were 14 years old, ten were 15 years old, and seven were 16 years old (see Table 3). Of the 25 ninth graders, 17 were boys and 8

Table 3

Questionnaire Respondents by Grade Level and Age/Gender Comparison (N = 97).

Age	9th grade M	F	10th grade M	F	11th grade M	F	12th grade M	F
14	6	2	--	--	--	--	--	--
15	6	4	2	5	--	--	--	--
16	5	2	4	5	3	5	--	--
17	--	--	1	2	5	7	5	8
18	--	--	--	--	--	1	9	10
Total M/F	17	8	7	12	8	13	14	18
Totals by class	25		19		21		32	

Note. All respondents answered this question.

were girls. The sophomore group had seven 15 year olds, nine 16 year olds, and three were 17 years old with 7 boys and 10 girls responding. The juniors were eight 16 year olds, twelve 17 year olds, and one 18 year old. Of the juniors, 8 were boys and 13 were girls. Eighteen senior girls and 14 boys responded with 12 students being 17 and 19 being 18 years of age.

A question asking whether students were able to use a computer at home was phrased in a way as to be sensitive to those at socio-economic disadvantage. Of those ninth graders who participated, 50% said they could use a computer at home and 50% reported that they could not use a computer at home (see Table 4). Of the 19 sophomores responding, 63% said they could use computers at home and 37% could not. Sixty-six percent of the 21 juniors reported they had access to computers at home while 33% denied having access at home. Over 87% of the 32 seniors claimed they used a home computer with over12% reporting they could not use a computer at home. Overall, of the 97 respondents, 68% said they did have use of a computer in the home.

Table 4

Respondents Who Use Computers at Home (N = 96).

Grade	Answers per grade	Yes		No	
		n	%	n	%
9	24	12	50	12	50
10	19	12	63	7	37
11	21	14	66	7	33
12	32	28	87.5	4	12.5
Totals	96	66	68	30	31

Note. Although 97 questionnaires were coded, one ninth grader did not answer this question.

It was important to determine the use students made of the media center during their free time. Students completing the questionnaire were asked to write in a blank the purpose of their visit. The data for that question were tabulated as overall numbers for the group of respondents (see Table 5) and by the grade level of the respondents (see Table 6). "Purpose" meant what the student intended to do or accomplish during the period. The coding of subjective answers established clear categories of purposes. "Reading activity" included books, magazines, and newspapers. A purpose category that 26 students mentioned, as shown in Table 5, was "schoolwork" meaning homework, study, and class work. Computer use included those 14 students who answered nonspecifically "to use a computer," and word processing. This nonspecific answer may also mean "to use a computer" to look at the Internet although a separate category specified use of the Internet. Forty-five students were grouped in the Internet category with answers that ranged from to "look on the Internet," "browse or surf the web," or "research on the web." Finally, three students admitted to wanting a place to relax, "chill," or "be cool" during a hot day in school.

Table 5

Purpose of All Students Visiting the

Media Center (N = 91).

Activity or purpose	Students	
	n	%
Study	26	28.6
Reading	7	7.7
Internet	41	45
Nonspecific Computer apps.	14	15.4
To relax	3	3.3
Totals	91	100

Table 6

Purpose of Students Visiting the Media Center by Grade Level (N = 91).

Purpose	9th Grade		10th Grade		11th Grade		12th Graade	
	n	%[a]	n	%	n	%	n	%
Study	3	3.3	2	2.2	4	4.4	17	18.7
Reading	3	3.3	--	--	3	3.3	1	1.1
Internet	13	14.3	12	13.2	8	8.8	8	8.8
Nonspecific Computer apps.	3	3.3	4	4.4	3	3.3	4	4.4
To relax	1	1.1	--	--	1	1.1	1	1.1
Totals	23	25.3	18	19.8	19	20.9	31	34.1

Note. Out of 97 questionnaires, four respondents did not state a purpose and two library aides were not included, as their purpose was to help in the media center. Therefore, 91 = total respondents. [a] % throughout the table means percentage of the n, which is 91.

