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ABSTRACT

This study compared the familiarity of text-only/Telnet and graphical/Web-based online library catalogs of 83 traditional to 17 nontraditional students who were new to Kent State University (Ohio) as of the spring semester of 2000. A questionnaire was distributed to all students prior to any formal library instruction provided by the university. Chi-Square tests were used to determine if there were significant relationships between the two groups of students and multiple variables concerning: previous use of electronic catalogs before entering college, each type of catalog display specifically, and willingness of each subject towards taking a formal class in library catalog instruction. It was found that the traditional student population preferred majors that were within Kent's College of Fine and Professional Arts, whereas nontraditional students concentrated their studies in the College of Business. Most traditional students were found to attend school full time and nontraditional students to attend on a part time basis. Results revealed that traditional students have had more experience and instruction concerning electronic catalogs than their nontraditional counterparts, and they were also more likely to use text-only/Telnet versions of a library catalog in the past. Both groups frequently use the Internet, and the automated catalog is accessed the most within the confines of the library building. Each group found both display screens easy to read and comprehend; however, an overwhelming majority favored the graphical/Web-based version of the online library catalog. Traditional students were equally divided as to their willingness to take a formal class on automated library catalogs, and nontraditional students tend to favor this type of introduction to accessing and using library resources. An appendix contains the display questionnaire and display questionnaire coding sheet. (Contains 10 references.) (AEF)

A COMPARISON OF TRADITIONAL AND NONTRADITIONAL STUDENTS AND THEIR EASE OF INTERACTIVITY BETWEEN TELNET AND WEB-BASED ONLINE CATALOGS

A Master's Research Paper submitted to the
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by

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CHAPTER I

INTRODUCTION

A significant change in the way libraries obtain, convey, and distribute information has occurred within the last ten years. The advent of electronic information resources such as online catalogs, numerous CD-ROM databases, and the World Wide Web, have forced libraries to shed their image as an institution whose only range of service is within the environment in which they operate. Today, using any of the resources described above, patrons that frequent any size and type of library have the ability to search, locate, and retrieve information from anywhere in the world. Or is this really true? Can those who do not understand the technology associated with computers and databases obtain all of the results that they seek within a library?

Some patrons, especially those who were never exposed to computer technology prior to entering college, may harbor severe discomfort or show direct adversity towards using computers to conduct searches in order to find library materials. This problem has become a very significant issue in libraries because the existence of a *physical* card catalog has been abandoned in favor of a computerized system, which takes up less space, and allows connectivity to other libraries and Internet sites. For the older student who is just returning to college, the problem of being afraid to use the current technology is even more immense, especially when forced to adjust quickly to using a computerized catalog or electronic database. They are limited to two choices: either resigning themselves to struggling with the technology to find their results, or simply attempting to avoid the library altogether.

There have not been many studies comparing traditional and nontraditional students and how they interact with two varying interfaces of the exact same catalog. Most studies involving nontraditional students seem to have focused on library orientation in general, and not on how

these users interact solely with the catalog. The same problem is true for the traditional students, although it is expected that they already have had prior computer experience, and can easily learn how to use an online catalog in any library setting. A study of this nature is needed to investigate how people interact with computerized catalog displays in general to find information. Do they understand all commands on a screen? Can they successfully navigate themselves through a simple search? A study of this kind can help to determine if nontraditional students really have a dissatisfied attitude towards using computers, or if this is just another way to attach stereotypes to older citizens. Research of this nature can also aid librarians in gaining the proper instruction that they need in order to best train nontraditional students (or any other type of patron) who desires to use the technology that their particular library provides.

Purpose of the Study

The purpose of this study is to determine whether there is a discernable gap between traditional and nontraditional students in using an online catalog that is displayed in two different formats within an academic library setting, and if this gap is reflective of an immediate need for formal instruction about library skills within colleges and universities. These varying online formats that will be used consist of a text-only (Telnet) interface, as compared to a graphical/interactive (World Wide Web) interface.

It is hypothesized that the nontraditional group will feel most uncomfortable with both the textual and World Wide Web formats, but will find the World Wide Web interface more adaptable to their limited searching capabilities. Whereas, traditional students will have no discomfort in using either format, and will prefer the World Wide Web due to its graphical and interactive nature.

Definition of Terms

Graphical: The display of information on a computer screen in which the material is described both in the written word, and pictorially.

Nontraditional Student: Those who currently attend college and whose ages fall at or above the age of 25.

Telnet: An older form of networking computers via the internet. It uses special addresses or phone numbers to dial directly into another computer or database. It allows any user to get information from anywhere in the world. Both text only and World Web resources utilize telnet resources and capabilities, but for this study, it will be assumed that telnet will be used for the text only interface alone.

Text Only: The display of information on a computer screen in which information is provided using just the written word.

Traditional Student: Those who currently attend college and whose ages fall between 18-25.

World Wide Web (or WWW): A modernized mechanism of networking computers via the internet. It works similar to telnet in its connectivity. Its major advantage is that it integrates text, graphics, and interactive abilities into the display that is viewed and utilized by the end user.

Limitations of the Study

This study is limited to traditional and nontraditional students who attend Kent State University in the state of Ohio beginning in the Spring semester of 2000, and who have had no previous experience using Kent State University's online catalog as of the questionnaire's distribution date. Replication of this study within other institutions of a different size and

support structure (public or private), using subjects that have had previous experience with KentLINK, or surveying those who attend the University during another academic year may yield differing results. The KentLINK online catalog (both Telnet and World Wide Web versions) is the only one being utilized during this study, and using another system may produce varying outcomes.

CHAPTER II

LITERATURE REVIEW

The idea of studying patrons and their approaches to using online library catalogs is not a new one. Text-based Online Patron Access Catalogs (OPACs) have been in existence since the 1970s, and have been the most common type of interface used to replace card catalogs since the 1980s. The emergence of the World Wide Web has done much to become a direct competitor to text-based catalogs, and the literature is just now beginning to explore the use of World Wide Web technologies in enhancing the ease and usefulness of library catalogs for both its staff and end users. In light of the variety of general literature that can be found on all aspects of this topic, there are three headings that these can be divided into: general studies of text-based online catalogs, specific user group studies involving text-based online catalogs, and general articles concerning the emergence of Web-based catalogs.

General Studies of Text-based Online Catalogs

Many books and articles have been written on the impact and influence of online catalogs upon various aspects of library service. While inspecting several sources pertaining to the topic of online catalogs, three works stand out which give a broad interpretation to investigating and evaluating various aspects of the text-based OPAC.

Charles Hildreth groups together several articles covering general aspects of the online catalog. Throughout his work, various discussions focus on the use of the OPAC as relating to the user, exploring the ease of using OPACs for searching library holdings,

and describing application and design of various OPACs.[1] This book is a good beginning point for investigating the applicative nature of online catalogs, and how the use of OPAC applications can greatly simplify the anxiety felt by patrons trying to find materials in a library.

