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ABSTRACT

During the Spring 1997 semester, students at Glendale Community College in Glendale, Arizona were surveyed on their use of dial-up access to electronic databases provided by libraries. In addition, the community college and public libraries in Maricopa County were surveyed to determine which electronic databases they provide by dial-up access. Comparison between these two forms of data collection revealed that a rich variety of electronic databases are available to community college students. Many of the students have the equipment required to take advantages of these resources, combined with a desire to use these resources to increase the flexibility of their options for performing research. The greatest barrier to use was a lack of realization that such resources were available. Community college libraries should advertise access information to make students aware of these options. Appendices include the library, database, and student surveys, and numbers for dial-up access to libraries in Maricopa County. (Author/AEF)

DIAL-UP USE OF ELECTRONIC DATABASES BY COMMUNITY COLLEGE STUDENTS

by

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STATEMENT BY AUTHOR

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ABSTRACT

During the Spring 1997 semester, students at Glendale Community College in Glendale, Arizona were surveyed on their use of dial-up access to electronic databases provided by libraries. In addition, the community college and public libraries in Maricopa County were surveyed to determine which electronic databases they provide by dial-up access. Comparison between these two forms of data collection revealed that a rich variety of electronic databases are available to community college students. Many of the students have the equipment required to take advantage of these resources, combined with a desire to use these resources to increase the flexibility of their options for performing research. The greatest barrier to use was a lack of realization that such resources were available. Community college libraries should advertise access information to make students aware of these options.

1. INTRODUCTION

In a decade where the Internet has risen to the fore as "the" resource for accessing "everything imaginable for free," why bother to consider resources provided by libraries through dial-up access? Among other reasons, consider that access to the Internet normally requires a $20 monthly charge, as well as a higher-end computer. Through dial-up access, libraries extend their egalitarian role into the electronic age by providing access to their resources directly to the home. The purpose of this study is to determine the extent to which community college students take advantage of dial-up access to databases that are provided by their own college libraries as well as by public libraries while they perform research for their class assignments.

Definition of Terms

Successful communication depends on a clear understanding of terminology employed. Since this paper relies heavily on library and technology terminology, discussion begins with key terms used in this paper.

This research is conducted in the community college environment. In his forward to *Peterson's Guide to Two-Year Colleges* (1997), Pierce, as President of the American Association of Community Colleges (AACC), explains that the term **community college** is typically used to refer to a two-year college that provides "a comprehensive curriculum, which includes transfer, technical, and continuing education programs" (p. 2). This study uses Pierce's definition of community college.

Starting with catalog automation, the role of the computer in organizing and retrieving information has become integral to the operation of libraries. Many reference sources that were once available only in print are now available through computer workstations. This paper adopts the term **electronic database** for "a collection of information (of any type) in a computerized format, that is digitally encoded on a magnetic tape, CD-ROM, and so forth" (Katz, 1996, p. 34). Electronic databases are further narrowed to refer to sources that are made available by libraries.

Remote access to electronic databases can have two meanings: 1) remote access implies that the physical computer holding the database is not in local proximity to the library, but rather at a distant location such as a vendor's computing facilities; 2) remote access refers to the ability for a user to access the database from a physical location other than the library, such as a computer lab or the user's home (Cline, 1994). Unless otherwise specified, the latter definition of remote access shall apply in this paper. The term **dial-up access** expands on this meaning to indicate remote access accomplished by using a computer equipped with a modem connected to a phone line from a location such as the user's home or work.

Assumptions

This study assumes that a large percentage of community college students have access to computers with modems to use dial-up access. As an indication of how pervasive computer technology has become in American society, *The World Almanac* (1997) cites the Electronic Industries Association with an estimate as of June 1996 that 40% of households have computers and that 18% of households have modems.

Combining this percentage with the fact that there are over five million community college students suggests that at least one million students have access to the correct equipment to take advantage of dial-up access to electronic databases (*Peterson's*, 1997). One might question the appropriateness of multiplying a percentage of households against a population, but it is assumed that a percentage of households is functionally equivalent to a percentage of the general population in this instance, and further that this prediction is conservative given the benefits that computer technology brings to community college students in areas such as the preparation of assignments. Reviewing the advertisements for new computers reveals that modems are typically included in such packages, implying that the number of households with modems will only continue to increase.

Although this study assumes that many community college students have access to computers with modems, it also assumes that many of these students do not have access to the Internet from home. The current software used to access the Internet requires computers with greater capabilities than are required for basic functions such as word processing. For those students whose computers are powerful enough to support Internet access, the average recurring cost of $20 per month for Internet access acts as a restraining force.

A final assumption is that many community college students do not realize that their existing equipment can be used to perform library research from home. If they are familiar with the resources provided by their college, they are not likely to be familiar with the resources provided by public libraries that can be used to supplement research.

Research Questions

To determine the extent to which community college students take advantage of dial-up access to electronic databases, several questions must be addressed. How many students have the correct equipment to use dial-up access? Of these students, how many actually use dial-up access? For those who use dial-up access, what types of information have they sought and in what types of libraries? It is assumed that people use dial-up access due to convenience of searching at any time combined with the ability to retrieve materials from off-campus.

Of equal importance to why people use dial-up access is why people do not use such access. What factors vary between those who take advantage of such resources and those who do not? Why don't people use dial-up access? Assumptions against use are that dial-up access is not advertised, is confusing to use, and people need guidance to find relevant information.

Consideration of access requires a determination of what is available to access. In Maricopa County, what resources are available by dial-up from each of the community college libraries, the city public libraries and the county public library? What are the requirements to gain access to these resources? Can patrons receive help by telephone for these resources?

Literature Review

The literature on dial-up access focuses on the issues related to establishing remote access to electronic databases. However, there is a noticeable gap in literature that addresses the actual use by and impact of these services on end-users. *Library*

Literature, *ERIC*, and *Library services for off-campus and distance education: An annotated bibliography* provided references to more than one hundred articles regarding issues related to dial-up access. Ignoring access that universities may have been able to extend to certain graduate students through services such as BRS After Dark, the ability to provide dial-up access to electronic databases beyond on-line catalogs is a relatively new trend of this decade. Given this newness, it is not surprising that extant literature has concentrated on establishing these services rather than advancing to the next level of consideration, analyzing the true impact made by these types of services. The existing literature is grouped by planning issues, technology issues, support issues, library cooperation, and evaluation.

Planning issues

Before access can be provided to an electronic database, it must be selected, purchased, and licensed. Gunning (1992) discusses planning issues including collection development issues and licensing issues. The importance of a simple user interface is increased since patrons must operate without the support structure of the library. The budgetary impact of licensing costs must be considered since the right to permit dial-up access often increases the cost of a database.