Twenty-three freshmen used their time in the following ways as seen in Table 6:

three students came to do schoolwork; three students came to read print materials;

Internet use was the intention of 13; three were there to use a computer; and one came to

relax. Eighteen sophomores were engaged in the following uses: two in schoolwork; 12

using the Internet; and four in nonspecific computer use. Of the 19 juniors who answered

four came with a purpose to do schoolwork; three to read; eight to use the Internet; three

to use a computer; and one to relax. Thirty-one respondents who were seniors, the largest

group, answered that 17 came to study or do schoolwork, one came to read, eight came to

use the Internet, four came to word process, and 1 came to relax.

To learn the purpose of student computer use, nine applications were listed in

question 7 of the questionnaire as possible ways students may have used computers in the

media center. Students were asked to check all applications they intended to use as can

be seen in Table 7). The nine categories reflect the types of software and Internet service

options available through the menu on the media center web page (see Appendix C). Of

the 97 students responding to the questionnaire, eight students did not indicate any

proposed use of the computer. Of the 89 students who answered in question seven that

they planned to use computers, 23 asserted in a previous question that their purpose was

to study, to do schoolwork, or to do homework. Others who maintained another reason

for attending, other than primarily to operate a computer, were three who came to read

the newspaper, two who came to read a book, three who came to relax or waste time, and

four who did not state a purpose. All of the latter individuals checked that they used the

computer in some fashion in question 7. Each of the 39 students who came to research or

use the web and the 13 who came to do word processing or for nonspecific computer use

acknowledged ways they used a computer. Of the 89 computer users, 74 surfed the

Internet for their own interest or enjoyment. Twenty-two of the 74 indicated their only

use of the computer was to surf or browse for recreation without any other purpose.

Table 7

Student Purpose for Computer Use During a Period (N = 220).

Application	Times used	% of use
Online Catalog	35	16
Word Processing	23	10.5
Spreadsheet	3	1.3
Surf the Web	74	33.6
Research the Web	44	20
Gale Online Programs	7	3
Research CD-ROMs	7	3
UDELib/Search	20	9
CD Tower	7	3
Totals	220	99.4

Note. Students were able to mark more than one answer.
Eighty-nine out of 97 students answered this question.

Students checked a total of 220 applications showing that many computer users intended to try multiple programs for that period in the media center. One student checked seven types of uses; two checked six; seven checked five different applications; eight checked having used four applications; 17 checked three applications; 22 checked two applications; and 28 used one computer application.

Table 8

Number of Applications Used (N = 220).

Applications	Respondents	n
9	--	--
8	--	--
7	1	7
6	2	12
5	7	35
4	8	32
3	20	60
2	23	46
1	28	28
Totals	89	220

Note. Eight-nine out of 97 students answered question 7.

Computer programs designed to assist the research process are linked for ease of Internet access on the school's media center web page. These programs accessed through the Internet, Galenet's *DISCovering Authors*, *DISCovering Multicultural America*, and *DISCovering Science*, were activated during the first week of March 1998. Additionally, a set of sources available through the state-funded University of Delaware Library SEARCH on the Internet: the full-text indexes for magazines and journals; *Expanded Academic's ASAP®*; *SuperTOM®*; *SIRS®*(Social Issues Resource Series); and the encyclopedia, *Britannica Online®*. Students introduced to these new resources from classes doing research projects returned to the media center to use them on their own

time. Students responded on the questionnaire as having used Galenet programs seven

times and the UDLib/SEARCH(University of Delaware Library/Statewide Electronic

Access to Resources via Computers for High Schools) 20 times.

CD-ROM research sources were available through the networked tower on each

computer and from individual CDs, like Microsoft Encarta®, that students could insert

into the internal CD drive (see Appendix C). The media center web page listed all these,

for electronic research options. Students answering in question 7 that they intended to

use a computer for research showed that the CD tower was tried seven times and

individual CDs were also used seven times (see Table 7).

