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University of Akron Student Journal Reading Patterns

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Factual Summary of Results of the Survey Conducted October through November of 2005

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(funded with a grant from IMLS)
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Introduction.

This report is a factual analysis of the results of the University of Akron survey of students, conducted in October and November 2005 (see Appendix for the Questionnaire.) A comparison of this report with Tenopir & King survey data of other U.S. universities is not yet included, but further comparisons, both with the other Ohio universities, universities in Australia, and the University of Tennessee, will be included in subsequent articles for publication. This report is for the internal use of Akron library personnel, as well as for the preparation of presentations and journal articles.

In October 2005 a message from the Director of Libraries at Akron with an embedded link to the questionnaire housed on a University of Tennessee server was sent to 3300 graduate students at Akron University. In addition, the explanation of the project and a link to the questionnaire was mounted on library laptops that are lent to students. During the survey period there were 8163 loans of the laptops, although the number of unique students would be lower as a single individual could borrow a laptop multiple times. In

addition, the survey link was put on the computers throughout the library. There were 7300 total log-ons during the survey period, again multiple log-ons by individuals is possible. Most of the loans and log-ons were to undergraduate students. Because there are so few responses from undergraduate (only 10 respondents who gave their academic level were undergraduates) we can clearly see that this method of distribution was not an effective strategy. Nearly 97% of the respondents to the question of academic level (436 of 450) were graduate students. Therefore, the response rate for graduate students was 13.2% (436 of 3300), a figure consistent with the response rates at other universities. The results of this survey should be extrapolated to Akron graduate students only.

Although an exact response rate cannot be calculated, in total 545 usable surveys were received from students who responded to at least one question. Students were allowed to exit the questionnaire at any time or to skip any questions, so the response rate to most questions is less. Nearly 100 respondents did not give their academic level, but it is expected that most of these respondents are likely to be graduate students as well.

Demographics of Respondents.

Several demographic questions were used in order to classify respondents according to relevant personal characteristics, specifically class year, academic discipline, age, gender, ethnicity, and enrollment status. These characteristics function as important independent variables which can contribute in meaningful ways to our findings concerning the study's dependent variables measuring resource use. Any interpretation or application of the

results of this study should be mindful of the composition of the student sample, as described by these demographic measures.

The first demographic question recorded the class year of study for each respondent (Table 1). Respondents are greatly skewed toward graduate students, with 97% of all respondents that answered this question indicating that they are either masters or Ph.D. level students, while only 2.2% of the respondents are undergraduates. (The remaining 0.9% of respondents to this question classified themselves as “Other”, which could include students in professional or certification programs, or undergraduates in their fifth or more year of study.) More than half of the respondents are master’s students, and the next largest segment is doctoral students. Among the undergraduate participants, there is a minimal level of representation for each of the four class levels. The greater numbers of graduate students increases the likelihood that measures of journal usage and reading habits may be higher than the amount that a truly representative sample would report, as graduate students tend to read more than undergraduate students. In many ways reading by doctoral students is closer to faculty reading patterns than undergraduate reading patterns, so the results of the more extensive Akron faculty survey are relevant to this group as well.

Table 1. Akron Student Respondents' Year

		Frequency	Percentage of Responses
Undergraduate	First year	1	.2
	Second year	1	.2
	Third year	4	.9
	Fourth year	2	.4
	Post-Bac. Student	2	.4
Subtotal		10	2.2
Post Graduate	Masters student	243	54.0
	Ph.D. student	188	41.8
	Law student	5	1.1
Subtotal		436	96.9
Other		4	.9
Total		450	100.0

This sample of Akron students largely consists of full-time students (76.1%), with only 23.9% of participants indicating that they are part-time students (Table 2). It is reasonable to expect that full time students will exhibit a heavier use of scholarly materials because they take more courses than part-time students do.

Table 2. Akron Student Respondents' Enrollment Status

	Frequency	Percent
Full-time	341	76.1
Part-time	107	23.9
Total	448	100.0

Students were also asked to indicate their area of study by selecting from a comprehensive drop-down list of specific majors offered by Akron. To facilitate analysis and comparison to similar prior and concurrent studies, these responses were then

aggregated into general categories by academic discipline (Table 3). The largest numbers of participants are majoring in the Social Sciences (56.2%). Students in fields oriented to Sciences (16.6%) or those in the Engineering/Technology areas (15.7%) were also well represented, while students pursuing degrees in other areas such as the Humanities and Medical/Health were only lightly represented (7.3% and 4.2%, respectively). We do not yet have university-level data on the percentage of total graduate enrollment for each area of study, so it cannot be determined how representative our sample is of the student population at this time.

Table 3. Recoded Disciplines of Akron Student Respondents

	Frequency	Percent
Social Sciences	254	56.2
Humanities	33	7.3
Medical/Health	19	4.2
Engineering/Technology	71	15.7
Sciences	75	16.6
Total	452	100.0

The remaining demographic measures describe personal characteristics of the respondents. In terms of gender, this sample contains a somewhat larger proportion of females (59.6%, 266) than males (40.4%, 180). The average age of survey participants is about 31 years old, which is to be expected given the overrepresentation of graduate students, but 75% of the sample is 34 years old or less and the median age is 27.

Respondents were asked to self-report their ethnicity. The great majority of participants are Caucasian (70.2%), with 17.3% classifying themselves as Asian or Pacific Islanders. The sample contained very few Black or African-American students (5.9%), and even fewer Hispanic or Latino (2.7%) individuals (Table 4).