Lynden (1994) provides an overview of the advantages and disadvantages of remote access, divided into sections discussing concerns, trends, advantages of remote access and disadvantages of remote access. Among the advantages identified are the ability to access materials that the library does not own, the ability to access the information from anywhere including home or office, the availability of information in

multimedia formats, the increased timeliness of access, the ability to download information and then perform local editing, and the ability for libraries to become more user driven by allowing access to broader sources of information (Lynden, pp. 26-28). Among the disadvantages identified are the uncertainty of cost as the economy of electronic access evolves, the conservation of data against computer crashes and programming changes, the identification of funding sources within budgets that do not increase against rising costs for other library materials, and the increasing complexity copyright issues (Lynden, pp. 28-31).

Technology issues

Myriads of technical issues are encountered when designing and implementing the hardware to support remote access from outside the library, including dial-up access. Prior to the development of CD-ROM technology, computerized library databases outside the on-line catalog were normally restricted to librarians who accessed them by dial-up directly to the computers of database providers. Access costs were high and were based on combinations of connect time and number of searches, which tended to prohibit end-user searching. The introduction of CD-ROM technology in the 1980s brought a cost-effective means for end-user searching. The use of local area networks in libraries allowed CD-ROMs to be made available from multiple stations. With the move from stand-alone computer systems to networks, the decisions involved in planning and implementing became increasingly complex.

Atkinson and Yokley (1993) address the issues involved in placing CD-ROMs on a computer network. One such issue is the need to verify that a given CD-ROM product

will operate with the Local Area Network chosen, especially if the CD-ROM format varies from the industry standard of ISO-9660. Another concern is quantifying what degradation in performance will occur when multiple people access the same CD-ROM simultaneously. Existing networking must also be considered during selection, both to enhance compatibility as well as to avoid conflicts with these systems. The article concludes with a comparison of advantages and disadvantages of six potential implementations.

Donel and Holbo (1993) provide a historical account of the expansion of Oregon State University's use of CD-ROM products from stand-alone computers, to networked computers in the library, to remote access. The success of this multi-year project is attributed to stabilizing the technology by installing filters to keep dust out of the CD-ROM drives, followed by controlled expansion of access. Through the use of special hardware and software, access to CD-ROM products was expanded to any computer with terminal emulation software. Although this increased the availability of access, it also introduced keyboard issues since terminal emulation software often fails to support keys such as page up, page down, and function keys. These incompatibilities required patrons to type strange keyboard sequences for these keys, which made remote access more confusing to the patron. Aside from these technical problems, remote access accounted for 15% of total use of these databases.

With the explosion of the Internet, database vendors have started to license access to their databases over the World-Wide Web. This trend has brought a shift back to centralized storage of information on the vendor's computer system. This access

decreases maintenance for the library while increasing the timeliness of access, since the lag of CD-ROM production and mailing is eliminated (Mehta, 1996).

Support issues

The availability of dial-up access requires support from public service staff. Davis (1988) explores the impact on bibliographic instruction, with suggestions on the types of handouts that should be provided for users. The first hanut suggested should cover access numbers, hours of availability, and log-off procedures. Emphasis is placed on the need to test and constantly revise such materials. The other recommended handout is on searching basics, and may be the same handout used for in-library use.

DiMattia (1993) suggests how total quality management techniques can be applied to ensure success. To provide the highest level of customer service, all library staff should be trained in the use of the system, both since they will be able to answer questions more effectively, but also since they will become a source of external marketing.

Library cooperation

Electronic databases provide unique opportunities for cooperation among libraries. The role of inter-library loan and reciprocal borrower agreements among libraries is well established, although both of these involved noticeable elements of time and travel. Electronic access eliminates the barriers of time and distance. Britton and Combe (1991) discuss a cooperative venture between the University of Southern California and Ventura Country Library to meet the needs of graduate students who took

courses seventy miles away from USC. In their study, the second most important option to students was access to databases at the remote site, ranking just below the helpfulness of the staff at the county library.

A cooperative venture between Mansfield University and school libraries in Pennsylvania documented the strongest example of cooperation. Beyond obvious benefits such as full-text articles by dial-up and access to the holdings of the University, subtler benefits arose such as the ability to use remote indexes to locate articles in periodicals right in the school libraries (Garretson, 1994).

Evaluation

The evaluation of dial-up access to electronic databases found in the literature relies on computer records of time spent on-line and anecdotal comments from users. Although such indicators are a step up from intuition, they can easily be misleading. In an analysis of use at Bentley College, the fact that on-line time by dial-up exceeded on-line time from within the library was used to imply that remote use was overwhelmingly more popular (Lewontin, 1991). Although this is a plausible explanation, equally plausible is the possibility that remote users used more time on-line because they lacked the printed materials and human guidance available in the library, and thereby spent more time thrashing in the search, perhaps without ever even finding relevant information. It is difficult to quantify the impact inferred by statements such as "clients report that they enjoy the twenty-two-hour-a-day availability, the easy-to-use software, and the convenience of receiving information at their locations" (Algermissen, Helton, Smith,

1992, p. 261). In times of increasingly tight budgets, stronger information than this is needed to make informed decisions.

Davis (1988) suggests three areas that need to be evaluated for dial-up access. He suggests more "how-we-do-it publishing," which forms the bulk of the literature found since his article. He calls for professional forums to discuss issues. Finally, he calls for the use of user surveys. Ten years go, Davis suggested that user surveys could ultimately be implemented on-line and that the findings could be used for instructional design purposes.

Total Quality Management techniques call for a cycle of "Plan, Do, Check." The literature reviewed provides valuable insights into the planning and implementation of access to electronic databases, covering both "Plan" and "Do." Given how recent these systems have been introduced, the lack of extensive evaluation has yet to occur, but the time has come for such evaluation to occur and feed back into new cycles of planning to enhance service. Davis (1988) foresaw that such evaluation could be performed on-line. Indeed, the research that follows uses on-line data collection to evaluate the dial-up use of electronic databases; it also identifies which resources are available for dial-up access and explores why these resources are and are not used. This research can assist libraries in increasing the use of these resources.

2. METHODS

To assess dial-up use of electronic databases by community college students, two complementary forms of data collection were performed. The first form of data collection focused on the identification of the electronic databases provided by libraries that are accessible by community college students. This data was gathered from both community college libraries and public libraries in Maricopa County through interviews with public librarians and library staff as well as from information provided by these libraries on the World Wide Web. The second form of data collection concentrated on the quantification of actual dial-up use by community college students as well as on reasons why such services are and are not used. This information was gathered from a survey of students at Glendale Community College. Both forms of data were collected in an attempt to assess the gap between the potential of access versus actual use.