Many students were seeking or searching for information on computers for some

part of the media center visit. There may be some relationship between questions 8 and 9

of the questionnaire. In question 8, students were asked if they got all the information

needed to complete an assignment from their computer search. Then in the next question,

the most helpful electronic resource was to be indicated. Table 9 shows that of the 72

who responded, 15 rated their research on the web most helpful and complete, 20 rated

the web research most helpful but information was partially complete, and two received

no information but rated the web most helpful. Four replied that the DISCovering

programs were most helpful and provided complete information while no other responses

for partial or no information were given. The UDLib/SEARCH was rated most helpful

and complete in information by eight students with seven responding it was most helpful

but received partial information. Two answered that CD-ROM programs on the tower

gave most complete and helpful with only one response of "partial facts were given but

the source was most helpful". One person obtained partial data from a single-user CD-

ROM disk and found that most helpful. Eleven people did not answer which electronic

source was most helpful but did indicate a level of completeness: five got complete

information, four received partial information, and two received no information.

Table 9

Completeness of Information from Computer Source Rated Most Helpful (N = 72).

	Complete		Partial		None	
	n	%	n	%	n	%
Research on Web	15	21	20	27	2	2.7
DISCovering Programs	4	5.5	--	--	--	--
UDELib/Search	8	11	7	9.7	--	--
CD-ROM Tower	2	2.7	1	1.3	--	--
Single-user CD-ROM discs	--	--	1	1.3	--	--
Other	1	1.3	--	--	--	--
Blanks	5	7	4	5.5	2	2.7
Totals	35	49	33	46	4	5

The idea that students have free choice as to their destination on the web when

they are browsing was intriguing. Perhaps it explains why this access renders such a

range of answers when students were queried as to the subjects they browsed when

locating a web site(question 10) and which web sites satisfied their interest (question 12).

Answers to question 10 demonstrated what personal interests were typical among those in

the study such as music, games, news, sports, colleges, entertainment and topics for the

curious. Some browsed subjects, the writer believes, that were intended to satisfy school

assignments such as literary criticism, social issue topics, and history as evidenced in

their written replies to question 10. The specific web sites that searchers reached were

again those of personal interest such as "motortrend.com", various sports sites such as LAX, ESPN, entertainment such as MTV.com, and games such as slugfest.com. (see Appendix E) Many students did not give specific web sites blank leaving the researcher with some hunches as to why the answer to question 12 was left blank by 37 respondents.

The goals for use of the computers as stated in the district Acceptable Use Policy clearly intend that students use computers for the purpose of learning. Therefore, question 13 in its four parts aims at eliciting a yes or no response as to whether: the student's use of computers for the period satisfied a research activity; supported learning in a specific area; enhanced learning in some way; or if the information was interesting enough to motivate the individual to continue seeking information. A yes or no response was expected from each pupil. Since the use of computers was the focus of the study, the answers to question 13 by a group of 40 students who maintained in question 5 that the purpose of their visit was to use the Internet (see Table 10) were used. This group's replies to the learning accomplished by using a computer were important to examine. Of the 40 students, 31 thought their use satisfied a research need while five did not think so and four did not answer the question. Thirty students of the 40 considered their use as helpful to learning in a subject area, five said that their use did not support learning, and four did not answer. Responses in the third part of question 13 showed 31 students replying that their computer use enhanced their learning in some way, while five thought it did not, and four did not answer. The last part of the question received 31 positive responses that the student believed they were encouraged to learn more through their use of the computer while five students gave negative responses, and four students did not

respond. This group was worthwhile to examine because these students were using

computers to browse the Internet freely and for their own satisfaction.

Table 10

Learning Outcome of Computer Use for Students With a Stated
Purpose of Using a Computer for the Period (N = 40).

Outcome of use	Yes	%	No	%	N/A
Satisfied some research need	31	77.5	5	12.5	4
Supported learning in a subject	30	75	5	12.5	5
Enhanced learning in some way.	31	77.5	5	12.5	4
Interested in learning more.	31	77.5	5	12.5	4

Answers to the four-part question 13 by the rest of the sample of 57 students were

used to see if there was some relationship between the original intention of the visit to the

media center and use of the computer for some learning goal. Percentages have been

used here to determine if there is a relationship in reaching the goal of learning through

computer use in the media center between a group of 40 students and the remainder of 57

who came for different purposes than the previously discussed 40. One difference seen

was in the number of no answer responses between the sample in Table 10 and Table 11.