Table 4. Akron Student Respondents' Ethnicity

	Frequency	Percent
White	308	70.2
Hispanic or Latino	12	2.7
Black or African American	26	5.9
Asian/ Pacific Islander	76	17.3
Other	17	3.9
Total	439	100.0

Scholarly Journal Article Reading.

Total Amount of Reading per Student.

As an initial step in exploring these students' reading of journal articles, respondents were asked to estimate the total number of journal articles they had read in the past month. In order to improve the accuracy of their response and minimize the inherent bias of self-reporting the question is phrased in such a way as to limit recollection to the most recent period of time and to define the key terms "journal article" and "reading" very specifically. The actual question asked is *"In the past month (30 days), approximately*

how many scholarly articles have you read? Articles can include those found in journal issues, Web sites, or separate copies such as preprints, reprints, and other electronic or paper copies. Reading is defined as going beyond the table of contents, title, and abstract to the body of the article.” For convenience, we often report results as readings in a year, simply by taking the monthly number reported by a respondent and multiplying it by 12, for a crude approximation of the total amount of reading by respondent per year.

As expected, there is a wide range of responses among students. Students reported reading anywhere from zero articles up to 255 in the thirty-day period. The average number read for the total sample of 545 valid responses was just over 21 articles, but with a large standard deviation of 25.048, reflecting the presence of a body of outliers who read a large number of articles. Over one-third (35.3%) of the sample reported reading between one and ten articles, while 62.1% of respondents read between one and 20 articles. About 7.5% of all participants (41 individuals) reported that they did not read any articles in the past month (Table 5). We can state with 95% confidence that Akron students, on average, read between 19 and 23 articles per month. Extrapolated to 12 months (recognizing that reading by students is not usually spread evenly throughout the calendar year and that the respondents are mostly graduate students), Akron students read between 229 and 280 articles per year.

These numbers do include some undergraduate students, so numbers just for those that self-identified as graduate students may present a more accurate picture. Graduate students read somewhat higher numbers of articles on average (mean of 22.8) than

undergraduates do (mean of 18.30). For graduate students, the average amount of article reading per year is 274, an amount close to or exceeding the average number of readings by faculty at many universities.

Table 5. Amount of Akron Student Respondents' Reading

Count Range	Frequency	Percentage
0	41	7.5
1~5	98	17.9
6~10	95	17.4
11~15	74	13.6
16~20	72	13.2
21~25	20	3.7
26~30	39	7.2
31~35	12	2.2
36~40	16	2.9
41~45	11	2.0
46~50	37	6.8
51~60	11	2.0
61~80	6	1.2
81~100	8	1.5
101~255	5	.9
Total	545	100.0

Students who answered that they had read at least one article during the period were asked to estimate how many of the articles were read for a course. The largest portion of respondents said that all of the articles they read were for coursework (38.5%, or 188 of the 489 total valid responses to this question). The majority of respondents (59.3%) said that at least half of the articles they read were for a course. In contrast, just 21.7% (106 of 489 respondents) stated that none of their articles were read for a course (Table 6). Those readings are more likely to be by doctoral students and may be for their dissertation or other purposes.

Table 6. Proportion Range of Reading for a Course for Akron Student Respondents

Proportion Range	Frequency	Percentage
0	106	21.7
0.01~0.25	49	10.0
0.26~0.50	44	9.0
0.51~0.75	50	10.2
0.76~0.99	52	10.6
1.00	188	38.5
Total	489	100.0

Critical Incident Technique.

Respondents were then asked to think about the scholarly article they read most recently. This technique is a version of the “critical incident” technique, in which the last article read functions as a random event, yielding a body of detailed information from a random sample of the total readings by the Akron students. To minimize error, the instructions for the question are quite explicit, asking: *“The following questions in this section refer to the SCHOLARLY ARTICLE YOU READ MOST RECENTLY, even if you had read the article previously. Note that this last reading may not be typical, but will help us establish the range of patterns in reading.”* To help students to focus on their last article reading, they are then asked to supply the title of the journal in which the article appeared. If the article was not found in a journal, respondents were asked to describe the topic of the article. These questions are designed only to improve the precision of their responses; the results are not used in the analysis.

Time Spent Reading.

Respondents were asked how many minutes they spent on the last article reading (during the most recent reading, if they had already read it previously).

Table 7. Time Spent on Last Reading by Akron Student Respondents

Time Range (minutes)	Frequency	Percentage
1 ~10	25	6.0
11 ~ 20	123	29.6
21 ~ 30	111	26.7
31 ~ 40	26	6.2
41 ~ 60	76	18.3
61 ~ 80	5	1.2
81 ~ 100	13	3.1
> 100	37	8.9
Total	416	100.0

Mean = 43.43

Date of Readings.

Slightly more than half of faculty readings in 2005 were found to be from the current year of publications. To see if age of student readings is similar, participants were asked, “*Approximately what year was this article published/posted?*” Since the survey was conducted in October 2005, we should add approximately one-fourth of the 2004 readings to get current year of publication. The largest portion of readings by Akron students were of articles from 2 to 5 years old (154 readings or 37.4%), followed by readings from within the current year (2005 and one quarter of 2004 readings). This means that almost three-fourths of the sample read articles were five years old or less. Relatively few students (14.3%) read articles that were published prior to 1995 (Table 7).

This high percentage of readings of articles older than one year is probably due to the high proportion of readings by students that are assigned by their professors.