Definition of the Population

The accessible population of the study was the students of Glendale Community College (GCC) who use the Electronic Forum (EF). With an enrollment of 16,677 students, GCC is the second largest college in the Maricopa Community College District, which itself is the second largest community college system in the country. Coursework at GCC is designed for university transfer, job market preparation, skill improvement, career change, and self-improvement. In accordance with national trends, GCC enrolls more women than men, has an average student age of 28 with the largest segment of the population in their twenties, and serves a predominantly white population. Consistent

with its southwestern locale, 14% of GCC's students are Hispanic, four percent above the national average. The sample of students surveyed was drawn from those students who use the Electronic Forum (EF), a locally-developed computer system that provides group conferencing and student e-mail. All students who accessed EF between 25 February and 7 March 1997 were asked through system messages to participate in the survey. Of the 1,543 students who saw these messages, 155 participated.

Data Collection

To assess dial-up use of electronic databases by community college students, two complementary forms of data collection were performed: 1) identification of the electronic databases available to community college students and 2) quantification of actual use by community college students and of reasons why such services are and are not used.

Library and Database Survey

To identify existing databases, the survey forms found in Appendix A: Library Survey and Appendix B: Database Survey were created. The Library Survey concentrated on broad details of access including requirements to gain dial-up access to the libraries' resources. The Database Survey focused on the specific databases provided by the library for dial-up access. Information to complete these forms was drawn from interviews with library representatives, telephone questions to reference departments, information provided by accessing the dial-up resources of the library, and information provided by the libraries on the World Wide Web.

Student Survey

Student data collection involved the use of a survey that was administered to GCC students through the student conferencing system. By the policies of the Maricopa Community Colleges, permission must be obtained from the appropriate college dean to involve students in external research. Dr. Joyce Elsner, Dean of Administrative Services, oversees the Library and the English department, with the latter responsible for academic use of the student conferencing system used to implement the survey. After reviewing a written proposal regarding the aims and purposes of this project, Dr. Elsner granted access to perform the data collection described in the following.

To quantify actual dial-up use and reasons behind why such services are and are not used, the survey found in Appendix C was created. Rather than employing traditional methods such as direct mail or personal interview in public areas, the survey was programmed into the Electronic Forum (EF), the student e-mail and conferencing system used by the college. To enhance data analysis options, information was extracted from the college student records system and merged with student responses.

Students were encouraged to type the word SURVEY to participate in the survey. After typing SURVEY, a preface to the survey was displayed, then a series of four sections of questions were presented, followed by the conclusion that thanked the student for participation. Since standard terminal emulation software can only display twenty-four lines of text on a screen, special provisions were made to ensure that the instructions for each section of the survey remained at the top of the screen, even as some of the student's earlier responses to the same section scrolled out of their view. To allow

students to control their right to withhold information from the survey, students were able to type hyphen (-) to skip any question without responding or to type X to stop the survey at any time and discard all responses.

Three of the response sections in the Student Survey called for multiple choice responses, and the final section allowed free-text comments. The first section contained ten yes/no questions regarding the student's previous use of computers to perform library research to complete class assignments using community college and public libraries, both from within and by dial-up to these libraries. The second section employed a five point Likert scale ranging from strongly agree to strongly disagree to assess why students do not use dial-up access. The third section used a five point Likert scale ranging from very important to very unimportant to evaluate why students take advantage of dial-up access. In the last section, students had the opportunity to enter up to 100 lines of free-text comments.

Upon completion of the survey, the student responses were stored along with the student's race, gender, handicaps, number of credit hours completed, major, current credit hour load, and whether the student is a day or evening student. No uniquely identifying information such as student ID number was stored with the responses, although a record of participation was noted separately on the student's account profile to prevent a student from participating more than once. When data collection ended, the participation records were erased from the students' account profiles to minimize the possibility of identifying participants by correlating this with their demographics.

At the end of data collection, another file was created containing the same student information described above for all students who had accessed the system during the survey interval.

Data Analysis

Fourteen of the Student Survey questions employed Likert scales. Since Likert scales are composed of ranked values that have no fixed interval between values, they should be classified as ordinal scales. Although a simple answer was expected regarding appropriate statistical tests to apply to Likert scales, some controversy was found instead. Stevens (1946, 1951) proposes that the use of statistical procedures must be restricted based on whether data are derived from a nominal, ordinal, interval or ratio scale (Gaito, 1980, p. 564). Lord (1953) counters this assumption, stating, "the numbers do not know where they came from," (p. 751), a sentiment that is detailed by Burke,Hardyck, and Petrinovich (1953) who conclude that "the properties of a set of numbers as a measurement scale should have no effect upon the choice of statistical techniques for representing and interpreting numbers" (Burke et al., 1953, p. 74, Gaito, 1980, p. 565).

Although Gaito (1980) and Marcus-Roberts (1987) propose that parametric tests can be applied to ordinal data, this paper takes the more conservative approach suggested in *The Survey Research Handbook* by Alreck and Settle (1995) as well as in *Basic Statistical Analysis* by Sprinthall (1994), and treats the Likert scales as ordinal data where measures of central tendency and distribution such as the arithmetic mean and standard deviation are inappropriate. For the Likert scales, the mode is examined to test for bimodal distributions, and in the absence of multiple modes, the median is adopted as the

measure of central tendency. For both the nominal responses gathered in the yes/no section and the ordinal responses gathered on the Likert scaled questions, the Chi square is employed to demonstrate significance of variation among the responses. For all tests, alpha is established at 0.05 for significance.

3. RESULTS

To determine the gap between the resources available to community college students and the resources that are actually being used by community college students, two forms of data collection were performed. To determine the resources available to community college students, information was gathered from academic and public libraries in Maricopa County. To determine the resources that are actually being used by community college students, a student survey was conducted. The results of these data collections are detailed throughout the following.

Library and Database Survey

Information to complete these forms was drawn from interviews with library representatives, telephone questions to reference departments, information provided by accessing the dial-up resources of the library, and information provided by the libraries on World Wide Web pages. The four public libraries that participated by interview and their representatives were: Glendale Public Library, Susan Bannon, Computers Operations Supervisor; Maricopa County Library District, Chris Cole, County Librarian; Mesa Public Library, Mary Beth Burgoyne, Electronic Resource Coordinator; and Scottsdale Public Library, Mitzi Cole, DRA Systems Coordinator. Glendale, Mesa and Scottsdale are city libraries. The Maricopa County Library District is the county library system that provides library service for communities that lack their own city libraries. An interview was scheduled with Phoenix Public Library, the largest city public library considered, but they had to cancel their interview due to scheduling conflicts.

Library cards

Database licensing agreements typically require that dial-up access be restricted to patrons with valid library cards. Within the Maricopa system, students can obtain free library cards that are valid at all college libraries.

The public library system provides access to many databases by dial-up. Once again, possession of a valid library card is required to access these resources. In Maricopa County, the major cities of Chandler, Glendale, Mesa, Peoria, Phoenix, Scottsdale and Tempe have their own libraries. Other cities and municipalities within the county are served by the Maricopa County Library District, which has branches located throughout the county. Each of these libraries issues unique and separate library cards.