Another set of articles, edited by Joseph Matthews, investigates the impact of online catalogs on the library world. Unlike Hilbert's compilation, this work looks at online catalogs from an evaluative point of view. Most entries focus on staff members, such as library managers and librarians within the fields of reference and technical services, who evaluate online catalogs based upon how these databases serve specific needs within each of these departments. Some articles also focus on system designers and their approaches to developing databases specifically for libraries. Problems concerning online catalog use are also stressed. This source is relevant in gaining an understanding of how others have perceived and evaluated online catalog use, and how this has changed the face of the library for better or worse.[2]

Thomas Peters puts all of these aspects of online catalog use (application and evaluation) together in his work. Peters uses statistical analysis to justify the use and relevance of having online catalogs in libraries. He explores the purpose of online catalogs, searching, evaluation, problems, education of users, and remote access to these databases.[3] This volume is much more technical than the other two aforementioned works, which is the sole reason that Peters' book is an excellent supplement to Hildreth's and Matthews' compilations.

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1 Charles R. Hildreth, ed., The Online Catalogue: Developments and Directions. (London: The Library Association, 1989), 1-22.

2 Joseph R. Matthews, ed., The Impact of Online Catalogs. (New York: Neal-Schuman Publishers, 1986), 81-141.

Specific User Group Studies of Text-based Online Catalogs

Beyond the scope of works that discuss various issues regarding online catalogs, several studies have been written pertaining to various user groups, and how they handle using the online catalog to find library materials. Listed here are three articles that studied specific user groups and varying trends associated with libraries and catalog use.

Ingrid Hsieh-Yee approaches the study of online catalogs by asking the question: If undergraduate students had a choice between utilizing online catalogs or other avenues to finding sought information, which would the student most likely prefer?[4] In her article, Yee not only tackles the issue of access (in house or remote), but she also attributes choices to various socioeconomic factors, such as: race, amount of previous schooling by the individual, economic status, and previous library experience. Her approach to finding the data involves the use of one type of catalog database, ALADIN, within a library system. Based on the results of a focus interview and general questionnaire distribution, Yee is able to conclude what previous studies have shown: that students attempt to choose the best information channel to facilitate their needs which has the best quality data available and in the most comprehensive format.

Garcha and Gatten conducted a comparison study of nontraditional and traditional aged students to see how they would respond to using a regular card catalog as opposed to an online database called CATALYST. They used a survey to ask each respondent questions about their age, sex, level of knowledge regarding library catalog systems, and

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[3] Thomas Peters, ed., The Online Catalog: A Critical Examination of Public Use. Jefferson: McFarland & Company, 1991.

[4] Ingrid Hsieh-Yee, "Student Use of Online Catalogs and Other Information Channels," College and Research Libraries 57 (March 1996): 161-175.

attitudes towards using these systems. In tabulating the results, they concluded that it was easy for both groups to identify simple items (such as a title) on a card or an online catalog entry. When it came to library-derived fields (such as the call number or specifying if an index was located in the entry listed), both groups scored low. Nontraditional students did have generally positive attitudes towards libraries, but cited the need for bibliographic instruction to be available to anyone who was not familiar with how to use either the card or online catalog.[5]

Sit's study observed the search strategies and uses of the online catalog strictly by older adult users within a public library setting. The adults that were observed were generally well educated, Caucasian, male, computer literate, and experienced at using an online catalog. Other factors such as demographics of the user population, frequency of errors, varieties of cataloging systems, and various search strategies were also taken into account by Sit when conducting his research. His conclusions reveal that even those older adult users who are proficient at using computers still are only beginners when it concerns using online library catalogs.[6] Older adults experienced problems in conceptual knowledge in relation to using an online catalog. They had less trouble with the semantic or technical aspects of searching a query. Sit concludes that the online catalog simply may not be open to older adults who wish to use it, thus limiting their ability to learn and gain the most from what the catalog has to offer.

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[5] Rajinder Garcha and Jeffrey N. Gatten, "Preliminary Observations of Non-Traditional University Students' Library Skills," Library Review 39 (1990): 13-20.

[6] Richard A. Sit, "Online Catalog Search Performance By Older Adult Users," Library and Information Science Research 20 (1998): 115-131.

General Articles Concerning the Emergence of Web-based Catalogs

Since the emergence of Web-based catalogs in libraries is a relatively new phenomenon, there is not much research done on this topic. There are several useful general articles concerning these new databases that are beneficial to developing research on this form of catalog presentation.

Dennis, Carter, and Bordeianu's discussion on planning and implementing a Web-based catalog explores various system and knowledge requirements that will be needed to have a successful catalog within an academic library. They discuss the possible impact that Web-based catalogs can have on general access, cataloging, and reference services. The article provides insight into various computer requirements needed to operate such a highly graphical catalog system. Some of the requirements discussed are: various types of computer servers needed, the best type of Windows operation system to be utilized to get the most out of the catalog, and computer desktop/presentation issues. The article then concludes by providing advice on maintaining control of the Web-based catalog upon implementation.[7] Dennis, Carter, and Bordeianu also provide a handy glossary of computer/internet related words that are useful to anyone reading their piece, or studying any type of computerized catalog system.

Green takes a more in depth look at the language in which Web-based catalogs are designed. She gives a definition of what a Web-based catalog is, followed by several issues concerning these types of systems alone. Comparisons are made of two systems, *Socrates II* and *Pathfinder*, using various issues related to the presentation World Wide

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[7] Nancy A. Dennis, Sever Michael Bordeianu, and Christina E. Carter, "Vision vs. Reality: Planning for the Implementation of a Web-based Online Catalog in an Academic Library," Library Hi-Tech 15 (1997): 159-171.

Web pages. Some of the issues covered are: metaphors, the use of "buttons" for linking web pages, and the amount of colors and graphics contained on a particular page. Beyond these superficial issues, Green examines the two systems through their use of particular design languages (the language used by a particular system to answer search queries and direct users to other places that will assist them in their investigation) within the context of various search strategies. Her conclusions suggest that each system is a good starting place for Web-based catalog designers, but the findings cannot be conclusive due to the newness of Web-based catalog systems.[8] Green suggests that these types of systems can only get better, as designers continue to develop easier models that have the user more in mind over the computer for which the database is being designed.

Cherry's recent study comparing twelve OPACs and ten Web-based catalogs represents one of the first attempts to find similarities and differences between these two computerized systems.[9] Using a checklist of desired display characteristics, these catalogs were rated as to how each showed bibliographic citations on a computer screen. The checklist, comprised of 133 questions, was based on previous evaluations in the literature which have served to standardize how bibliographic displays are to be shown. Cherry's findings conclude that approximately 55 percent of OPACs and 60 percent of Web-based catalogs comply with the display standards implicit within the checklists. These results clearly indicate that bibliographic displays generally vary from catalog to catalog. Cherry suggests that these findings can be helpful to librarians and system

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[8] Elisabeth Green, "Web-based Catalogs: Is Their Design Language Anything to Talk About?" Online 22 (July/August 1998): 98-105.

[9] Joan M. Cherry, "Bibliographic Displays in OPACs and Web Catalogs: How Well Do They Comply with Display Guidelines?" Information Technology and Libraries 17 (September 1998): 124-137.

designers who wish to improve their catalog interfaces, create uniformity across catalogs, or show general weaknesses in catalog displays.