Table 7. Age of Articles Read by Akron Student Respondents Arranged by Date

Groupings

Year	Frequency	Percentage
Over 15 years (1940~1988)	37	9.0
11 years ~ 15 years (1989~1994)	22	5.3
6 years ~ 10 years (1995~1999)	55	13.3
2 years ~ 5 years (2000~3/4 of 2004)	201	48.8
1st year (1/4 of 2004~2005)	159	38.6
Total	412	100.0

Purpose of Readings.

Participants were asked to select the one best answer from a list of potential reasons for reading the article. Course-related purposes accounted for more than half of the readings. Specifically, more than a third of the readings (34.9%, or 147 out of 421 valid responses) were in order to complete a course assignment, while 19.3% of readings were required reading for a class. Reflecting the high numbers of graduate students, 30.9% of readings were for thesis or dissertation work, while others were for keeping up with the literature (7.1%) or reading for personal interests (3.3%, Table 8).

Table 8. Reading Purpose for Akron Student Respondents

Purpose	Frequency	Percentage
Required reading in a course.	81	19.3
Help complete a course assignment.	147	34.9
For my thesis or dissertation.	130	30.9
Keep up with the literature.	30	7.1
Personal interest	14	3.3
Other	19	4.5
Total	421	100.0

Students were asked how they found out about the article they read most recently. The wide range of potential answers reflects the myriad sources that exist in the academic information environment at Akron. To facilitate analysis, three general categories group the individual answers by context: browsing, searching, and other (which includes assigned or recommended readings). Out of a total of 413 individual readings, the largest proportion was initiated because of “Other” motivations (41.2% or 170 responses). About a third of the readings were discovered through searching (31.2%, or 129 out of 413 readings), while a little over a fourth of the readings were found via browsing (27.6%).

Table 9. How Akron Student Respondents Initially Found Out About Articles

		Frequency	Percentage
Browsing	Browsing a personal print subscription.	12	10.5
	Browsing a personal electronic subscription.	6	5.3
	Browsing a library print subscription.	21	18.4
	Browsing a library electronic subscription.	54	47.4
	Browsing a print subscription in a school, department, unit, etc. collection	5	4.4
	Browsing an electronic subscription in a school, department, unit, etc. collection.	10	8.8
	Browsing other electronic collection or free web	4	3.5
	Others	2	1.7
Subtotal		114	27.6
Searching	Searching an indexing/abstracting database (e.g., Web of Science, Medline, ERIC, Compendex).	58	45.0
	Searching Web search engine (e.g., Google, Yahoo, AltaVista, Excite).	10	7.8
	Searching online journal collections (e.g., HighWire, OhioLink EJC, JST etc).	49	38.0
	Searching print index or abstract	1	0.7
	Searching electronic current awareness service (e.g., Current Contents).	1	0.7
	Others	10	7.8
Subtotal		129	31.2
Other	A lecturer told me about it.	55	32.4
	Cited in another publication.	59	34.7
	It was in the course outline/readings list.	46	27.1
	Don't know or other.	10	5.8
Subtotal		170	41.2
Total		413	100.0

The predominance of the “Other” category is consistent with the results for the “purpose” question discussed above, in that coursework was an important motivation for the reading. Two of the components of this category were that an instructor recommended the article (13.3%) and that the article was on a course reading list (11.1%). The third

meaningful component in the “Other” category was that the article was cited in another publication—14.3% of all readings were found this way.

Readings of articles that were found through searching or browsing highlight the importance of electronic sources in the Akron students’ information environment. After the instructor/course related motivations, the most common methods of finding the target article were “searching an indexing/abstracting database” (48.7% of 413 readings), browsing a library electronic subscription (48.2%), and searching online journal collections (41.2%). However, not all electronic sources played a significant role in the provision of these target articles; very few readings were located by browsing department or school e-subscriptions (4.5%), or browsing personal e-subscriptions (5.4%).

Interestingly, the Internet was not a meaningful source of these focus articles; very few articles were found by using Web search engines (8.4%) or browsing the Web (3.6%). This finding stands in contradiction to the commonly-voiced concern that students often use only the Internet for their research, rather than library collections. It is possible, however, that this finding understates the use of web searching, particularly by undergraduates, because the critical incident technique has emphasized the “scholarly article” usage, rather than more casual web searching and because so few undergraduates participated.

Print-based resources were only rarely used, whether through searching or browsing. Only 18.8% of the total articles were found by browsing the library’s print journals, and

even fewer were the result of browsing personal or departmental print subscriptions. Only one reading came from searching a printed index or abstract.

It is also worth noting that the distinction between electronic browsing and searching here may be somewhat blurred in some students' minds. "Searching" means that a search term such as an author's name or a topic area has been entered in a search box for an electronic journal or collection, while "browsing" involves scanning the table of contents or e-journals listing. Students may believe they are "browsing" when they are scrolling through the results lists from a searching activity. Analysis of electronic transaction logs might help to clarify the classification of student activity.

There was no association between the method used to locate the reading and the purpose for reading that article.

Readings can also be recategorized as coming from an electronic or print source. Overall, by a ratio of almost 2 to 1, students obtained their most recently read article in an electronic (65.9%) rather than print (33.1%) format. The library's journal subscriptions were the most frequently consulted source, for both format types, although the electronic library subscriptions (39.4%) were the source of many more of the readings than the library's print subscriptions were (13.8%). Departmental-level collections were one of the next most frequent sources for the reading, although the same pattern prevailed here as with the library subscriptions in that electronic formats (9.5%) contributed more articles than print ones did (5.3%). It is interesting to note that 4.5% of the readings were of a

print copy of an article from a colleague or author, a slightly higher level than that for e-copies from the same sources (1.9%) (Table 10).