Through a reciprocal borrower program coordinated by the Maricopa County Library District and provided at all libraries except Glendale Public Library, residents of Maricopa County can obtain library cards at any public library for free. Glendale Public Library limits free library cards to residents of the city and certain groups. Glendale Public Library does extend free library cards to students of the college under study, Glendale Community College. To obtain a library card at any of these public libraries, a personal visit to the library is required and the need to renew the card annually is typical.

The only public baccalaureate and graduate degree-granting institution in Maricopa County is Arizona State University, a Research I university. A large percentage of students complete lower-level work at the community colleges and then transfer to ASU. Unfortunately, no reciprocal borrower agreement exists between the Maricopa Community College and ASU, so Maricopa students who want to borrow

materials from ASU must use Inter-Library Loan or pay for a courtesy card, with rates varying from $15 to $25. Although ASU has several databases available by dial-up, they extend access to these databases only to their own students and faculty, not to courtesy card holders. Even though their databases are unavailable, anyone can access their on-line catalog by dial-up. Books cannot be taken from the library without the time delay of ILL or the cost of a courtesy card, but their extensive journal holdings can be verified on-line and then freely accessed from within their libraries. Their journal holdings provide an excellent resource for matching citations to articles and obtaining copies of the articles.

Databases

Several public libraries do not provide any electronic databases by dial-up, which limits their relevance to the study. Peoria Public Library provides no form of dial-up access and will receive no further discussion. Chandler Public Library and Tempe Public Library only provide access to their on-line catalog, so their only advantage is the ability to locate holdings for students who live near these libraries or who are seeking materials that they have been unable to find at other libraries.

At this time, the only database available to all Maricopa Community College students is the IAC Expanded Academic ASAP. Mesa Community College and Paradise Valley Community College license additional databases including Contemporary Authors, Encyclopedia Britannica, and SIRS, but these products are restricted by licensing agreements only to their students. South Mountain Community College provides dial-up access to the databases located on their CD-ROM LAN, but again, these

products are limited only to their students. Given the broader scope of this project combined with its focus on Glendale Community College, these particular databases are excluded from consideration.

TABLE 3.1, Electronic databases available by dial-up in Maricopa County

Database	Vendor	ASU	Chandler	Glendale	Maricopa Colleges	Maricopa Public	Mesa	Phoenix	Scottsdale	Tempe
American Heritage Dictionary	Dynix							X		
Books In Print	EBSCO							X		
Books In Print	Vista			X						
Books Out Of Print	Vista			X						
Businessfile Index	IAC			X						
Encyclopedia of Associations	Gale					X				
ERIC	DRAnet					X				
Expanded Academic ASAP *	IAC				X					
General Businessfile ASAP *	IAC			X		X		X		
General Reference Center *	IAC					X		X		
Health Reference Center *	IAC			X		X		X		
Text-based Internet access through Lynx	N/A			X	X	X		X	X	
Magazine Index Plus	IAC			X					X	
MasterFile 650 *	EBSCO						X	X		
On-line catalog	DRA				X	X			X	
On-line catalog	Dynix			X			X	X		
On-line catalog	III	X								
On-line catalog	Inlex									X
On-line catalog	Sirsi		X							
Pro CD Phone—US Residential	EBSCO							X		
Social Issues Researcher Series (SIRS) *	Vista			X						

Asterisk (*) indicates that database provides full-text articles

Table 3.1 provides a detailed cross-reference of which databases are available from which libraries, but its contents are too information dense to permit the reader to

discern several interesting facts. Analysis of this table revealed several trends including the multiplicity of on-line catalogs used by libraries within Maricopa County, the prevalence of IAC as the provider of databases, and the ability to gain access to the databases most relevant to community college assignments by obtaining a single library card from Phoenix Public Library.

On-line catalogs

In Table 3.1, the database titled "On-line catalog" refers to the library automation system used by the library. By examining the number of different vendors for this database and acknowledging that each vendor uses a different search strategy, it becomes apparent that when students try to ascertain holdings status for books and journals, they may have to interact with as many as five different on-line catalog systems. In practice, most students are unlikely to use more than three different systems: DRA for their college, III at ASU for advanced materials, and the system of the public library closest to them. Although the on-line catalogs of each of these library vendors are menu driven, the variances in user interface require the patron to rethink how to locate materials as she moves from system to system. If the patron is accessing these systems by dial-up, the disparities between systems become more of an issue since the patron is divorced from the help infrastructure present in the actual library, including printed guides and the direct assistance of people experienced in the use of the system.

The difficulties faced by a patron who must use several on-line catalogs can be eased through the implementation of the Z39.50. Z39.50 is a standard that provides a means of dividing on-line searching into two parts: 1) the client software used by a patron

to enter searches and view hits and 2) the server software that actually performs the search against the library catalog and returns the relevant hits. Through the use of Z39.50, a user who is familiar with performing searches through the menus and commands of one on-line catalog such as DRA can use those very same commands to search against the catalog information of a totally different system such as III. Since Z39.50 is typically an optional component of library systems, it is not surprising that only ASU currently has this capability. On the horizon, the availability of this option will become reality since the Maricopa Community Colleges have recently purchased this feature, and the public libraries of Maricopa County, Phoenix and Scottsdale all stated intentions to add this access in the near future.

Dominance of IAC

Excluding on-line catalogs and text-based access to the Internet, there are five vendors providing the fifteen databases shown in Table 3.1. Of these fifteen, six are provided by IAC, three by Vista, three by EBSCO, and one each by Dynix, DRAnet, and Gale. Among the IAC products, Businessfile Index is a subset of General Businessfile ASAP and Magazine Index Plus is a subset of General Reference Center. Since each database vendor uses proprietary search software, the dominance of IAC as a vendor implies that users can leverage skills acquired in using one IAC product against another product. The resulting reduction in frustration should improve user confidence and encourage the user to use such resources in the future.

TABLE 3.2, Electronic databases most relevant to community college assignments

Database	Vendor	Glendale	Maricopa Colleges	Maricopa Public	Mesa	Phoenix
Encyclopedia of Associations	Gale			X		
ERIC	DRAnet			X		
Expanded Academic ASAP *	IAC		X			
General Businessfile ASAP *	IAC	X		X		X
General Reference Center *	IAC			X		X
Health Reference Center *	IAC	X		X		X
Text-based Internet access through Lynx	N/A	X	X	X		X
MasterFile 650 *	EBSCO				X	X
Social Issues Researcher Series (SIRS) *	Vista	X				
Asterisk (*) indicates that database provides full-text articles						

The advantage of one card

If American Heritage Dictionary, Books in Print, Books Out of Print and Pro CD Phone are eliminated from consideration given their minimal relevance to community college research, and if the subset IAC products of Businessfile Index and Magazine Index Plus are eliminated, along with the on-line catalogs, Table 3.1 can be reduced to the form shown in Table 3.2. By count, the Maricopa County Library District (shown as Maricopa Public in the table) provides access to more databases. When ignoring the databases held in common between the Maricopa County Library District and Phoenix Public Library, MCLD provides Encyclopedia of Associations and ERIC whereas PPL provides Masterfile 650. With Masterfile 650 containing full-text articles from 650

different journals, its full-text content provides greater benefit to the dial-up user than the citations found in ERIC and the directory information contained in Encyclopedia of Associations. A Glendale Public Library card provides additional access to the full-text database SIRS, with the combination of these three cards providing access to all databases currently available in Maricopa County.