Dowling's discussion provides an introduction to the OPAC's evolution from a text-only version to a Web-based format.[10] He explains that this change is inevitable due to the amount of popularity the World Wide Web has received in the past few years. Dowling questions if this is the right time for libraries to be providing catalog access through this medium and addresses the overall benefits of having "WebPACs". These benefits are broken into three categories: familiarity of browsers with users, the ease of interacting with information shown on Web-based catalog displays, and the ability of systems to support large-scale Web-based catalogs with little or no change to its structure. Dowling points out that while adopting this new interface for OPACs, libraries leave many things behind, such as compliance with the Americans with Disabilities Act (ADA) and the "smart host", in favor of taking advantage of this popular information tool. He suggests that libraries become aware of those users in and outside of the library building and build its system to allow all users to get the most from what it has to offer.

[10] Thomas Dowling, "The Wide Web Meets the OPAC," ALCTS Newsletter 8, no. 2 (1997): A-D.

CHAPTER III

METHODOLOGY

This investigation is based upon a study conducted by Rajinder Garcha and Jeffrey Gatten in 1989. Their survey compared traditional and nontraditional students at Kent State University and their use of a traditional card catalog and an online database called CATALYST. The current study uses two display variations of Kent State University's newest computerized catalog, KentLINK, to assess subjects' ability to interact with each version.

A questionnaire composed of 23 multiple choice questions was used as the assessment instrument. In consultation with Kent State University's Office of Adult Services and the Office of University Orientation, approximately 250 surveys were distributed amongst traditional and nontraditional students who were newly admitted to the University beginning in the Spring semester of 2000. These surveys were provided to participants via distribution in each orientation class section. Questions asked on the questionnaire are classified into three broad categories: A.) demographic information; B.) general computer knowledge and Internet use; and C.) specific questions pertaining to each version of the online catalog display. Participants were given an envelope along with their questionnaire into which they placed their answers. The investigator collected these pre-addressed envelopes via campus or U.S mail.

Once all questionnaires were collected, they were separated and tallied into traditional and nontraditional student groups based upon the age given by each respondent. The investigator randomly selected 100 surveys from these groups for

inclusion into the final sample. Comparisons of statistical data, using textual and graphical descriptions, were made between these two groups.

CHAPTER IV

ANALYSIS OF DATA

Demographic Data

Of one hundred respondents who were randomly chosen from the overall sample, forty-four (44.0%) were male, and fifty-six (56.0%) were female. In the traditional student category, thirty-six (43.4%) were male, while forty-seven (56.6%) marked themselves as being female. Eight (47.1%) men marked being nontraditional students as compared to nine (52.9%) women who said they belonged to the same group.

Full or Part Time?

Eighty-one answered that they were full time students at Kent State University. Nineteen indicated that they went to school part time. Seventy-three (90.1%) respondents who answered as being full time students fell between the ages of 18 and 25 and eight (9.9%) were 26 or above. Ten (52.6%) traditional students responded that they only attend school part time, while nine (47.4%) nontraditional students answered the same.

Major

Data in Table 1 explores the distribution of all responses to the question which asked what college or school each respondent's major falls into at the University. Two individuals failed to provide a response. Table 2 further breaks down this category into their respective traditional and nontraditional groups.

TABLE 1.—Distribution of Respondents by College or School

COLLEGE/SCHOOL	N	(%)
College of Arts & Sciences	18	18.0
College of Business	21	21.0
College of Fine & Professional Arts	24	24.0
College of Education	13	13.0
School of Technology	2	2.0
School of Nursing	3	3.0
Undergraduate Studies	17	17.0
Missing Values	2	2.0
Total	100	100.0

A high number of traditional students chose majors which are included as part of Kent State University's College of Fine and Professional Arts. Nontraditional students lean more towards the College of Business, with five subjects enrolling there. The School of Technology had only one traditional student respondent attending, whereas, the School of Nursing ranked last with none of the nontraditional student population.

TABLE 2.—Distribution of Respondents and College/School by Specific Age Group

COLLEGE/SCHOOL	TRADITIONAL N	NONTRADITONAL N	TOTAL N	TOTAL (%)
Coll. Of Arts/Sciences	16	2	18	(18.0)
College of Business	16	5	21	(21.0)
College Of Fine & Professional Arts	21	3	24	(24.0)

(Table 2. cont.)

COLLEGE/SCHOOL	TRADITIONAL N	NONTRADITONAL N	TOTAL N	TOTAL (%)
College of Education	10	3	13	(13.0)
School of Technology	1	1	2	(2.0)
School of Nursing	3	0	3	(3.0)
Undergrad. Studies	14	3	17	(17.0)
Missing Values	2	0	2	(2.0)
Total	83	17	100	(100.0)

Formal Catalog Instruction

Each respondent was asked if they had ever had any formal instruction in the use of general library catalogs (either electronic or card). Asking if each respondent had ever had any training concerning the specific use of computerized/electronic catalogs further narrowed this question. If an individual answered "yes", then they were further asked to clarify exactly for which type of electronic catalog they had received instruction.

GENERAL CATALOG INSTRUCTION

Fifty-nine (71.1%) traditional students responded that they had obtained previous formal instruction in the general use of library catalogs. Twenty-four (28.9%) answered that they had not had this formal training. Eight (47.1%) nontraditional students said that they had completed some sort of formal instruction, and nine (52.9%) adults answered to the contrary.

USE OF ELECTRONIC/COMPUTERIZED CATALOGS

When asked about their use of electronic catalogs, the response rate was slightly higher within the traditional student group. Sixty-three (75.9%) traditional college students explained that they had used an electronic library catalog in the past, as opposed to only twenty (24.1%) who had not. Nontraditional students tend to be somewhat equally divided on this issue. Eight (47.1%) said that they had used an electronic catalog before and nine (52.9%) said they had not. These numbers represent the same results as those provided in response to the previous question concerning adults and their general use of any type of library catalog. A Chi-Square value of .017 ($p \leq .05$) indicates a significant relationship between an individual's age and their ability in using electronic library catalogs.

Respondents who answered positively to the question regarding electronic catalogs were asked to further indicate which version of this type of catalog they had used: text-only (Telnet version), graphical (Web-based version), or other. Data in Table 3 illustrates the results from each group of respondents.

Table 3.—Distribution of Respondents' Uses of Electronic Library Catalog Versions

CATALOG VERSION		TRADITIONAL N (%)		NONTRADITIONAL N (%)	TOTAL N	(%)
Text-only (Telnet)	Yes	45 (71.4)	Yes	4 (50.0)	49	(69.0)
	No	18 (28.6)	No	4 (50.0)	22	(31.0)
Graphical (Web-based)	Yes	30 (47.6)	Yes	4 (50.0)	34	(47.9)
	No	33 (52.4)	No	4 (50.0)	37	(52.1)
Other	Yes	7 (11.1)	Yes	0 (0.0)	7	(9.9)
	No	56 (88.9)	No	8(100.0)	64	(90.1)

Seventy-one people out of the random sample chose to answer this particular question. Traditional students responded most favorably to previously using a text-based (Telnet) library catalog in the past, while answering negatively to using a graphical (Web-based) version of the same library catalog. Nontraditional students were equally divided in the use of both the text-only and graphical catalog versions. Most students (56 traditional and 8 nontraditional) indicated that they have used other versions of a typical library catalog but did not elaborate on what these were.

FORMAL INSTRUCTION IN ELECTRONIC/COMPUTERIZED CATALOGS

Respondents were asked if they had any formal instruction in using electronic/computerized library catalogs. Data in Table 4 provides the percentages of traditional and nontraditional students who have had some type of formal education as to how to find and locate bibliographic information while using an online library catalog.