In interpreting the results for this question, it is helpful to remember that there are some circumstances in which it is hard to define whether the focus article was print or electronic format. For example, the provision of the article may have had two stages. If a professor downloads an electronic version of an article from the library's e-journals, then prints it out and distributes the print copies to her class, it is conceivable that one student might report this as an electronic article from the library's subscription (emphasizing its origin), while another student might call this a personal print copy, because that is the format in which the article is read. The tendency of students to obtain articles electronically, but read them in print format, is discussed in greater depth in the section below, and in the open-ended responses section below.

Table 10. Source of Last Reading for Akron Student Respondents

Source		Frequency	Percentage
Print	Personal subscription	17	4.1
	Library subscription	58	13.8
	School department unit, etc. collection	22	5.3
	Preprint copy of article	6	1.4
	Personal copy of article	9	2.1
	Copy of article from a colleague or author	19	4.5
	Interlibrary loan	7	1.7
	Document delivery service	1	.2
Subtotal		139	33.1
Electronic	Personal subscription	7	1.7
	Library subscription	165	39.4
	School department unit, etc. collection	40	9.5
	Free web journal	31	7.4
	Preprint copy of article	4	1.0
	Personal copy of article	3	.7
	Copy of article from a colleague or author	8	1.9
	Interlibrary loan	14	3.3
	Document delivery service	2	.5
An author's website	2	.5	
Subtotal		276	65.9
Other		4	1.0
Total		419	100.0

There was no statistically significant association between the purpose for reading the article and the format of the source of the reading. However, there was a significant association found between the general approach to finding the article and the format of the source ($\chi^2 = 8.023$, sig. = .018). Articles located by “searching”, were far more likely to have been found in an electronic source (75.2%) rather than a print one (24.8%). Articles found by browsing were also much more likely to have been read in an electronic form (68.4%) although the percentage for print was a little higher (31.6%) than it was for searching. Articles found by “other” methods also were more likely to be from

electronic formats (59.8%), but had the highest level of print use (40.2%). This probably reflects the fact that the “Other” category included instances when instructors provide the articles in paper form.

Table 11. Association between Way of Finding Articles and Reading Source of Akron Student Respondents

Count Row %		Source		Row Total
		Print	Electronic	
Way of Finding Articles	Browsing	36 31.6	78 68.4	114
	Searching	32 24.8	97 75.2	129
	Other	68 40.2	101 59.8	169
Column Total		136	276	412

To address an additional important aspect of the question of print versus electronic formats, students were asked which format of the document they had actually read. Although readings by students are most often found through electronic access, the majority are still *read* as a printed copy (80.6% or 331 of 411 valid responses) rather than on a computer screen (19.4%). Most articles that were read on paper had been downloaded electronically and then printed out on paper, such as with a PDF file (55.5%). In comparison, the most frequently-employed option for reading in an electronic format was to open and read a file (an HTML version for example) (15.1%). To a much smaller extent, electronic readings were also downloaded and saved (4.4%) prior to reading. Although reading on a screen is less common than printing an article on paper prior to reading, it is still more common among Akron students than it is among faculty.

About 25.1% of the articles were read in a print format that did not originate as an electronic document. These articles were either read directly from a printed journal (16.1%), they were read as photocopies of a printed original (8.3%), or were facsimile copies of a printed original (0.7%) (Table 12).

Table 12. Reading Form of Articles for Akron Student Respondents

		Frequency	Percentage
Print	Print article in a print journal	66	16.1
	Photocopy	34	8.3
	Facsimile copy	3	0.7
	Downloaded and printed (e.g., printed PDF)	228	55.5
Subtotal		331	80.6
Electronic	Online computer screen (e.g., HTML version)	62	15.1
	Previously downloaded/saved and read, on computer screen	18	4.4
Subtotal		80	19.4
Other		0	.0
Total		411	100.0

Further analysis revealed no significant association between the reading formats and the purpose for reading the article, between the form (print vs. electronic) in which the article was read and the form of the source from which it was obtained, between the form in which the articles was read and the amount of time spent on the reading, and between the form of reading and the location of the last reading.

Differences in Reading Patterns by Demographic Factors.

Demographic differences make some variations in reading patterns. T-tests were used to evaluate the differences in averages by demographic factors for responses to several of

the key measures. Regarding gender differences, t-tests showed that there was no significant difference between male and female respondents regarding the number of scholarly articles read in the past 30 days. However, there is a significant difference by gender in the amount of time spent on reading the last article ($t = 2.450$, $\text{sig.} = .015$). Males ($M = 50.03$ minutes) spent an average of about ten and a half minutes more than females ($M = 39.44$) reading their last article.

To appraise the differences in responses by age, respondents were grouped into two age categories: under 25 and 25 years and older. This difference was statistically significant ($t = -3.123$, $\text{sig.} = .002$), with the younger group ($M = 17.58$) reading about seven fewer articles on average than the older group ($M = 24.67$). For the time spent on reading the most recent article, the age difference was not significant ($t = 1.887$, $\text{sig.} = .061$) when the respondents were divided by less than or equal to 26 years old and over 26. The significant age-based analysis is likely to reflect the fact that the older group would contain more graduate students, who would be expected to read more articles and spend more time while reading them more thoroughly.

No significance was found between the purpose of the reading and the time spent on reading, the academic status of a student, or the form of reading. Similarly, no significance was found between reading purpose and gender or subject discipline, between the method of finding the article and discipline, and between academic status and time spent on reading, method of finding articles, or article source. Also, no

significant association was found between subject discipline and article source or form of reading.