Phoenix is centrally located in Maricopa County. Phoenix Public Library has several branches located throughout the city, including branches near the borders with adjoining cities. The proximity of branches to the population provides a means of easy access for students to obtain library cards which then provide access to these databases. This finding indicates that the greatest opportunity for leveraging shared resources can be gained if community college libraries work cooperatively with Phoenix Public Library as well as make students aware of these resources .

Student Survey

With a clear picture of what databases are available, focus now shifts to actual use of these databases.

The survey was available to students from 25 February to 7 March 1997. Table 3.3 summarizes the number of participants who completed the survey per day and the number of people who started the survey but elected to discard their responses per day. By the measures employed, the number of participants is an unduplicated count of people, but the number of discards may include duplicate counts for people who started the survey more than once and discarded their results.

TABLE 3.3, Survey participation by date

Date	Completed	Discarded	Advertising Change
Tuesday 2/25	59	13	X
Wednesday 2/26	24	12	
Thursday 2/27	54	33	X
Friday 2/28	24	7	
Saturday 3/1	6	2	
Sunday 3/2	7	3	X
Monday 3/3	14	11	
Tuesday 3/4	15	8	X
Wednesday 3/5	14	9	
Thursday 3/6	6	7	
Friday 3/7	15	6	X
TOTAL	238	111	

When the survey was introduced on Tuesday, 25 February, a system welcome message was displayed just prior to the normal student login process, and a message describing the survey was placed in a group discussion area that focuses on library issues. On Thursday, 27 February, a similar message was written in the Bulletins area, which is the area where all users start when accessing this system, although the user had to explicitly choose to read the message. On Sunday, 2 March, the welcome message about the survey was moved from preceding the student login process to following the student login process. On Tuesday, 4 March, the welcome message following login was changed to reflect that the survey would stop at the end of the week. On Friday, 7 March, the welcome message following login was changed to remind that the survey ended on that date. Later on that evening, the survey was disabled, all advertisements were removed, and a snapshot was taken of the demographics of the users who had access to the system

during the survey. The increase in responses following advertising changes demonstrates the usefulness of using different reminders to encourage participation.

Access to the Electronic Forum is not limited to credit students, but is also extended to members of the community who are willing to pay a $10 fee, as well as to employees of the college. Using the student records information that was merged with the responses of participants, it was possible to separate responses into these three categories. Given the focus of this study, the only responses analyzed were those of the 155 credit students who participated in the survey. The balance of the 238 respondents were excluded from consideration, resulting in the exclusion of 58 community members as well as 25 employees of the college. Beyond the fact that community members did not meet the profile of the survey, it was further important to eliminate their responses since the access for these users is almost exclusively dial-up, with 95% of respondents in this group stating that they had a computer with a modem at home. Such a high response rate from a group that comprised 24% of the survey posed too large a threat to the external validity of the findings in the context of this study.

Table 3.4 compares the demographics of the remaining respondents against community college students at the national level, the research institution, and users of the Electronic Forum during the survey interval. Examination of the table reveals disparities in the sample by gender, race and age. The impact of these disparities on the Student Survey is considered further in the next chapter.

TABLE 3.4, Population comparison by gender, race, and age

	Enrollment in Public 2-year Institutions (1993)	GCC Enrollment (2/25/97)	Accessed EF During Survey	Participated
Gender				
Female	57.9%	55.7%	52.0%	42.6%
Male	42.1%	43.0%	47.1%	55.5%
Missing		1.3%	0.9%	1.9%
Race				
Asian	5.4%	4.0%	8.6%	4.5%
Black	10.6%	4.2%	4.0%	3.9%
Hispanic	10.1%	14.1%	13.5%	4.5%
Native American	1.1%	1.5%	1.4%	1.9%
White	71.1%	72.2%	67.7%	81.9%
Other	0.0%	1.2%	1.4%	1.3%
Missing	1.6%	2.7%	3.4%	1.9%
Age				
12-19	20.6%	21.0%	45.4%	38.1%
20-29	43.1%	41.3%	40.6%	43.2%
30-39	20.5%	18.5%	8.3%	9.7%
40-49	10.4%	11.8%	4.0%	6.5%
50-59 *	3.4%	4.6%	1.1%	1.9%
60-69 *	1.0%	1.6%	0.2%	0.6%
70-79 *	0.0%	0.6%	0.1%	0.0%
80-89 *	0.0%	0.0%	0.0%	0.0%
Missing	1.0%	0.6%	0.4%	0.0%
N =	5,337,328	16,677	1,543	155

US 1993 enrollment taken from the 1996 Digest of Education Statistics compiled by the National Center for Educational Statistics.

* US 1993 age range data varied from this table at ages 50 and above. Data was remapped with 50-64 reported as 50-59 and 65 and above reported as 60-69.

Section one of the Student Survey

The survey was divided into three sections. The first section concentrated on the student's previous use of computers to perform library research to complete class assignments at community college and public libraries, both from within and outside these libraries. The results of this section are summarized in Table 3.5.

TABLE 3.5, Responses to section one of the Student Survey

Question	Yes	No	Missing	Chi Square
1. Do you have access to a computer connected to a phone line at your home?	71.6	28.4	0.0	29.0 **
2. Do you have access to a computer connected to a phone line at your work?	31.6	65.8	2.6	18.6 **
3. Have you ever used the computers **in the GCC Library** to search for books?	83.2	16.8	0.0	68.4 **
4. Have you ever used the computers **in the GCC Library** to search for magazine or journal articles?	72.9	27.1	0.0	32.5 **
5. Have you ever used the computers **at a public library** to search for books for a GCC class assignment?	78.1	21.9	0.0	48.8 **
6. Have you ever used the computers **at a public library** to search for magazine or journal articles for a GCC class assignment?	65.2	34.8	0.0	14.2 **
7. Have you ever used a computer **off-campus** (e.g. at home or work) to connect to the **GCC Library system** to search for books?	41.3	58.7	0.0	4.7 *
8. Have you ever used a computer **off-campus** (e.g. at home or work) to connect to the **GCC Library system** to search for magazine or journal articles?	31.0	69.0	0.0	22.5 **
9. Have you ever used a computer **off-campus** (e.g. at home or work) to connect to a **public library system** to search for books for a GCC class assignment?	33.5	66.5	0.0	16.8 **
10. Have you ever used a computer **off-campus** (e.g. at home or work) to connect to a **public library system** to for magazine or journal articles for a GCC class assignment?	25.2	74.8	0.0	38.3 **

All values reported as percentages (%) except Chi square
N = 155 * $p < 0.05$ ** $p < 0.01$

The finding that 71.6% of respondents have access to a computer with a modem from home is substantially higher than the national statistic mentioned earlier of 18%. When access from home is combined with access from work, the total population capable of accessing resources by dial-up rises to 75.5%. By performing a similar combination of positive responses to questions 7 through 10, it was determined that 49.0% of respondents had accessed some form of library resource by dial-up.