The "no" answers and a lack of answers in "N/A" in Table 11 were those individuals who

did not come with the purpose of using computers and the people in Table 10 who

definitely intended to use computers but did not indicate a use. Still, a significant number

of students who came for reading and schoolwork used computers sometime during the

period of their visit as was seen in their answers to question 7 and question 13.

Thirty-four students answered that their use satisfied some research, 12 said that it did not, and 11 did not answer (see Table 11). Twenty-seven said their use supported learning in some way, 19 responded that it did not support learning, and nine did not respond. Of these 57 students, 33 said their learning was enhanced in some way, 12 said their learning was not enhanced, and 12 did not answer. In the last part of question 13, 42 students replied that they were interested in learning more, while 2 said they were not, and 11 did not reply to that part of the question.

Table 11

Learning Outcomes of Computer Use for Students Who Stated a Purpose

Other Than Use of a Computer for the Period (N = 57).

Outcome of use	Yes	%	No	%	N/A	%
Satisfied some Research need	34	59.6	12	21	11	19
Supported learning in some way	27	47	19	33	9	15.7
Enhanced learning in some way	33	57.8	12	21	12	21
Interested in learning more	42	73.6	2	3.5	11	19

The percentages of those who "satisfied some research need" for the group in Table 10 was 77.5% while the latter group from Table 11 claimed 59.6% of its users satisfied some research need. Seventy-five percent of the group of 40 who came to use the Internet claimed that their use "supported their learning in some way" with only 47% saying it supported their learning from the group of 57 in Table 11. Of the group displayed in Table 10, 77.5% responded that their "learning was enhanced" in some way with 57.8% agreeing that their "learning was enhanced" from the group represented in

Table 11. Finally, out of the people in Table 10, 77.5% were interested in learning more with a similar 73.6% from the second group saying they were interested in learning more with computer resources.

Students imparted ideas about what they learned about during the period in the open-ended question 14. In Table 12 student responses are listed from general answers to specific topics depending on the wording of the answer. This question was not specific to computers in its wording but most students who wrote answers inferred that they were to be specific to computer use.

Table 12

Student Responses to Information Need During a Period

(N = 97).

Information need Responses from the Internet	Responses
Don't know	2
Didn't use	2
No answer	37
History facts	1
Use Internet/search engines	15
Sports	4
Microsoft Word use	2
College information	4
General answer	7
Research a specific topic for school	13
Music	5
Personality tests	1
Animals	1
German phrases	1
How to play computer games	1
Entertainment items	1
Total	97

The questionnaire offered an opportunity for students to share what they thought

about their computer use with the researcher. Two concerns about the validity of the questionnaire were the truthfulness of the respondents and their interpretation of the questions. The question about use of computers at home may have stretched the honesty of a few to admit to not having a computer at home. However, the questionnaire was given anonymously, students did not seem to share their answers with others nor were they seated in such close proximity that others would have read their answers. For those reasons, this researcher believes the majority of the answers. It was sensed from reading the answers to the questionnaire that students answered question 7 differently than they were expected to answer it. Students apparently interpreted the question to mean to check all the computer applications you have tried not just used this particular period. A clue to this is the 220 different computer applications respondents claimed to have tried for the 97 individuals responding. It is possible that a student in earnest need of information could use a number of the electronic research tools in a 45-minute period.

Conclusions about the study and suggestions for future research of student computer use in the media center can be read in Chapter 5.

Chapter Five

Conclusions

Summary

The thesis project explored the ways students from study halls use computers for their free time in the media center. Earlier in this work, a concern was raised about a seeming conflict between a youngster's right to electronic access with intellectual freedom in mind and the need to follow the district acceptable use policy's educational goals for computer use. Computer use is to further the learning of the student either for subject matter, research, overall learning enhancement, or to encourage life-long learning.