However, there was significance between the method of finding the article and gender ($\chi^2 = 6.354$, sig. = .042). It was found that while both genders located their articles through 'other' means most often, there were differences between searching and browsing. Women utilized browsing (31.9%) as the second most common means of finding articles; for men, browsing was their least used manner of locating articles (20.6). Conversely, 35.5% of men used searching as a method of finding an article for, whereas only 31.9% of women used this process.

Table 13. Association between Ways of Finding Articles and Gender of Akron Student Respondents

Count Row %	Way of Finding Articles			Row Total
	Browsing	Searching	Other	
Male	32 20.6	55 35.5	68 43.9	155
Female	80 31.9	71 28.3	100 39.8	251
Column Total	112	126	168	406

There was also significance found between gender and final form of reading ($\chi^2 = 12.084$, sig. = .001). Both men and women prefer a print form of reading; however, women are more likely to read articles in print (85.7%) than men (71.6%).

Table 14. Association between Reading Form and Gender of Akron Student

Respondents

Count Row %	Way of Finding Articles		Row Total
	Print	Electronic	
Male	111 71.6	44 28.4	155
Female	216 85.7	36 14.3	252
Column Total	327	80	407

No significant association was found between gender and article source.

Open-Ended Responses

As the final step in the survey, students were presented with two open-ended questions, giving them an unstructured opportunity to express their thoughts. The first question was: “How has your use of scholarly materials changed in the last few years?” As one might suspect, a variety of opinions were expressed. Nine categories of responses were identified (in order of frequency):

1. Increased use of scholarly materials (168 responses)
2. Emphasis on convenience and flexibility by electronic resources to scholarly materials (60 responses)
3. Increased use of electronic resources (52 responses)
4. No change (29 responses)
5. Reliance on the resources and services provided by the library (11 responses)
6. Criticisms (11 responses)
7. Decreased use of scholarly materials (6 responses)
8. Increased in-depth research (4 responses)
9. Print resources as supplement to electronic resources (3 responses)

Category 1: Increased use of scholarly materials

Respondents reported an overall increase in the use of scholarly materials. Increased use is largely attributed to change in status (i.e. from undergraduate to graduate level work) or necessitated by coursework. While many respondents reported an overall increase in use of scholarly journals, some reported a change in the *nature* of that use:

- *more use as working on dissertation, classes, and personal use for work with patients*
- *I use them more in graduate school than I did in undergrad.*
- *I use it more in order to stay current on events and activities in my chosen field. Before I just used materials to do assignments.*
- *In undergraduate studies, we were taught to pick out quotes to support the point we're making. In graduate school I'm reading articles to do real research, to get a sense of a topic and what's going on before I write a paper/response.*
- *Increased dramatically*

Category 2: Emphasis on convenience and flexibility by electronic resources to scholarly materials

Many respondents, while expressing an appreciation for electronic access of scholarly materials, also reported the ease with which electronic articles allowed them to increase their productivity. Another key issue that respondents visited repeatedly was that electronic access was improved by their remote access, increasing ease of storage and document portability. Some respondents also discussed how improved electronic access impacts their use of physical library facilities.

- *much of the available resources are online now and able to be reached from anywhere*
- *It has increased. I try to only find electronic articles rather than print because electronic is easier.*
- *I rely much more heavily on journal articles and ISI searches to find them. I prefer things that are available electronically.*
- *I use the computer rather than go to the library. I usually try to use electronic journals rather than search for things in the library.*
- *done more things online, less time at the library, researching online has been a lot easier and more time efficient.*
- *I appreciate that more content is now online. In 1996 when I was working on my MS I had to physically go to the library, now I can find and read articles when convenient for me.*
- *I no longer have to spend time away from home searching at the library for articles and can access them online.*

Category 3: Increased use of electronic resources

Electronic access to scholarly journals has increased tremendously over the past decade, so it is not surprising that when respondents were asked to comment on use of scholarly journals, they most frequently reported increasing use of electronic resources. That reliance may be changing their reading patterns, however, as older materials are often not as readily available in e-journal collections.

- *More online research*

- *Use of more electronic materials*
- *Increasingly towards electronic materials.*
- *More electronic versions which are downloaded*
- *more online searching, also more articles are online as full-text*
- *I use more electronic journals.*
- *all online sources*
- *Increased. Partially due to increased availability of full text articles on the University "article indexes and databases" search.*
- *Rely more on journals that are available online*

Some respondents commented that increased use of electronic resources (and in some cases, journals in general) are heavily influenced by level of study. Many of those students making the transition from undergraduate to graduate level work reported that their use of electronic resources has gone up markedly.

- *Since enrolling in Graduate School, I have read many many journal articles. These articles were assigned to me in class and they could be found through JSTOR.*
- *My need for scholarly articles/books has increased over the past 2-3 years as I used over 200+ for my dissertation. I also find many more online now than I used to, thanks to our library services.*
- *i use electronic resources to find journal articles slightly more than i did during my undergrad years*

- *I use mostly electronic sources while studying in my graduate program, whereas 10 years ago in undergrad I used mostly printed sources from a library.*
- *I depend more on electronic sources—JSTOR and Academic Search Premier, etc—than I did as an undergrad.*

Several respondents commented their increased use of electronic access has superseded one or more other methods that may have been previously used to find materials. In some cases, this has led to avoidance of materials unavailable in electronic format.

- *Much easier to find articles needed online, will not take time to find an article if not online.*
- *I do it all online via a VPN connection to the University*
- *It has been totally on line usage.*
- *Almost all the articles i read nowadays are online. Earlier i used to borrow or look for days for some articles in library.*
- *Less books, more electronic media*

Category 4: No change

A few respondents reported no changed in their use of scholarly materials.