Questions 3 through 6 mirror questions 7 through 10, varying access from within the libraries to dial-up access. Cross tabulations between these questions found that if the student had never used the resources within a particular library, then it was extremely unlikely that the students had ever used the same resources by dial-up. In particular, the highest number of students who used a resource by dial-up without ever using the resource in that library was 7 students (4.5%), who had accessed the on-line catalog of public libraries without using the on-line catalog within those libraries. Through the computation of r x k Chi square values, all of the cross tabulations were found to be statistically significant at $p < 0.01$.

Section two of the Student Survey

With some order of magnitude established for how many students can take advantage of dial-up resources, attention now shifts to the second section of the Student Survey that focuses on reasons why dial-up access is not used.

All students had the opportunity to respond to questions 11 through 16, regardless of whether they had indicated previous experience with dial-up access. For analysis, respondents were divided into two groups: 1) students who answered no to questions 7

through 10 and thereby indicated never having used dial-up access and 2) students who answered yes to at least one of questions 7 through 10. The group with no dial-up experience contained 79 students (51%) while the group with experience contained 76 students (49%), providing an almost equal split in experience among respondents. When the responses were tabulated separately for these two groups, marked differences were noted in the results. In the group with no dial-up experience, the rate of missing responses for most questions approached 50% and the responses to all questions failed to vary from chance at $p < 0.05$. As a result, this series of questions failed to derive any meaningful information to determine why people who have no experience with dial-up access do not use such access. By contrast, the group with some dial-up experience had lower rates of missing responses and demonstrated statistical significance to all but one of the questions. Table 3.6 summarizes the responses for the latter group of students.

TABLE 3.6, Responses to section two of the Student Survey by students with library dial-up experience

Question	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Missing	Chi square
11. Did not know dial-up access was available:	14.5	5.3	6.6	9.2	28.9	35.5	21.9 **
12. Encountered busy signals:	13.2	14.5	13.2	15.8	13.2	30.3	0.3
13. Tried dial-up access but my computer would not connect:	10.5	6.6	6.6	17.1	27.6	31.6	17.6 **
14. Tried dial-up access but found it to be too confusing to use:	6.6	1.3	6.6	17.1	39.5	28.9	49.7 **
15. Tried dial-up access but could not find anything useful:	7.9	3.9	9.2	21.1	31.6	26.3	26.7 **
16. Was unaware that any information existed on how to use these services:	11.8	6.6	11.8	15.8	30.3	23.7	16.1 **

All values reported as percentages (%) except Chi square
Median responses underlined
N = 76 * $p < 0.05$ ** $p < 0.01$

Examination of Table 3.6 indicates that people who have tried dial-up access believe that they have more success than failure at using dial-up access. The high level of missing responses remains of concern, overshadowing the ability to generalize these findings to any larger setting. Still, it is encouraging to note that the greatest disagreement comes over how confusing these resources are to use, implying that users who access these resources believe that they are able to use them effectively.

Section three of the Student Survey

From the negative issues surrounding access, consideration moves to the third section of the Student Survey: reasons why people want to use dial-up access. These results are presented in Table 3.7.

TABLE 3.7, Responses to section three of the Student Survey

Question	Very Important	Important	Neutral	Unimportant	Very Unimportant	Missing	Chi square
17. Ability to locate books needed for class assignments and determine if they are available in the library:	<u>49.0</u>	26.5	11.0	1.9	1.9	9.7	137.3 **
18. Ability to locate references to magazine and journal articles for class assignments:	<u>47.1</u>	28.4	12.3	2.6	1.9	7.7	124.5 **
19. Ability to determine if the magazines and journals found above can be obtained at the library:	<u>51.6</u>	29.7	9.0	1.3	1.3	7.1	158.8 **
20. Ability to retrieve complete magazine and journal articles for class assignments from off-campus:	<u>51.6</u>	23.9	12.9	1.3	2.6	7.7	143.3 **
21. Access to printed materials explaining how to access these resources from off-campus:	43.2	<u>24.5</u>	16.8	3.9	3.2	8.4	92.9 **
22. Ability to call and receive assistance when problems are encountered:	41.3	<u>27.1</u>	16.1	4.5	2.6	8.4	88.6 **
23. Ability to work when the library is closed:	<u>56.1</u>	24.5	7.7	1.9	1.9	7.7	177.8 **
24. Ability to work from home as your schedule permits:	<u>54.2</u>	26.5	7.7	0.6	1.3	9.7	177.3 **

All values reported as percentages (%) except Chi square
Median responses underlined
N = 155 * $p < 0.05$ ** $p < 0.01$

In Table 3.7, the majority of responses fell into the very important or important category. Not surprisingly, the issue of greatest importance to students was the ability to

work when the library was closed and when their schedules permitted. Interestingly, the next highest priority was the ability to locate where a particular article could be found, rating much higher than the ability to actually find references to articles. On par with locating articles was the ability to retrieve complete articles. Based on the importace of the ability to work when the library is closed or as one's schedule permits, it appears likely that this question might have received stronger responses if worded as "Ability to download complete magazine and journal articles directly to your computer." The ability to locate books and references to magazine and journal articles were of next importance, and since these functions involve identifying resources that are not immediately available, this ranking is consistent with the highest priority of working when the library is closed or on one's own time. Finally, although receiving positive support, the least important aspects of dial-up access were the ability to receive printed materials and the ability to call someone when problems are encountered. The ranking of these functions at the bottom matches the tendency of students to overlook or avoid consulting resources provided by the library, such as subject guides created by the library as well as the services of reference librarians.

4. DISCUSSION

The data collection performed in this study revealed several interesting results. These results and their implications are considered, as well as the restrictions imposed by the size of the survey sample. Suggestions are proposed for further research, followed by closing comments.