Table 4.—Distribution of Respondents Having Previous Formal Instruction with Electronic Library Catalogs

RESPONSE	TRADITIONAL		NONTRADITIONAL		TOTAL	
	N	(%)	N	(%)	N	(%)
Yes	25	(30.1)	2	(11.8)	27	(27.0)
No	35	(42.2)	13	(76.5)	48	(48.0)
Don't Know	23	(27.7)	2	(11.8)	25	(25.0)
Total	83	(100.0)	17	(100.0)	100	(100.0)

A majority of students in both groups marked that they had not had any formal instruction in the use of electronic or computerized library catalogs. A Chi-Square value of .036 ($p \leq .05$) infers that age does have a significant effect as to whether one has received any formal instruction in using this type of catalog.

INTERNET USE

As a measure of comparison to those who use electronic or computerized library catalogs, each respondent was questioned as to whether they use the Internet on a regular basis. They were *not* polled as to what services they access while they are online.

Sixty-one (73.5%) traditional college students marked that they use the Internet regularly. Twenty-two indicated that they did not. Thirteen (76.5%) of nontraditional students also indicated that they use the Internet frequently, as compared to four (23.5%) within that category who answered "no". A Chi-Square value of .799 ($p \leq .05$) indicates that there is no significant relationship between the subjects' age and their ability to use the Internet on a regular basis.

From Where is the Catalog Being Accessed?

Since the appearance of multiple computer networks and the Internet have made remote access of library catalogs an easy venture, subjects were asked to mark all of the places that they have logged on and used the electronic library catalog previously. Data in Table 5 represents the distribution of catalog access by each group of students.

Table 5.—Distribution of Respondents and their Access Points to Online Catalogs

ACCESS POINT	TRADITIONAL		NONTRADITIONAL		TOTAL	
	N	(%)	N	(%)	N	(%)
Library	42	(89.4)	5	(10.6)	47	(100.0)
Public Computer Lab	14	(100.0)	0	(0.0)	14	(100.0)
Residence Hall	14	(100.0)	0	(0.0)	14	(100.0)
Work	0	(0.0)	2	(100.0)	2	(100.0)

(Table 5. cont.)

ACCESS POINT	TRADITIONAL		NONTRADITONAL		TOTAL	
	N	(%)	N	(%)	N	(%)
Home	28	(90.3)	3	(9.7)	31	(100.0)
All of the Above	5	(71.4)	2	(28.6)	7	(100.0)
None of the Above	16	(69.6)	7	(30.4)	23	(100.0)
Missing Values	-----		-----		3	(100.0)

Many traditional subjects chose the library as the place to access the online catalog. This is quite logical because the materials that a patron seeks are right in the same building as the organizational tool that is used to find them. The second place that subjects accessed the catalog was from their home. While this was not common a few years ago, the proliferation of the Internet has allowed users the ability to gain access to the wealth of information provided by libraries from the comfort of their living rooms. Third on the list were those subjects who had never accessed an online catalog at all. The public computer lab and residence halls tied for fourth place. Finally, no respondent answered that they dialed up the library catalog from their place of employment.

Nontraditional students have never accessed the library catalog previous to entering Kent State. The library and home came in second and third respectively. Those individuals who answered that they have used all of the resources listed to use the catalog and those who accessed it at work were the third largest group. Lastly, no nontraditional student marked using a public computer lab or residence hall to utilize the library catalog.

FIGURE A

Text-only/Telnet Online Catalog

The second section of the questionnaire queried subjects as to their familiarity with catalogs that were presented in a text-only format through a Telnet program client. Several questions concerning varying aspects of the display screen were asked.

IS THE DISPLAY EASY TO READ?

Sixty-one (73.5%) traditional students expressed having no real problems with reading the display. Nine (52.9%) nontraditional also answered the same as their traditional counterparts. Twenty-two traditional students did answer that they experienced difficulty with the wording and layout of the screen. Eight (47.1%) nontraditional students also agreed that the display was hard to read and understand. A Chi-Square value of .092 ($p \leq .05$) shows that there is no overly significant relationship between the age of an individual and their ability to recognize the ease of which a catalog display can be read.

IS THE DISPLAY RECORD DISTINGUISHABLE?

Sixty-eight (81.9%) traditional students answered as finding the actual bibliographic record distinguishable from the line descriptors that are attached by the catalog itself. Fifteen (18.1%) were not able to make this distinction. Nine (56.3%) adult students were able to discern the record from the cataloging identifiers. Seven (43.8%) had difficulties. One nontraditional student did not answer this question. A Chi-Square value of .024 ($p \leq .05$) shows that age does pose a significant relationship to one's ability to distinguish between parts of a record within a text-only online library catalog.

IS THE FULL BIBLIOGRAPHIC RECORD SHOWN?

Twenty-five (30.5%) college-aged students answered correctly that the entire bibliographic record was present on the text-only catalog display. Twenty-nine (35.4%) suggested that the record was incomplete and twenty-eight (34.1%) were unsure. Four (23.5%) older students also were right in assuming the whole record was present on the screen. Six (35.3%) said that only part was shown and seven (41.2%) marked that they did not know. One traditional student refused to answer the question. A Chi-Square value of .807 ($p \leq .05$) demonstrates no significant relationship between age and the ability to discern whether an entire bibliographic record is being shown on a display.

IS THE DISPLAY CLUTTERED?

Forty-six (55.4%) traditional students found that the text-only display was not hard to read due to the total amount of material being presented to them on the screen. Thirty-seven (44.6%) did think the computer screen was too cluttered by the bibliographic information being presented. Twelve (70.6%) nontraditional students also lean toward this conclusion. Five (29.4%) replied that the amount of material does clutter the screen and make it harder to read. A Chi-Square value of .248 ($p \leq .05$) suggests that there is no significant relationship between age and the ability to decide if a the amount of material on a computer screen distorts the overall display.

DOES THE LACK OF PUNCTUATION EFFECT THE DISPLAY?

Twenty-six (31.3%) traditional students responded that the lack of punctuation between components on the display has an effect on the clarity of the screen. Fifty-seven (68.7%) indicated that having no punctuation did not effect their ability to clearly read and understand the concepts provided on the text-only display. Nine (52.9%)

nontraditional students marked that there was an effect on their ability to read a display without adequate punctuation marks, and eight (47.1%) said that this made no difference. A Chi-Square value of .089 ($p \leq .05$) shows that age does not have a direct effect on whether lack of punctuation inhibits reading of varying components on a Telnet-only computer screen.

THE MEANING OF A TEXT-ONLY CATALOG COMMAND

Data in Table 6 explores the answers given by both groups for the question that asked the meaning of the "R>Return to Browsing" command on the text-only display.

Table 6.—Distribution of Responses to Text-Only Command Question

RESPONSE	TRADITIONAL		NONTRADITIONAL		TOTAL	
	N	(%)	N	(%)	N	(%)
Go back to the opening catalog screen	31	(37.3)	3	(17.6)	34	(34.0)
Automatic transportation to the library browsing shelves	8	(9.6)	5	(29.4)	13	(13.0)
Return the user to the previous result(s) screen	44	(53.0)	9	(52.9)	53	(53.0)
Total	83	(100.0)	17	(100.0)	100	(100.0)

A large number of respondents marked the correct answer of "return the user to the previous result(s) screen". Nontraditional students favored "automatic transportation to the library browsing shelves" as their second highest reply while traditional students stated "go back to the opening catalog screen" as their next favorable choice. Nontraditional students selected "go back to the opening catalog screen" as their third

choice, however, younger students least preferred "automatic transportation to the library browsing shelves" as their last choice. A Chi-Square value of .054 ($p \leq .05$) is suggestive of a non-significant relationship between age and the ability to understand commands given for a text-only library catalog display.