- *little change over the last few years*
- *nothing changed*
- *It's stayed the same because I've always used the 'few' resources the UA library has.*
- *No significant change*

- *It has not changed. I always research my materials through the library or search online in the library research website. I always research for my papers, to learn more about a subject that I am studying, or if I am interested in something.*

Category 5: Reliance on the resources and services provided by the library

By increasing access to electronic resources, students also reported an increased reliance on other resources and services provided by the library. Some examples include ILL, “real books,” and other non-electronic sources, etc.

- *There has been appreciable change in the delivery system of articles by Inter Library Loan.*
- *I use the EJC and OhioLINK a great deal. I also use the print holdings, but not as much as I did in my MS degree. Other resources I use more now are gov docs, ILL for articles, and items in the reserves for historical background on my topics of study.*
- *I use the library much more than ever before. I would estimate the increase in usage to be 75%.*
- *Increased need, having to rely on Interlibrary Loan much more often because we do not own many current journal subscriptions to arts related journals.*
- *I use interlibrary loan, EJC, and print copies.*

Category 6: Criticisms

Eleven respondents took the opportunity to express varying degrees of criticism and frustration. Included in these comments were comments on lack of updated current materials, cost of printing, access issues and availability of specific scholarly materials.

- *I would recommend more online availability of the articles and books in electronic format (particularly, pdf for text). Also, I would recommend more university subscriptions to many other journals which currently require paid subscription by the reader.*
- *I have needed to access a lot more of it, and I've had a lot of trouble with ERIC.*
- *there aren't many in my field of Arts Administration, or should I say the concentration I am working on there aren't many books.*
- *I have started to read more historical/classic literature in the field [sic], which is difficult to access*
- *Printing was free at the school where I did my Master's degree. Here, there is a cost and even in my departmental lab, there is pressure to not print too much. Hence, I have anxiety about getting papers I need to have.*

Category 7: Decreased use of scholarly materials

A small number of respondents commented that their use of scholarly materials has actually decreased. Some reasons were given such as career changes or coursework changes. Some noted they were moving from a theory-based course of study into a more hands-on and practical arena.

- *I used to use scholarly materials heavily because of my major at that time. The current subject I'm pursuing requires less academic reading, but more hands-on practice.*
- *Up until the last three months, I was a full time student and I spent a great deal of time on-line. This time has decreased drastically as I now work full time.*

- *I used them extensively when writing my GWR for law school. Now that I'm taking nothing but MTax classes, there is no need to access them. However, I thoroughly enjoyed the available research materials through the school's resources.*
- *became very little in the last month*

Category 8: Increased in-depth research

Some respondents reported increases in their ability to dissect and utilize the research materials available. They found their use of scholarly materials to be more profound and their research skills improved.

- *research skills have improved*
- *It has become the primary source of information for my research, compared to just an add-on for courses in under-grad.*
- *i know how to dissect [sic] (pick out variables, methodology, etc.) an article now and i try to write more like the author(s)*
- *More in depth reading. Looking for articles that would pertain to my area of research.*

Category 9: Print resources as supplement to electronic resources

Electronic resources are generally sought first, but print resources are additionally sought and even preferred by at least a few respondents. Only one respondent revealed no use of scholarly materials.

- *I do most of my searching on-line now compared to several years ago; I do read some articles on the computer but I still prefer reading a hard copy;*
- *more internet, i buy the textbooks but usually find them to be obsolete*
- *I look for anything that can be found online first, even if ordered through Iliad; if not, I will seek hard copy old-fashioned way.*

Open-Ended Responses to Second Question

University of Akron students were asked a second open-ended question to offer any further comments. The comments fit into three categories: 1) Praise for the library services; 2) Collection Development suggestions; and 3) Criticisms. The categories were relatively evenly distributed in overall numbers of comment of 36, 29, and 21, respectively.

By and large, the students who praised the library services commented on the positive characteristics of the library staff, library services, online databases and accessibility.

- *Library personnel have been extremely helpful and accommodating. I am an ABD student living out-of-state and staff and electronic supports have been invaluable.*
- *I really like being able to do a large part of my research from my home computer or locations other than the campus. It really allows me to be more flexible in my family life and my education.*
- *The services provided by OHLINK, ILL, the UA print journal holding, and the EJC are great!*

- *I surely hope the university isn't planning to cut any current offerings. I like and use the online journals a lot. It makes my professional/academic life a lot easier and better.*
- *I enjoy having journals available online. Working part-time and being a full-time master's student has made my time jam packed. Being able to find articles from home is extremely helpful.*
- *Ohio Link has made being a doctoral student so much nicer!*
- *Love the ability to search the University resources from home.*
- *The variety of electronic search engines and journals that OhioLink provides has been a great asset when I begin my research*

Many students expressed collection development needs. Such responses were calls for access to more journals, access to be available off-campus and delivery of non-electronic materials by the library. This categorization could further be broken down in specific collection development suggestions, desire for more electronic accessibility, and other collection development criteria:

- *it would be awesome if ohiolink could get subscription to science direct cause the old journal articles which are available in almost all libraries are available in digital format in that site.*
- *I think that it is necessary to obtain more accounts from Scifinder.*
- *It would be nice to have access to Nature Materials*
- *We need more electronic subscriptions to scholarly publications in communication, specifically dealing with mass media and film.*