Implications

The results of this study suggest specific local and regional actions, as well as a strategy for other libraries. A unique implication for Glendale Community College is that the reciprocal borrower privileges with Glendale Public Library can provide students with access to a full-text social issues database for simple topic-based papers. The broader implication for students of the Maricopa Community Colleges is the revelation that possession of a single public library card can provide access to the majority of full-text electronic databases available for free by dial-up access in Maricopa County. This is promising since the majority of students indicate interest in using these resources, although many have not used the resources of a public library by dial-up for class assignments.

The broader implication for other academic and even school libraries is that a variety of resources are likely to be available for free, but are unknown to students and library employees. Individual libraries need to make a better effort to advertise these services, not only by disseminating direct information to their own patrons, but also by providing information to other libraries for indirect advertising. In addition, academic

libraries should take the time to gather information on the mix of libraries and databases in their region, then analyze all offerings to determine ways to maximize access to databases while minimizing the number of libraries with which the patron must interact

Cooperative resource development among academic and public libraries could allow a maximization of resources available to students and patrons alike. The greatest dangers in such an arrangement are the potential for license agreements to change and disallow remote access to databases, or for other libraries to discontinue subscriptions upon which other libraries have become dependent. A high degree of nimbleness is required to keep on top of such shifting access, keeping instructional materials current. Success in such a venture is more likely if multi-year license agreements are negotiated.

The Student Survey revealed a strong interest in using dial-up access. Most respondents had the equipment needed to take advantage of dial-up access, and half had already tried dial-up access at some point. The primary reason for using this type of access is for the flexibility that it provides. Students were interested in access to materials that they could obtain directly from their computers at home. When materials were not available electronically, they wanted to check availability at libraries before traveling to these libraries. Students believe that they used these resources in a manner that allowed them to locate information that was relevant to their needs. Students were aware of the resources of their college libraries, but were more often unaware of the resources of public libraries. Public libraries tended to provide more databases and as such should be leveraged to increase the options available to students.

Limitations

The greatest restriction against the generalizability of these findings is the small number of respondents. The 155 students who participated in the survey account for 10% of the 1543 students who saw the announcement of the survey and could have participated, with the surveyed students accounting for less 1% of the total student population. According to Backstrom (1981), this level of response introduces an 8% sampling error. Although this level of sampling error weakens the arguments regarding the priorities of students using dial-up access, it is not large enough to invalidate the importance of dial-up access to the student body of Glendale Community College.

The population analysis provided in the previous chapter in Table 3.4 demonstrates how several demographic differences suggest difficulties in generalizing the findings. Although the percentage of people age 20-29 was representative of the student population, nearly twice the percentage of people age 12-19 responded versus actual enrollment, and roughly half the percentage of people over age 30 responded as compared to enrollment. Not only were the respondents younger, but more males participated than females, in contrast to the opposite trend in actual enrollment. By ethnic group, Hispanics represented 14% of the population, but the Hispanic response rate was only 4.5%. More White students responded than was typical of the population, but the other ethnic groups were represented at levels consistent with the student population. The strong response of younger students is to be expected given the infusion of computer technology into primary and secondary grade schools. Younger students have received more exposure to computers and expect to use them in the completion of

class assignments. It is expected that completion of a similar study in another decade would increase the representation of older students.

Conducting the study early in the semester over a one-and-a-half week interval limited the variety of students surveyed. Students receive assignments that require the use of the Electronic Forum at different times through the course of the semester; hence, the students who responded may have been from a smaller sample of classes, resulting in less variability in the responses. Sampling over a longer interval or sampling at multiple times during the semester would be appropriate to control against this possible bias.

Suggestions for Further Research

Late in the Spring 1997 semester, Glendale Community College is going to conduct a mailed survey to students to assess the home computing capabilities of students. One of the questions will deal with whether or not students have modems on their computers. The survey will be sent to a random sample of the entire student population. When the results become available, comparison between those results and the findings of this survey should be made to determine how accurately the computer ownership findings from this survey reflect those of the larger student population.

The students who participated in the survey were required to use computers for their class assignments. Although such a requirement has become the norm, there is a danger that the respondents were more technically adept than the general population. Although self-reporting is a weak measurement, it would have proved useful to have students identify their degree of comfort with computer technology to assess such impact against dial-up use. Access to such information would help evaluate strategies to make

dial-up use available to all students, not only those who may already be inclined by skill to use such resources.

The Student Survey concentrated on quantifying use at a broad level. Since the information did not probe into subject areas, no insight was provided into the impact by subject areas. The demographic information on students included major, but the majority of respondents only had a generic major of liberal arts. In the future, it would be helpful to gather information on which databases were used, which assignments were completed, and which courses were involved. A related area of research would be to attempt to differentiate between simple access to resources versus effective use of dial-up databases to actually locate information that was useful in the completion of assignments.

A logical extension of this study would be quantify to what degree the databases could be used to actually complete class assignments. To explore this area, a further study should identify typical class assignments and actually attempt to locate materials using these databases. An alternative to such a survey would be to conduct an experiment with class sections that receive additional information on accessing electronic databases and control sections that do not to determine the impact of knowledge of and access to these resources. The findings of either activity could be used to provide guidelines linking electronic databases to the types of assignments that they best address.

Conclusions

Through the resources of community college and public libraries, a rich variety of electronic databases are available to community college students. Many of the students have the equipment required to take advantage of these resources, combined with a desire

to use these resources to increase the flexibility of their options for performing research. In many cases, students are not aware of the options available to them. Through careful analysis of the offerings of public libraries, a subset of libraries can be identified to provide access to the majority of databases. The greatest barrier to use was a lack of realization that such resources were available. Community college libraries should take an active role in locating resources that can be accessed from other libraries and advertise information about these resources to their students.

APPENDIX A: LIBRARY SURVEY

1. May I have permission to use your name in quoting your responses? If so, what is your name, title and phone number?

2. Which library automation system vendor do you use for your on-line catalog?

3. What are the normal requirements to receive a library card at your library?

4. What reciprocal agreements exist for people to receive a free library card at your library?

5. Are there other alternatives for those not covered above to receive a library card at your library? What costs are associated with such cards?

6. Do the services available vary whether you are a regular patron, reciprocal patron or courtesy patron?

7. Does your library catalog periodicals? If so, are only the titles stored in the catalog, or also issue availability information?

8. Which of these forms of remote access are available to your on-line catalog?
   - ☐ Terminal emulation? If yes, what is the phone number?
   - ☐ Telnet by Internet? If yes, what is the host name/username?
   - ☐ World Wide Web? If yes, what is the URL?

9. Does terminal emulation access require special features such as VT-220 keyboard support?

10. Is keyboard mapping information required to use this product? If so, how do you provide this information?

11. Does your library provide Z39.50 access
    - ☐ to the catalogs of other libraries? If yes, which libraries?
    - ☐ from other libraries to your catalog? If yes, which libraries?

12. What type of handout materials do you provide to patrons for accessing your on-line catalog by dial-up?

13. What type of online help is available to patrons?

14. Do you provide any form of training sessions on your on-line catalog? If so, do these sessions cover any of the issues unique to dial-up access?