FIGURE B

Graphical/Web-based Online Catalog

The final part of the questionnaire requested subjects to reply to statements concerning their familiarity with a graphical online library catalog that uses a World Wide Web browser as its common interface.

IS THE DISPLAY EASY TO READ?

Seventy-nine (95.2%) traditional students found the World Wide Web version of the same catalog display screen easy to read and understand. All seventeen (100%) nontraditional students favored this display view. Only four (4.8%) traditional students did not find the display simple to read. A Chi-Square value of .356 ($p \leq .05$) indicates that there is no significant relationship between age and the ease of reading a graphical online catalog display screen.

IS THE DISPLAY CLUTTERED?

Twenty traditional students (24.1%) acknowledged that the overall amount of material being presented on a Web-based display screen made it harder to read and comprehend all parts of the bibliographic record. Sixty-three students (75.9%) expressed that did not have any major problems reading or understanding what the display was conveying to them. One nontraditional student (5.9%) marked that this type of display

was cluttered and the other sixteen (94.1%) indicated that they could read it well. A Chi-Square value of .093 ($p \leq .05$) demonstrates that there is no significant relationship between the age of the subjects and their ability to understand the record being shown in the context of the overall display screen.

IS THE FULL BIBLIOGRAPHIC RECORD SHOWN?

Twenty-five (30.5%) traditional and eight nontraditional students indicated that the entire bibliographic record was being shown in the graphical interface. Twenty-six (31.7%) traditional students correctly responded that the record was not entirely shown through the graphical browser window. Three (17.6%) nontraditional students also made this response. Thirty-one (37.8%) college-age and nine (52.9%) adult students indicated that they were not sure if the full cataloging record was present or not. A Chi-Square value of .418 ($p \leq .05$) reveals that there is no significant relationship between age and the ability to determine if the full bibliographic record is being shown on a graphical display screen.

THE MEANING OF HYPERLINKED SUBJECTS

Data in Table 7 explores the distribution of subjects' responses to a question concerning the meaning of the word *hyperlink* as it relates to the subject heading category on a Web-based bibliographic record.

Table 7.—Distribution of Subjects' Responses to the Meaning of the Term *Hyperlinked Subjects*

RESPONSE	TRADITIONAL		NONTRADITIONAL		TOTAL	
	N	(%)	N	(%)	N	(%)
Allow for a patron to see more information about computers	23	(29.1)	8	(57.1)	31	(33.3)

(Table 7. cont.)

RESPONSE	TRADITIONAL		NONTRADITONAL		TOTAL	
	N	(%)	N	(%)	N	(%)
Take the patron to a commercial web site	34	(43.0)	4	(28.6)	38	(40.9)
Connect them to a Telnet version of KentLink	9	(11.4)	2	(14.3)	11	(11.8)
Nothing	13	(16.5)	0	(0.0)	13	(14.0)
Missing Values	4	(0.0)	3	(0.0)	7	(0.0)
Total	83	(100.0)	17	(100.0)	100	(100.0)

Typical responses by the traditional group fell into the category of "take the patron to a commercial web site". Nontraditional students seem to have a better understanding of how hyperlinks are used within the context of a web-based catalog. Their responses fell mostly into the "allows for a patron to see more about computers", which is the correct response. Traditional students marked this response as the second highest and checked "Nothing" as their third choice. A Chi-Square value of .122 ($p \leq .05$) shows there is no significant relationship between age and the ability of subjects to understand the meaning of the word *hyperlinked subjects* in the context of a Web-based online library catalog.

Which Catalog Is Better?

To end the survey, subjects were asked to evaluate the two systems based on commands. Respondents also acknowledged which catalog would be a better choice

overall for a library to use, and to give an indication if they would be willing to take a class within the University for credit which emphasizes formal library catalog instruction.

COMMANDS

Data in Table 8 comprises the distribution of subjects' preference for the command structures of FIGURE A, FIGURE B, or neither choice.

Table 8.—Distribution of Responses Concerning Online Catalog System Commands

RESPONSE	TRADITIONAL		NONTRADITIONAL		TOTAL	
	N	(%)	N	(%)	N	(%)
FIGURE A (text-only/Telnet)	11	(13.5)	1	(5.9)	12	(12.2)
FIGURE B (graphical/Web-based)	63	(77.8)	15	(88.2)	78	(79.6)
Neither	7	(8.6)	1	(5.9)	8	(8.2)
Missing Values	2	(0.0)	0	(0.0)	2	(0.0)
Total	83	(100.0)	17	(100.0)	100	(100.0)

As expected, a large portion of both the traditional and nontraditional groups identified the commands supplied by the Web-based version of the online library catalog as being easier to read and comprehend. A small number of the traditional student population still favor the text-only (13.5% or roughly one-sixth) version and nontraditional students also sided with the Web-based catalog. Seven college-age and one adult student indicated that they did not like the command structure of either system. A Chi-Square value of .605 ($p \leq .05$) suggests that there is no definite relationship between a person's age and their ability to understand a particular command syntax within an online catalog.

WHICH IS BETTER?

Data in Table 9 illustrates the categories of responses to the question concerning which catalog's display was better overall.

Table 9.—Distribution of Responses Concerning the Better Choice of Catalog to Use In a Library Setting

RESPONSE	TRADITIONAL		NONTRADITIONAL		TOTAL	
	N	(%)	N	(%)	N	(%)
FIGURE A (text-only/Telnet)	11	(13.3)	1	(5.9)	12	(12.0)
FIGURE B (graphical/Web-based)	67	(80.7)	16	(94.1)	83	(83.0)
Don't Know	5	(6.0)	0	(0.0)	5	(5.0)
Total	83	(100.0)	17	(100.0)	100	(100.0)

The response categories indicate that the graphical/Web-based catalog gained the most favor from both groups of students. Sixty-seven (80.7%) traditional college students expressed their opinion that the Web-based online catalog's display was easy to read and understand as opposed to eleven (13.3%) who prefer using a text-only format and five (6.0%) who were unsure as to which one was the best choice. Nontraditional students were clearer as to which catalog they preferred. Sixteen (94.1%) individuals indicated that the graphical catalog's screen seemed easier to them rather than one who still favors using the text-only version. None of the nontraditional students were unsure about which catalog type they preferred. A Chi-Square value of .374 ($p \leq .05$) indicates that there is significant relationship between age and the choice of which catalog version is better suited for use in a library setting.

WILLINGNESS TO PURSURE FORMAL LIBRARY INSTRUCTION

Data presented in Table 10 summarizes the subjects' replies as to whether they would be willing to take a formal college class (without or without credit) in order to learn how to properly use an online library catalog.