The first research method used in this study was a direct observation of the activities of 1264 students during 64 periods of the day over a three week period. These students were observed in a variety of activities or tasks including study, reading, and using computers to browse the web, research, or word process. A second method of study was a questionnaire of 14 questions completed by 97 different students. The questionnaire asked about student satisfaction with their computer use and if they thought they met the four criteria even when browsing the Internet for their own interest. Students were assumed to be attracted to Internet use and demonstrated that in their responses. In a direct observation, of 694 students who chose to use computers, 67% chose to browse the Web and 10% researched on the Web. In a question that 91 out of 97 students answered, the purpose of their visit was to use the Internet for 41%, 14% for nonspecific computer use, while 26% came to study. It was learned that 87.5% of seniors

used computers at home and many of them still came to use the Internet. The appeal of the Internet and the uses students made of it allow them to practice and gain some skill while they have free time. The equity either socio-economic or racial was not studied. However, there seemed ample opportunity for all students to visit from study halls and explore the Internet during their free time. The equity issue is an investigation for another time.

<u>Conclusions</u>

This study was unlike topics that relate to current research. The literature reviewed did not address free time use of the Internet or computers. The work of authors like Eisenberg, Marchionini, Soloway and Wallace is about information skills and cognitive models of information seeking. The implication of work like theirs is that when students become familiar with the available electronic resources including the Internet they will be taught how to do authentic searches using those resources.

Actually, students need to be taught to integrate or use the whole scope of sources. Students in an honors world history course were surprised that the "whole" or all the information needed to complete a report was not in one place on the Internet just as Soloway and Wallace's students. These students found that they had to search many sites and came away without much good information especially without using CD-ROM discs or online subscription databases specific to the topic. This is an example of student expectations of satisfaction being dashed when searching the Internet. These students also found that using the Internet was not time efficient in completing their assignment.

When students were directly observed, all of the 1264 students in this part of the study were involved in some task at the time of the observation. In this unobtrusive

observation, 694 computer users were observed doing purposeful research, self-motivated searching, and some word processing. Of those 55% of the overall media center attendees, web research and browsing the web accounted for 77% of the activity. The CD tower only received 3% of the activity. The reason for that was that it had recently been installed and students did not know to use it for research. Informing students of possible resources is one problem with quickly evolving changes in delivery of resources. Changes in online subscription services occurred four times during the period from February to May. The remediation of this problem lies in constant attention to student research needs and in yearly re-orientations to the resources.

In observing the web sites on the screen, many were of teenage interest such as music groups, music videos, games, automobiles, search engines, colleges, careers, celebrities, and sports. These were the most frequently noticed subjects on screens when students were observed browsing. On the basis of this observation a judgment of the value of student learning has not been made. The obvious conclusion is student curiosity centers on their individual interests. With regard to Turkle's view, students who choose to read, for example, about their favorite rock star or sports personality are choosing to read which is preferable to some other options they may have for free time.

Students in this observation were not timed as to the portion of the period spent doing schoolwork or free time browsing. That question could be studied at another time. Ninety-seven individuals filled out the questionnaire. The data from the questionnaire showed that students weren't constantly using computers throughout a period. Again, since students were not timed at their tasks, it is not certain how long students spent on schoolwork or reading before operating a computer.

In regard to the data on students using computers at home, 87.5% of the seniors claimed to have computer use at home while 50% of the freshmen had use at home. As students progressed through high school, the number of students using computers at home increased. The seniors who attended the media center for the purpose of studying was greater at 18.7% than the 3.3% offreshmen who came to study. These numbers lead to a conclusion that seniors had more studying to do and that was their priority more so than freshmen. Also, freshmen who wish to study may be remaining in study hall. Although students were not asked to specify their type of computer use at home, seniors might use them more for academic chores than for recreation. Conversely, 50% of freshmen that could use computers at home stated their intent to use computers for the Internet. A smaller 8.8% of seniors stated their purpose in visiting the media center was to use the Internet. In this way, students who use computers at home and those who do not use a computer at home were compared in the use they made of computers in the media center

A pattern of student work style was uncovered inadvertently in this study. Many students use their time to complete pressing requirements for schoolwork, homework, and study and then turn to another activity during the same period. Students do not continue working on one task during free periods in the media center. Then, some research activity may be accomplished and again, the student may change to another activity. The activity may include computer work of any kind. Likewise, when a student finishes one activity on a computer some other task or search topic may be started. The continuation of searching may be until the student is satisfied, frustrated, interest changes, or the period ends.