At this point, complete one or more of the DATABASE SURVEY forms.

15. What forms of telephone technical support do you provide for users of dial-up services?

16. What future plans does your library have to enhance dial-up access?

17. Do you have any further comments?

APPENDIX B: DATABASE SURVEY

1. Who is the vendor for this database?

2. What is the name of the database?

3. Please provide a brief description of the resources provided by the database.

4. Does the database provide
   - ☐ Citations?
   - ☐ Abstracts?
   - ☐ Full-text articles?

5. What dates are covered by this database?

6. Which of these forms of remote access are available for this database?
   - ☐ Terminal emulation? If yes, what is the phone number?
   - ☐ Telnet by Internet? If yes, what is the host name/username?
   - ☐ World Wide Web? If yes, what is the URL?

7. Does terminal emulation access require special features such as VT-220 keyboard support?

8. Is keyboard mapping information required to use this product? If so, how do you provide this information?

9. Does this resource provide the ability to flag local holdings? If so, does your library flag local holdings?

10. Does the remote access to this database vary whether you are a regular patron, reciprocal patron or courtesy patron?

11. What type of handout materials do you provide to patrons for accessing this resource by dial-up?

12. What type of online help is available to patrons?

13. Do you provide any form of training sessions for this resource If so, do these sessions cover any of the issues unique to dial-up access?

APPENDIX C: STUDENT SURVEY

Thank you for taking a moment to answer this survey on library access. Your answers are very important as they will help determine ways to improve your access to library resources, making it easier for you to complete class assignments from home.

This survey contains 10 yes/no questions, 14 questions on a scale of 1 to 5, and the option to type comments on the survey.

You may type - (hyphen) as the answer to any question if you do not want to answer it.

You may type X at any time to stop the survey and have your answers discarded. You may use this option as a way to start over if needed.

Your answers to this survey will be totally anonymous.

To start the survey, press RETURN:

[screen clears]

The first section contains 10 yes/no questions.

For each question, press Y to answer Yes or N to answer No, then press RETURN.

Press - to skip a question or X to stop the survey and discard your answers.

Do you have access to a computer connected to a phone line

1. at your home?
2. at your work?

Have you ever used the computers **in the GCC Library** to search

3. for books?
4. for magazine or journal articles?

Have you ever used the computers **at a public library** to search

5. for books for a GCC class assignment?
6. for magazine or journal articles for a GCC class assignment?

Have you ever used a computer **off-campus** (e.g. at home or work) to connect to the **GCC Library system** to search

7. for books?

8. for magazine or journal articles?

Have you ever used a computer **off-campus** (e.g. at home or work) to connect to a **public library system** to search

9. for books for a GCC class assignment?
10. for magazine or journal articles for a GCC class assignment?

[screen clears]

The next section concentrates on reasons why you have never used dial-up access, or if you have, reasons why you have not used it more often.
Please rate the following reasons on a scale of

1 = Strongly agree
2 = Agree
3 = Neutral
4 = Disagree
5 = Strongly disagree
- = Reason does not apply

Press - to skip a question or X to stop the survey and discard your answers.

---

11. Did not know dial-up access was available:

12. Encountered busy signals:

13. Tried dial-up access but my computer would not connect:

14. Tried dial-up access but found it to be too confusing to use:

15. Tried dial-up access but could not find anything useful:

16. Was unaware that any information existed on how to use these services:

[screen clears]

In this section, please rate the following factors as reasons that might might encourage your use of dial-up access to library resources on a scale of

1 = Very important
2 = Important
3 = Neutral
4 = Unimportant
5 = Very unimportant

Press - to skip a question or X to stop the survey and discard your answers.

---

17. Ability to locate books needed for class assignments and determine if

they are available in the library:

18. Ability to locate references to magazine and journal articles for class assignments:

19. Ability to determine if the magazines and journals found above can be obtained at the library:

20. Ability to retrieve complete magazine and journal articles for class assignments from off-campus:

21. Access to printed materials explaining how to access these resources from off-campus:

22. Ability to call and receive assistance when problems are encountered:

23. Ability to work when the library is closed:

24. Ability to work from home as your schedule permits:

[screen clears]

Please type any comments you have regarding your experiences using dial-up access, reasons why you would or would not use dial-up access, or regarding this survey experience. Press RETURN on a blank line when you are done.

: *[respondent can type up to 100 lines of free text]*

[screen clears]

The survey is now complete!

Thank you for taking the time to provide this feedback. The results gathered will be used to enhance services provided.

If you have any further questions or comments regarding this survey, please feel free to contact Chris Zagar either by sending e-mail to EF user 1 or by calling 435-3515.

APPENDIX D: DIAL-UP ACCESS TO LIBRARIES IN MARICOPA COUNTY

The following summarizes the information needed to gain remote access the major libraries in Maricopa County. All phone numbers listed below are in telephone area code 602. If nothing appears on the screen after connecting, you may need to press ENTER several times before being able to proceed.

Arizona State University
Dial-up: 965-6900
Telnet: roll.lib.asu.edu
Help: 965-5902
Availability: 24 hours a day

Chandler Public Library
Dial-up: 786-2359
Telnet: N/A
Availability: 24 hours a day

Glendale Public Library
Dial-up: 931-4983
Telnet: N/A
Help: 930-3591
Availability: 24 hours a day

Maricopa Community Colleges
Dial-up: (602) 731-8737
Telnet: lib.maricopa.edu, type LIB
Help: Varies by college
Availability: 24 hours a day

Maricopa County Library District
Dial-up: 992-8471, type LIBRARY
Telnet: library.maricopa.gov, type LIBRARY
Help: Documentation refers patrons with problems to their computer dealers
Availability: 6 AM - midnight

Mesa Public Library
Dial-up: 644-3657
Telnet: N/A
Help: 644-2207
Availability: 24 hours a day

Peoria Public Library
Dial-up: N/A
Telnet: N/A

Phoenix Public Library
Dial-up: 534-8888
Telnet: pac.ci.phoenix.az.us
Help: 262-4636
Availability: 24 hours a day

Scottsdale Public Library
Dial-up: 994-7655
Telnet: lib.ci.scottsdale.az.us, type INET
Help: 994-2476
Availability: 6 AM - 10 PM

Tempe Public Library
Dial-up: 350-5651, type TPL
Telnet: N/A
Help: 350-5500
Availability: Varies

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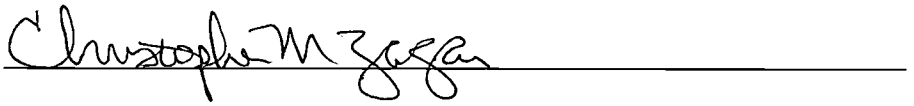
Sign Here, Please 

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