Table 10.—Distribution of Respondents' Willingness to Take a Formal Class on Library Instruction

RESPONSE	TRADITIONAL		NONTRADITIONAL		TOTAL	
	N	(%)	N	(%)	N	(%)
Yes	28	(33.7)	8	(47.1)	36	(36.0)
No	26	(31.3)	3	(17.6)	29	(29.0)
Don't Know	29	(34.9)	6	(35.3)	35	(35.0)
Total	83	(100.0)	17	(100.0)	100	(100.0)

Traditional students were evenly divided as to whether they would like to invest the time in formally learning how to use an online catalog. Twenty-eight (33.7%) expressed a sincere interest in taking this type of course. Twenty-six (31.3%) were opposed to the idea and twenty-nine (34.9%) students were unsure. Nontraditional students were more in favor of taking a formal library instruction course. Eight (47.1%) subjects agreed that library catalog instruction would be worthwhile, three (17.6%) were against it, and six (35.3%) did not know if they would be willing to invest their time and money to such a feat. A Chi-Square value of .448 ($p \leq .05$) clearly shows that there is no significant relationship to age and the willingness to undertake formal classroom instruction concerning online library catalogs.

CHAPTER V

SUMMARY AND CONCLUSIONS

Final results of the survey were tabulated using eighty-three traditional, or college-age, students and seventeen nontraditional, or adult, students. Most of the traditional students are enrolled full time at Kent State University. Nontraditional students make up a majority of those who attend part time. Traditional students enroll in majors that fall under the College of Fine and Professional Arts, whereas, adults are more likely to concentrate on coursework related to the College of Business.

It was discovered that traditional students tend to have more formal instruction in using general library catalogs, as opposed to nontraditional students who are roughly divided in half as to whether they have received this type of library instruction previously. Traditional students are also more likely to use electronic catalogs. Over sixty percent of traditional freshmen responded positively to having used an electronic catalog in the past, while about the same percentage of nontraditional students have had the same use of electronic catalogs and some type of formal instruction concerning these. Traditional students used the text-only version most frequently over the graphical/Web-based catalog to conduct online searches in the past. The nontraditional group is equally divided between these two interfaces.

Both groups are highly likely to use the Internet, whether it is for educational enhancement or for entertainment purposes. The library is the central place that individuals frequent most often to make use of the online catalog. The second most popular point of access from both groups' standpoint is from the home. The proliferation of the Internet beyond the controls of government, educational institutions, and private

companies have allowed anyone who is willing to pay the costs associated with its connectivity a chance to remotely utilize items such as catalogs that were not accessible even in the recent past. Libraries will have to ensure that any and all new catalog displays are easy to read and comprehend, whether it is within the library building or from a remote site.

Currently, the only computer displays available for online library catalogs are the text-only/Telnet or graphical/Web-based versions. When traditional students were asked about various aspects concerning the text-only catalog, over two-thirds answered that the bibliographic display was readable and distinguishable. One-third of this group experienced some trouble determining if the full bibliographic record was being shown, and roughly one-half found the screen not to be cluttered with unnecessary information and the lack of punctuation between descriptors and record elements did not deter from the overall appearance of the display. Finally, most traditional students understand the meaning of a text-only command and are able to apply it when necessary in order to function throughout various levels of the catalog.

Nontraditional students seem to have about the same amount of difficulty using this type of display as the traditional set. Half responded that reading and distinguishing parts of the display was easy for them to do. Nontraditional students had more difficulties in determining if the full bibliographic record was being shown. Over two-thirds indicated that the display was not cluttered and around half said that the lack of punctuation did not hinder them from interacting with the display and that commands given on the screen do not cause them problems in moving through different levels of the catalog.

The graphical version yielded higher results from both groups in favor of its use. Ninety-five percent of traditional students surveyed found this display easy to read as compared to all adult students who found this version better. Three-fourths of the traditional students did not find the display cluttered. Over ninety percent of nontraditional students also found the Web-based catalog uncluttered. A third of the college-aged students correctly recognized that the full bibliographic record was not shown through the web browser, while slightly over half of the nontraditional students were unsure as to whether it was all listed or not. When questioned about the term *hyperlinked* subjects, less traditional students made the correct choice, as did the nontraditional group.

Most subjects who were surveyed prefer the graphical/Web-based online catalog rather than the text-only/Telnet version. As hypothesized earlier, traditional students did not encounter any major difficulties in reading or understanding either display screen. Nontraditional students are more knowledgeable of catalog displays than it was originally thought and, generally, they experienced around the same amount of ease interacting with the display as did the college-aged group.

The final aspect of the survey queried each individual as to if they would be willing to take a formal class to learn more about how to use an automated library catalog. Over a third of the traditional students answered that they were unsure if they would want to have a formal class as to how to use the library and its catalog. Almost half of the non-traditional category replied that they would like to engage in some type of formal bibliographic instruction in a library setting.

As the 21st Century begins, libraries must be prepared to cater to an ever-increasing population that will access their catalogs beyond the walls of the building in which their experts work. This survey points out that the use of the Internet to access information is higher than it was in the past and the access points for catalogs are going farther away from the library and are making themselves present within the homes of every computer owner that has Internet access. While text-only/Telnet online catalogs are still preferred by a minute segment of the population, it is concluded that the graphical/Web-based online catalog will find itself alive and well in libraries, and across the Internet, for years to come. This is due to its ease of access and ability to steer away from highly technical syntax which might be confusing to those who do not interact with computers on a frequent basis. Librarians must face the challenge of giving adequate and useful bibliographic instruction to the user population that they serve. Only through instruction and guidance will all patrons of the library be able to meet the goal of using the online catalog, and its displays, with ease and effectiveness from wherever they choose to establish a connection.

Recommendations for Further Research

It is highly recommended that readers of this study refrain from making broad generalizations about traditional and nontraditional student populations based solely on the results of this survey. Future research should expand on this topic by offering a similar questionnaire at colleges or universities with a larger enrollment of nontraditional students in order to achieve a higher balance of responses between these two student groups.

APPENDIX

APPENDIX A

DISPLAY QUESTIONNAIRE

I. INSTRUCTIONS: Please answer each question and place an X next to the most appropriate response.

1. What is your age?
   _____a. 17 or below _____b. 18-25 _____c. 26 or older

2. What is your sex?
   _____a. Male _____b. Female

3. Are you a full time student?
   _____a. Yes _____b. No

4. Into which college or school does your major fall?
   _____a. College of Arts and Sciences
   _____b. College of Business
   _____c. College of Fine and Professional Arts
   _____d. College of Education
   _____e. School of Technology
   _____f. School of Nursing
   _____g.Undergraduate Studies

5. Have you ever had any formal instruction on how to use ***GENERAL*** computerized resources (such as word processing programs) prior to entering Kent State University?
   _____a. Yes _____b. No

6. Have you ever used an electronic and/or computerized library catalog before?
   _____a. Yes _____b. No

7. If you answered yes to #6, what version of the catalog have you used? (Check all that apply.)
   _____a. text-only (similar to **FIGURE A)**
   _____b. graphical (similar to **FIGURE B)**
   _____c. Other
   _____d. None

8. Have you ever had any formal instruction on how to use a text-only (Telnet) or or graphical (World Wide Web) computerized library catalog before?
   _____a. Yes _____b. No _____c. Don't Know

9. Do you use the Internet on a regular basis?
   _____a. Yes _____b. No

10. From where do you access the automated catalog? (Check all that apply.)
    _____a. in the library
    _____b. in a public computer lab
    _____c. in a residence hall
    _____d. at work
    _____e. at home
    _____f. all of the above
    _____g. none of the above

II. INSTRUCTIONS: For the following questions, please refer to **FIGURE A** on the following page. Place an X next to the most appropriate response.