One factor affecting student satisfaction with browsing was the speed of the Internet connections, which can be predicted to have a slower response time as the day progresses. The effect of slow response time was not measured to learn whether it deterred students from Internet use. This factor would be worth examining at another time.

Recommendations

So, Eisenberg's notion of a unified library is valuable as it creates a model to help school library media specialists teach students to see the library's entire range of resources including the Internet and electronic resources (1996, 5). One approach to this is listing active links to web sites for an assignment on a teacher's or on a media center web page as well as other helpful sources as a type of pathfinder. The school library media specialist should be proactive in the use of an upgraded online catalog system that allows creation of material records for web sites that will interface with the Internet. This feature requires a periodic check to show that the links continue to be active. The SLMS should guide teachers to lead their students in seeing the full range of resources. It may be helpful if bibliographies are required for which teachers specify certain numbers of resources from each available format. Ideas like these can assist students to use electronic resources in a more directed and educationally beneficial way during their free time in the media center.

The SLMS is the guide to use of the Internet and other online resources. By remaining in the forefront of technology and information skills, the school library media specialist can provide the needed training, model of use, and policies pertaining to student computer use. One must be mindful that student computer use, in particular the

Internet, benefits them by empowering youngsters to seek information or a personal

interest. In this way, educational goals are met by student computer use even if search

intentions are rudimentary and not academic in purpose. By reaching some level of

search satisfaction during free time, the student is empowered and can be expected to

approach a future academically purposeful search with some background of experience.

Then the student, including those without access at home, will better understand the

range media resources including electronic resources and be better prepared to learn more

advanced types of research using those resources.

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Appendix A

Acceptable Use Policy

School District Acceptable Use Agreement

This agreement encompasses all computer, network, database, and information technology use in the X School District. It includes the use of Internet, which connects thousand of computer networks and individuals around the world, and the use of any computer, network or electronic systems provided by X schools.

I. GOALS

    A. To support the X School District curriculum (1998 revision)
    B. To support educational research activities
    C. To enhance learning opportunities by using information technology

II. ACCEPTABLE USAGE

Computers are to be used in a responsible, ethical, and legal manner. In addition, usage must be in support of the educational objectives, and in accordance with the behavior guidelines, of the X School District. Transmission of any material in violation of any federal and/or state regulation is prohibited.

III. UNAUTHORIZED USAGE

    A. Copy software from or loading unauthorized software to any computer or network without appropriate permission.*
    B. Unauthorized involvement in deleting, editing, changing, or removing any data, records, databases, passwords, directories, or configurations on or from district computers
    C. Violating copyright or privacy laws
    D. Distributing materials protected by trade secrets
    E. Soliciting, using or sending any threatening (implying harm - physical or emotional) or obscene material
    F. Using any system inconsistent with its design
    G. Use of computing resources for commercial purposes or non-district-authorized activities

IV. USER RESPONSIBILITIES AND ETIQUETTE

    A. The individual user will accept the responsibility of keeping all unauthorized material, inappropriate text files, or files dangerous to the integrity of the computer or network from entering the school's computers by any manners or means. Appropriate permission* will be gained by users before downloading any material from the Internet or other electronic sources of information.

    *Student will gain permission from teachers.

B. When using district networks, the Internet or other information service providers, users:
   1. are prohibited from revealing personal information such as home addresses or phone numbers.
   2. Will not disrupt the use of any network.
   3. Will assume that any communication and/or information accessible via any computer or network is **not** personal and private communication and could possibly be accessed by other users. Users are not responsible for unsolicited communications.

C. When using school Technology resources, users will always use non-offensive and non-vulgar language. They will not swear or use vulgarities, other abusive language, or any statements that could offend an individual or group at any time.