- *Our library has good number of subscriptions and books. And Ohio link is just great. But i think we lack in electronic subscription of two big publishers Wiley and elsevier [sic]. Though we can get their journals through illiad [sic] but we cant [sic] surf their journals and new articles in their journals. Or maybe I am not aware of any such existing facility.*
- *Would like to see more access to online engineering articles*
- *More journals online in the creative/literary fields would be nice. Especially small literary journals.*
- *Access to the journal 'Criminology' electronically would be nice. I think that is one I can never find through the multiple electronic resources.*
- *I would suggest the library to subscribe more electronic journals, especially Science and Nature.*
- *More current article available online and more sources would be helpful. For example, I was unable to access any Chronicle of Higher Education articles through U of A site.*
- *Looking for more access to scholarly journals related to distance education, online education, etc...*
- *I wish US students had more direct access to scholarly journal sites (e.g. JSTORE).*
- *More journals should be available online. Especially olderdates [sic] as older reference is usually still valid even today.*

- *I wish more journal articles were available online because more people would read them and apply the information/knowledge if it was more easily accessible opposed to buying/ordering the entire journal.*
- *Overall Satisfactory; need more online subscription*
- *I wish all articles that are available University of Akron's library were available electronically online.*
- *I wish more journals were available online. Additionally, some of the journals that focus on minority or gender issues are not carried at the library. How frustrating?*
- *I hope the University continues to purchase new book for its library. Although the electronic databases and journal archives online are very consistent, it seem to me that it is also a bit dangerous to put all our trust in something that could so easily be lost. Hard copies of the actual texts would also help to prevent any tampering that might easily occur to them in the electronic format. In an industry where knowledge is our product, we must take steps to secure that knowledge and to not rush into the latest trends that might one day prove to be catastrophic.*

The remaining 21 responses to the open-ended comments section took the opportunity to express varying degrees of criticism of the library services or collection.

- *some library subscription are not available while connecting from off campus, even using VPN, would be nice if the procedure is made simple*

- *SciFinder Scholar is the most important application for my locating/finding and retrieving [sic] scholarly materials (research papers, etc.) We need more seats for Scifinder Scholar, many times i am unable to connect due to all connections full.*
- *I wish there was a service we could pay for where we could order articles that could be photocopied and sent to us at our department. Sometimes I have to run all the way across to the Science Library for one thing. That is when I wish I could call someone up and ask them to fax me a copy of what I need.*
- *While I use articles quite a bit, I also use books, but most of the newest must be ordered through OhioLink or another lending service, as our library falls short in this department.*
- *It would be helpful to be able to access the journals via computer rather than search through microfiche.*
- *Though it might be a difficult task, there should be a way to browse through resources in all the libraries in order to make the borrowing/lending process fruitful.*
- *It was not possible to search, by subject, journals available only at UA's Bierce library. I had to manually search through the Current Periodicals section.*
- *The library should make copies of articles that are on site and mail them to students who live outside Summit County. It's a long way to drive just to copy one article. My commute to campus is 75 minutes one way.*

- *The Wilson Web database has long had problems when accessed from a database (in other words, when you click Find This and follow the link to Wilson it often never finishes “Initializing”.*

Summary

The University of Akron student survey was answered primarily by graduate students who received the survey via email. The results should be interpreted with this in mind. Overall responses are characteristic of graduate students, as Akron student respondents report many readings of scholarly articles (on average between 19 and 23 articles per month) and read for many purposes, notably for thesis or dissertation work or to complete a course assignment.

Student respondents at Akron differ from other university students surveyed in their relatively heavy reliance on finding articles from ways other than searching or browsing. In particular, they follow relevant citations more than others. This is also likely due to the large numbers working on a thesis or dissertation.

University of Akron students are similar to other university students in their appreciation for electronic journals and their increased use of the library's electronic journal collections. They report increased use of electronic journals, both due to their graduate requirements and the ease of access. Access to good collections from anywhere and at anytime drives the use of scholarly journals for the Akron students.

Survey of Scholarly Journal Article Reading and Use Students

Your responses are confidential and data will be reported only in aggregated form. Because your answers are extremely important to the accuracy of our study, please submit the questionnaire even if you are unable to answer all the questions. We have tried to keep the questionnaire as short and simple as possible and yet achieve our study objectives. If you have any questions, please contact Roger Durbin rdurbin@uakron.edu.

Section 1: Scholarly Article Reading

1. In the past month (30 days), approximately how many scholarly articles have you read? Articles can include those found in journal issues, web sites, or separate copies such as preprints, reprints, and other electronic or paper copies. Reading is defined as going beyond the table of contents, title, and abstract to the body of the article.

Number of articles read/used in the past month: _____ articles

If none, **skip to Section 2.**

2. Approximately how many of these articles were for a course? _____

The following questions in this section refer to the **SCHOLARLY ARTICLE YOU READ MOST RECENTLY**, even if you had read the article previously. Note that this last reading may not be typical, but will help us establish the range of patterns in reading.

3. What is the title of the journal from which this last article was read or, if not from a journal, what is the topic of the article?