11. At first glance, does this display appear easy to read?
    _____a. Yes _____b. No

12. Is each part of the record distinguishable?
    _____a. Yes _____b. No

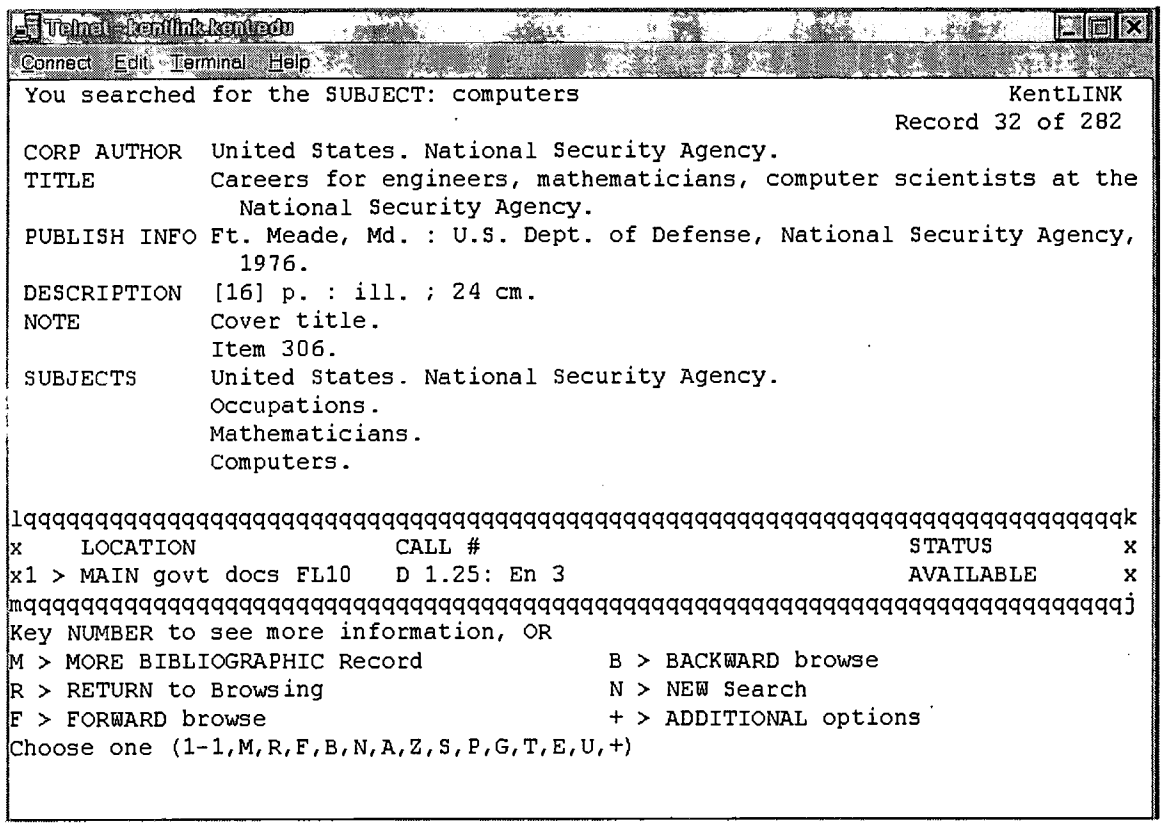
13. Is the full bibliographic record shown on this screen?
    _____a. Yes
    _____b. No
    _____c. Don't Know

14. Do the "q's" and "x's" around the words LOCATION, CALL #, and STATUS make this screen harder to read?
    _____a. Yes
    _____b. No

15. Does the lack of punctuation between words comprised of capital and lower-case letters cause the display to become harder to read?
    _____a. Yes
    _____b. No

16. What does "R>RETURN to Browsing" mean?
    _____a. Go back to the opening display screen.
    _____b. Automatic transportation to the browsing shelves in the library.
    _____c. Return the user to the previous search result(s) screen.
    _____d. Petitions the library to add this item to their collection.

FIGURE A
Telnet-based Version of KentLINK



III. INSTRUCTIONS: For the following questions, please refer to **FIGURE B** on the following page. Place an X next to the most appropriate response.

17. Is this display easy to read?
    _____a. Yes _____b. No

18. Does the table containing LOCATION, CALL #, and STATUS clutter the display?
    _____a. Yes _____b. No

19. The underlined segments of the display represent those that are *hyperlinked.* What do the hyperlinked *Subjects* do?
    _____a. Allow for a patron to see more materials relating to computers.
    _____b. Take the patron to a commercial web site.
    _____c. Connect them to the Telnet version of KentLINK.
    _____d. Nothing.

20. Is the full bibliographic record shown on this screen?
    _____a. Yes _____b. No _____c. Don't Know

21. Compare the commands at the bottom of **FIGURE A** and the boxes at the top of **FIGURE B**. Which is easier to understand?
    _____a. **FIGURE A** _____b. **FIGURE B** _____c. Neither

22. If you were given a choice between using a display like the one shown in **FIGURE A**, or one similar to **FIGURE B**, which would you choose?
    _____a. Telnet (**FIGURE A**) _____b. World Wide Web (**FIGURE B**)
    _____c. Don't Know

23. If you were given an opportunity to take a formal class in order to learn how to use a Telnet-based (**FIGURE A**) and/or World Wide Web-based (**FIGURE B**) online catalog, would you be willing to take it?
    _____a. Yes
    _____b. No
    _____c. Don't Know