C. Users will contact appropriate staff (teacher, administrator or administrator's designee) if any Computer and/or program does not work properly. They will not attempt to fix problems themselves unless trained and authorized to do so.

V.   PRIVILEGES

The use of computers is a privilege not a right. Inappropriate use or vandalism will result in limitation or cancellation of user privileges. If damage occurs due to willful user misconduct, the user may be permanently denied access to computer equipment.

VI.   SECURITY

Security on any computer system is a high priority, especially when used by many students and staff. Users will not attempt to log on to any system using another's password or share their own with anyone else. If a user identifies a security problem, he/she must notify an appropriate staff member immediately. Messages relating to, or in support of illegal activities must be reported to the administration. Network e-mail is not a secure private mail system and users should be aware that system administrators have access to their communications. Computers, networked technology, and information contained thereon, remain the property of the School District. The district reserves the right to access this equipment and information at any time.

VII.   DISCLAIMER

The School District does not condone and will not be held responsible for any unacceptable materials obtained using its computers or other information technology. Students, parents, and staff should be aware that access to information technology will be withdrawn from users who do not respect the rights of others and who do not follow the rules and regulations established by the district.

Acceptable Use Agreement

User Agreement

I,_____,understand and will abide by the School District Acceptable Use Agreement.
I further understand that violation of that agreement may result in the loss of access privileges and/or
liability for willful damage to educational technology resources.

_____   _____
(User Signature)   (Date)

PLEASE NOTE:

**STUDENTS IN GRADES 4-12 (INCLUDES CURRENT, NEW, OR INCOMING) SHOULD SIGN,
DETACH, AND RETURN THIS FORM TO THEIR HOMEROOM TEACHER.**

State Computer Literacy Requirements

Beginning with the Class of 2000, graduates will be
Responsible for the following skills:

- Classify and group information using a word processor, database or spreadsheet.
- Use word processing and/or desktop publishing software to create printed documents, applying keyboarding skills.
- Use computer-generated graphics.
- Use spell and grammar checking capabilities of word processing and other software to edit and revise their work.
- Know and use the basic computer terminology.
- Operate various pieces of hardware and software.
- Assess the value of various types of electronic resources for data gathering.
- Use the most appropriate computerized task for data gathering.
- Use automated library services (e.g., on line catalogues, periodical indexes, full-text sources, CD-ROM stations, Online terminals, scanners, and digital cameras).
- View, download and open documents and programs.
- Transport information from an electric source to a file.
- Apply legal principles and ethical conduct related to information technology related to copyright and plagiarism.
- Understand and abide by tele-computing etiquette when using e-mail and Internet.
- Understand and abide by acceptable use policies in relation to use of the Internet and other electronic technologies.
- Use e-mail on the Internet.

Courses meeting the State of Delaware Computer Literacy requirements
have been designated by this course selection guide.

ONLINE RESOURCES
Internet Subscriptions - Available through the Media Center
Reach *DISCovering* databases by linking to the sites below;
Click on *Galenet databases*

<u>DISCovering Authors</u>
<u>DISCovering Multicultural America</u>
<u>DISCcovering Science</u>
<u>UDLib/SEARCH</u> - Access to *Britannica Online, Expanded Academic ASAP, SuperTOM,* and *SIRS Online*

CD-ROM LIBRARY
PROGRAMS AVAILABLE THROUGH THE MEDIA CENTER NETWORK
(From CD-ROM TOWER)
Go to start button; go to programs to link.

- DISCovering U. S. History
- DISCovering World History
- PROQUEST - magazine index
- SIRS Researcher

SINGLE USER MULTIMEDIA CD-ROM PROGRAMS
Available at the circulation desk

- A.D.A.M. - anatomy, physiology, and health
- Bodyworks - health and human body
- A Brief History of Time - adapted from Stephen Hawking's book
- Microsoft Encarta '97 Encyclopedia
- Microsoft Encarta World Atlas '97
- Grolier's Multimedia
- Guinness Disc of Records '94
- Interactive Periodic Table
- Macbeth
- MAUS
- World Book Multimedia Encyclopedia

MICROSOFT OFFICE™ '97 running on Windows NT (operating system)Windows vers.4.
Available on each workstation
- Word – word processing
- Excel - worksheet
- Powerpoint – presentation
- Access – spreadsheet
- Outlook – e-mail

Excerpted from the Library Media Center web page by permission of the author.