Journal Title _____

-or-

General Topic of Article _____

4. Approximately what year was this article published/posted? _____

5. For what purpose was this article read? (Choose only the one best answer).
- This article was required reading in a course
 - I read this article to help complete a course assignment or course paper (but it was not specifically required)
 - This article was for my thesis or dissertation
 - I read this article to keep up with the literature
 - This article was just of personal interest
 - Other (please specify) _____
6. From which source/form did you read this article? (Choose only the one best answer.)
- Personal subscription [DD: Print, Electronic]
 - Library subscription [DD: Print, Electronic]
 - School, department, etc. subscription [DD: Print, Electronic]
 - Free Web journal
 - Preprint copy of the article [DD: Print, Electronic]
 - Personal copy of the article [DD: Print, Electronic]
 - Copy of the article from a colleague, author, etc. [DD: Print, Electronic]
 - Interlibrary loan [DD: Print, Electronic]
 - Document delivery service [DD: Print, Electronic]
 - An author's Web site
 - Other website (please specify) _____
 - Other source (please specify) _____
7. Where were you when you read this article?
- Office or lab
 - Library
 - Dormitory
 - Home (off-campus)
 - Traveling
 - Elsewhere (please specify) _____
8. How long did you spend reading this article most recently?
_____ Minutes
9. How did you become aware of this last article you read?
- Found while browsing (i.e., started with a journal name, journal issue, or table of contents) [GO TO #10a]
 - Found while I (or someone on my behalf) was searching (i.e., by subject or author's name) [GO TO #10c]

- c. Cited in another publication [\[GO TO #11\]](#)
- d. An instructor told me about it [\[GO TO #11\]](#)
- e. It was in the course outline/readings list [\[GO TO #11\]](#)
- f. Don't know [\[GO TO #11\]](#)
- g. Other (please specify) _____ [\[GO TO #11\]](#)

10a. Was the journal you were browsing from:

- a. Personal subscription [\[DD: Print, Electronic\]](#)
- b. Library subscription [\[DD: Print, Electronic\]](#)
- c. School, department, etc. subscription [\[DD: Print, Electronic\]](#)
- d. Other (please specify) _____ [\[DD: Print, Electronic\]](#)

10b. Approximately how much time did you spend browsing? _____ Minutes

For the articles you found by browsing, how many did you read or plan to read? _____ Articles
[\[GO TO #11\]](#)

10c. For the articles you found while searching, what kind of source were you searching:

- a. Web search engine (e.g., Google, Yahoo, AltaVista, WestLaw)
- b. Electronic indexing/abstracting service (e.g., Academic Search Premiere, ERIC, PsycINFO)
- c. Print index or abstract
- d. Online journal collection (e.g., HighWire, OhioLink EJC, JSTOR)
- e. Current awareness service (e.g., Current Contents) [\[DD: Print, Electronic\]](#)
- f. Preprint/e-print service
- g. Other (please specify) _____ [\[DD: Print, Electronic\]](#)

10d. Approximately how much time did you (or someone on your behalf) spend searching? _____ Minutes

For the articles you found by searching, how many did you read or plan to read? _____ Articles

11. In what form was the last article you read?

- a. Print article in a print journal
- b. Photocopy

- c. Facsimile copy
- d. Online computer screen
- e. Previously downloaded/saved and read on computer screen
- f. Downloaded and printed on paper
- g. Other (please specify) _____

Section 2: Demographics

12. What is your academic major or intended major? [DD]
- 1. Military Science
 - 2. Social Sciences
 - 3. Criminal Justice
 - 4. Fire Protection Technology
 - 5. Emergency Management
 - 6. Community Services Tech
 - 7. Hospitality Management
 - 8. Paralegal Studies
 - 9. Business Management
 - 10. Real Estate
 - 11. Health Care Office Management
 - 12. Office Administration
 - 13. Transportation
 - 14. Histotechnology
 - 15. Medical Assisting
 - 16. Radiologic Technology
 - 17. Surgical Assisting
 - 18. Allied Health
 - 19. Respiratory Care
 - 20. Environmental Health
 - 21. Biology
 - 22. Chemistry
 - 23. Classics
 - 24. Greek
 - 25. Anthropology
 - 26. Archaeology
 - 27. Economics
 - 28. English
 - 29. Geography
 - 30. Geology
 - 31. History
 - 32. Mathematics
 - 33. Computer Science
 - 34. Statistics

35. Latin
36. French
37. German
38. Italian
39. Japanese
40. Russian
41. Spanish
42. Philosophy
43. Physics
44. Political Science
45. Psychology
46. Sociology
47. Public Administration
48. Urban Studies
49. Chemical Engineering
50. Civil Engineering
51. Electrical Engineering
52. Computer Engineering
53. Mechanical Engineering
54. Biomedical Engineering
55. Educational Administration
56. Educational Foundations
57. Early Childhood Education
58. Middle Level Education
59. Secondary Education
60. Technical Education
61. Curricular and Instructional
62. Physical Education
63. Outdoor Education
64. Health Education
65. Educational Guidance/Counseling
66. Special Education
67. Cooperative Education
68. Business Studies
69. Accountancy
70. Finance
71. Management
72. Marketing
73. International Business
74. Art
75. Family and Consumer Sciences
76. Music
77. Communication
78. Speech-Language Pathology
79. Social Work
80. Theatre

- 81. Dance
- 82. Nursing
- 83. Public Health
- 84. Law
- 85. Polymer Engineering
- 86. Polymer Science
- 87. Library Science

13. What is your academic status? [DD]

- a. Freshman
- b. Sophomore
- c. Junior
- d. Senior
- e. Post-Bac
- f. Master's student
- g. Doctoral student
- h. Law student (J.D., LLM)
- i. Other (please specify) _____

14. What is your age? _____

15. What is your sex/gender? [DD]

- a. Male
- b. Female

16. What is your ethnicity? [DD]

- a. White
- b. Hispanic or Latino
- c. Black or African American
- d. Asian/ Pacific Islander
- e. Other

17. Are you a full-time or part-time student?

- _____ full-time
- _____ part-time

18. How has your use of scholarly materials changed in the last few years?

19. Other comments:

20. How many minutes did it take you to complete this survey?

_____ Minutes

Thank you for your time!