THANK YOU FOR YOUR COOPERATION!
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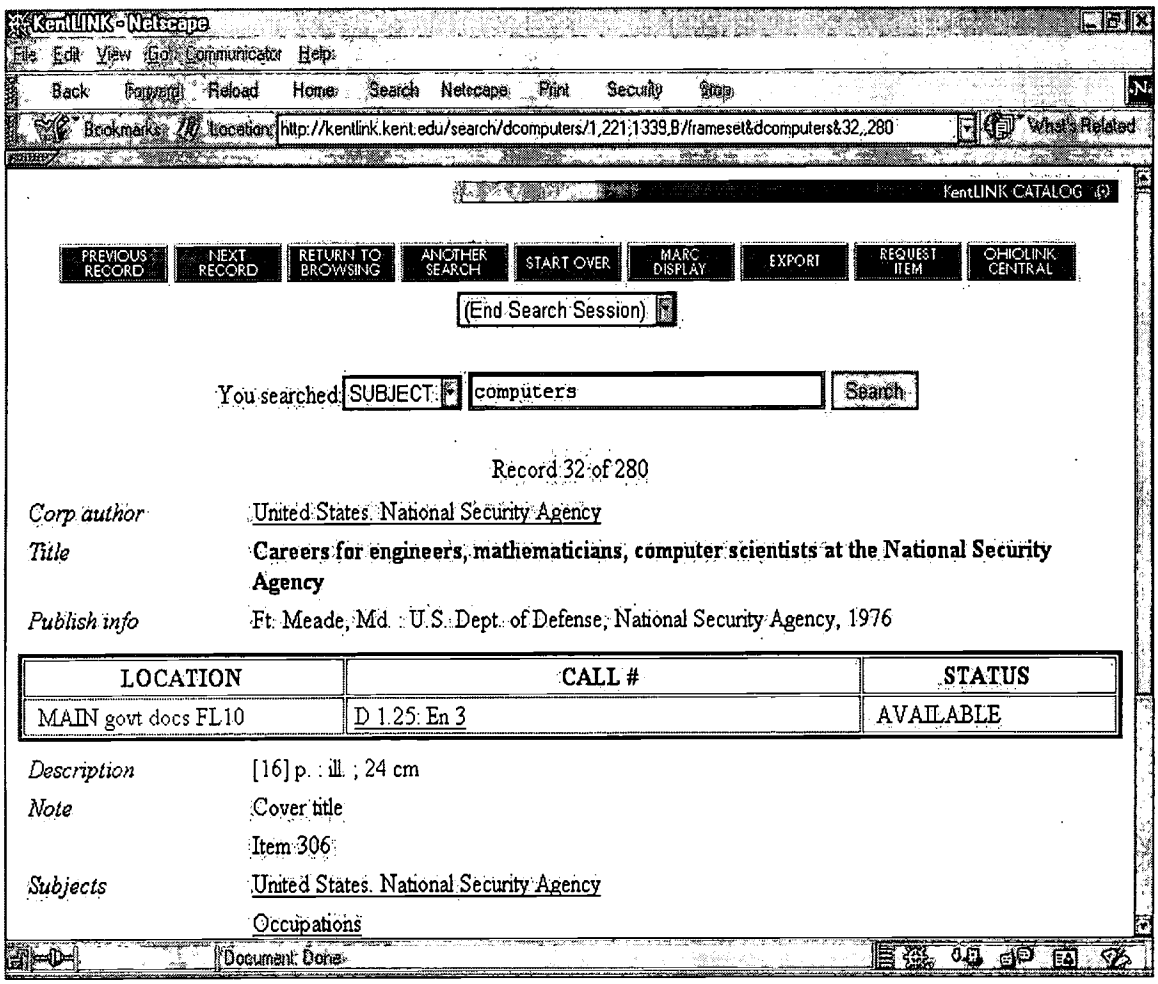
FIGURE B
Web-based Version of KentLINK



APPENDIX B
DISPLAY QUESTIONNAIRE
CODING SHEET

I. INSTRUCTIONS: Please answer each question and place an X next to the most appropriate response.

1. What is your age? *(age)*
   excluded a. 17 or below _1_ b. 18-25 _2_ c. 26 or older

2. What is your sex? *(sex)*
   _1_ a. Male _2_ b. Female

3. Are you a full time student? *(fulltim)*
   _1_ a. Yes _2_ b. No

4. Into which college or school does your major fall?
   major 1 a. College of Arts and Sciences [1=yes 2=no]
   major 2 b. College of Business [1=yes 2=no]
   major 3 c. College of Fine and Professional Arts [1=yes 2=no]
   major 4 d. College of Education [1=yes 2=no]
   major 5 e. School of Technology [1=yes 2=no]
   major 6 f. School of Nursing [1=yes 2=no]
   major 7 g. Undergraduate Studies [1=yes 2=no]

5. Have you ever had any formal instruction on how to use ***GENERAL*** computerized resources (such as word processing programs) prior to entering Kent State University? *(general)*
   _1_ a. Yes _2_ b. No

6. Have you ever used an electronic and/or computerized library catalog before? *(compcat)*
   _1_ a. Yes _2_ b. No

7. If you answered yes to #6, what version of the catalog have you used? (Check all that apply.)
   catvers1 a. text-only (similar to **FIGURE A)** [1=yes 2=no]
   catvers2 b. graphical (similar to **FIGURE B)** [1=yes 2=no]
   catvers3 c. Other [1=yes 2=no]
   catvers4 d. None [1=yes 2=no]

8. Have you ever had any formal instruction on how to use a text-only (Telnet) or or graphical (World Wide Web) computerized library catalog before? *(text_grap)*
   _1_ a. Yes _2_ b. No _3_ c. Don't Know

9. Do you use the Internet on a regular basis? *(internet)*
   _1_a. Yes _2_b. No

10. From where do you access the automated catalog? (Check all that apply.)
   cataces1 a. in the library [1=yes 2=no]
   cataces2 b. in a public computer lab [1=yes 2=no]
   cataces3 c. in a residence hall [1=yes 2=no]
   cataces4 d. at work [1=yes 2=no]
   cataces5 e. at home [1=yes 2=no]
   cataces6 f. all of the above [1=yes 2=no]
   cataces7 g. none of the above [1=yes 2=no]

II. INSTRUCTIONS: For the following questions, please refer to **FIGURE A** on the following page. Place an X next to the most appropriate response.

11. At first glance, does this display appear easy to read? *(adisplay)*
   _1_a. Yes _2_b. No

12. Is each part of the record distinguishable? *(adisting)*
   _1_a. Yes _2_b. No

13. Is the full bibliographic record shown on this screen? *(fulbiblio)*
   _1_a. Yes
   _2_b. No
   _3_c. Don't Know

14. Do the "q's" and "x's" around the words LOCATION, CALL #, and STATUS make this screen harder to read? *(aclutter)*
   _1_a. Yes
   _2_b. No

15. Does the lack of punctuation between words comprised of capital and lower-case letters cause the display to become harder to read? *(apunct)*
   _1_a. Yes
   _2_b. No

16. What does "R>RETURN to Browsing" mean? *(abrowse)*
   _1_a. Go back to the opening display screen.
   _2_b. Automatic transportation to the browsing shelves in the library.
   _3_c. Return the user to the previous search result(s) screen.
   _4_d. Petitions the library to add this item to their collection.

III. INSTRUCTIONS: For the following questions, please refer to **FIGURE B** on the following page. Place an X next to the most appropriate response.

17. Is this display easy to read? *(adisplay)*
    _1_ a. Yes _2_ b. No

17. Does the table containing LOCATION, CALL #, and STATUS clutter the display? *(bclutter)*
    _1_ a. Yes _2_ b. No

19. The underlined segments of the display represent those that are *hyperlinked.* What do the hyperlinked *Subjects* do? *(bhypsub)*
    _1_ a. Allow for a patron to see more materials relating to computers.
    _2_ b. Take the patron to a commercial web site.
    _3_ c. Connect them to the Telnet version of KentLINK.
    _4_ d. Nothing.

20. Is the full bibliographic record shown on this screen? *(bbiblio)*
    _1_ a. Yes _2_ b. No _3_ c. Don't Know

21. Compare the commands at the bottom of **FIGURE A** and the boxes at the top of **FIGURE B**. Which is easier to understand? *(bcommand)*
    _1_ a. **FIGURE A** _2_ b. **FIGURE B** _3_ c. Neither

22. If you were given a choice between using a display like the one shown in **FIGURE A**, or one similar to **FIGURE B**, which would you choose? *(bchoice)*
    _1_ a. Telnet (**FIGURE A**) _2_ b. World Wide Web (**FIGURE B**)
    _3_ c. Don't Know

23. If you were given an opportunity to take a formal class in order to learn how to use a Telnet-based (**FIGURE A**) and/or World Wide Web-based (**FIGURE B**) online catalog, would you be willing to take it? *(bclass)*
    _1_ a. Yes
    _2_ b. No
    _3_ c. Don't Know

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