Research Tool 1 - Direct Observation of Computer Use in the Media center

**UNOBTRUSIVE OBSERVATION OF STUDENT
COMPUTER USE IN THE MEDIA CENTER
DATE**_____

# of *students	WORD PROCESSING	BROWSING WWW	RESEARCH WWW	**USING other
1				
2				
3				
4A				
4C				
4D				
5				
6				

* NUMBER OF STUDENTS IN THE MEDIA CENTER
**CD-ROM DISCS ON TOWER; INDIVIDUAL USER CDs; AND ONLINE
    RESEARCH SOURCES.

MEDIA CENTER COMPUTER QUESTIONNAIRE

Please answer questions by circling one answer or filling in the blanks.

1. Age _____   2. Grade _____   3. Male/Female

4. What kind of pass did you come on to the Media center?

a. STUDY HALL - FULL-TIME;   b. STUDY HALL - BRIEF TIME(hall pass);   c. CLASSROOM

5. What is the purpose of your visit? _____

6. Do you use a computer at home?   YES   NO

7. If you are here to use a computer, what is the purpose of your use?
   Check all that apply.
   a._____ Online catalog to search for a book(s) to read for a report or for research.

   b._____ Word processing application.

   c._____ Spreadsheet application.

   d._____ Surf or browse the WWW for enjoyment or my own interest.

   e._____ Research on the WWW for an assignment.

   f._____ Research using DISCovering programs on the web.

   g._____ Research using UDELib/SEARCH for articles from magazines, newspapers,
            and *Britannica Online.*
   h._____ Research using networked programs from the "start menu" like *Proquest, SIRS,
            DISCovering U.S. History and World History.*
   i._____ Research using single user CD-ROM discs like *Encarta* or *Grolier's.*

8. If you used a computer for research, do you think you got all the information you
   needed to complete your assignment?
   (Research sources are named in #7, letters e, f, g, h, and i.)

        Yes, complete;   Partial, but not enough;   None at all

9. Circle the letter of the resource from #7 that was most helpful.
       e,   f,   g,   h,   i.

10. What subject(s) did you browse or surf to find on a web site?

_____

11. Was your browsing successful?   YES   PARTIAL   NO

12. Name a web site that satisfied your browsing interest(s)._____

_____

13. Did your computer usage during this period:

    a. Satisfy a research activity?   YES   NO

    b. Support learning in a specific subject area?   YES   NO

    c. Enhance your learning in some way?   YES   NO

    d. Interest you enough to want to continue seeking
       information about this topic or others?   YES   NO

14. What did you learn about during this time? _____

_____

Thank you for filling out this questionnaire!   ☺

5. Purpose Of Visit
A. Schoolwork/Homework, Study
B. Read Book/Browse Books/Check Out A Book
C. Library Aide
D. Newspapers/Magazines
E. Research Web, Browse the WWW, Use the Internet
F. Word Process, Use the Computer
G. Relax, , Waste Time, Free Time
H. No Answer

10. Subjects You Like To Browse For A Web Site

A. History and Personages of Historical Importance
B. Spanish
C. Sports
D. Games
E. Music
F. English Class and Literary Criticism
G. Social Issue Topics
H. News
I. Colleges
J. Science
K. General topics
L. Entertainment

12. Specific Web Sites Of Browsing Interest

A. Search Engine
B. Brandywine High School Web Page
C. LAX, ESPN, NBA, Wrestling, NFL, NHL, Sports
D. Games; Frognet; Shockwave, Slugfest
E. College Sites
F. Allen Iverson, Kobe Bryant
G. Entertainment-Mtv,
H. Motortrend.com
I. Blank

14. What Did You Learn During This Time? Specific answers were put into these general categories.

A. Didn't Use Computer
B. How To Use a Computer or The WWW Better; Quickly; More Successful
C. Information About a Topic
D. Sports
E. No Answer