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Academic libraries, student expectations, and college admissions

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ACADEMIC LIBRARIES, STUDENT EXPECTATIONS, AND COLLEGE
ADMISSIONS

A Thesis

Presented to

The Faculty of the School of Library and Information Science

San Jose State University

In Partial Fulfillment

of the Requirements for the Degree

Master of Library and Information Science

by

Virginia C. Hire

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ABSTRACT

ACADEMIC LIBRARIES, STUDENT EXPECTATIONS, AND COLLEGE ADMISSIONS

by Virginia C. Hire

This study investigated the statistical correlation between the use of academic libraries with pre-collegiate student expectations and their rate of application to college. The hypothesis of this study is that student expectations of college admission correlate positively with student use of academic libraries and therefore students who are familiar with academic libraries will seek college admission in higher numbers than youth who have not used academic libraries.

Results of this study indicate that positive correlations exist in the sample group between these three variables (early use of academic libraries, student expectations, and application to college). While further study with a larger group is recommended, these initial results may be of assistance to academic libraries in developing policies and programs which are supportive of academic library use by pre-collegiate youth.

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Chapter 1: Introduction

The relationship between academic libraries, student expectations, and college admissions is the focus of the study. Historically, academic libraries have been accessed by youth as unaffiliated users (Courtney, 2001). An unaffiliated user in an academic library is a person who is not a faculty member, a staff member, a current student, or an alumni member of that institution. For purposes of this study, student expectations are defined (Appendix A) as the beliefs that students hold about their personal abilities and their future educational accomplishments. College admissions are indicated by both rate of application to college and intentions to apply to college. The information gathered from inspection of the statistical correlation between use of academic libraries before college, student expectations for their academic career, and the rate of application to college may support a shift in academic libraries toward planning programs and services that support academic library use by pre-collegiate students.

The relationship between these three areas initiates several research questions:

- Does familiarity with an academic library have a positive or negative impact on student expectations?
- What is the relationship between student expectations and college admissions?

- How are college admissions impacted by academic library use by students?

Literature indicates there are few studies on use of academic libraries by pre-collegiate students (Craver, 1987). The literature also indicates there may be a link between student expectations and use of academic libraries. Duhrsen (1981) observed differences in academic expectations between [youth] users and non-users of New Mexico State University (NMSU) Library.

The link between student expectations and college admissions is described by Tavani & Losh (2003). They found that expectations are the strongest predictors of academic achievement.

The relationship between use of academic libraries and college admissions is discussed in several studies. Archie (1964) noted that through early academic library use, high school students would attend the campus. Johnson (2000) observed that teachers perceptions of believed use of college libraries encouraged students to continue their education.

The examination of the relationship between these three elements (early academic library use, student expectations, and college admissions) may provide important information for academic libraries in developing policies, procedures, and programs that affect library patrons, particularly unaffiliated youth.

Background of the Study

Past studies of academic library use by youth have indicated that they are determined to access information they need, regardless of the barriers that are created to limit their access. Josey (1967) observed that colleges would require letters of introduction from secondary school authorities and would restrict use and circulation of materials. Despite these barriers, “librarians in all types of libraries began to realize that high school students were not sensitive to jurisdictional boundaries between institutions if they can locate the materials they need and that they will use every library in a community indiscriminately in their search for information” (Craver, 1987, p. 37).

There are references to the link between early use of academic libraries and college admissions within works that deal with one of the variables being examined: academic library use, college admissions, or student expectations. In her dissertation, Mancall (1978) concluded that college-bound students demonstrated greater use of academic libraries. Johnson (2000) noted that teachers believe use of academic libraries builds confidence and promotes application to college among students who may otherwise have skipped higher education. While Knight (2003) indicates college admissions are dependent upon, “The role of financial assistance, peer/study groups, high-quality teachers, a curriculum and pedagogy that facilitates the acquisition of academic capital or rigorous academic training, and family involvement” (p. 534), Tavani & Losh (2003) found that student expectations were the strongest predictors of

school performance. The implications were that if the student strongly believes that they will accomplish a goal they are more likely to succeed. This study is one of several that point to student expectations as self-fulfilling prophecy (Ansalone, 2002; Craver, 1987; Lumsden, 1997; Tavani & Losh, 2003).

Statement of the Problem

The examination of the relationship between early use of academic libraries, pre-collegiate student expectations, and college applications may provide useful information for academic libraries to shift from a service model that excludes youth to one that will assist in the creation of programs to address the needs and the potential of early academic library users. Current studies of academic libraries and unaffiliated users rely on the observations or perceptions of third-party adults, at best implying use was a factor.

Purpose

The purpose of this study is to identify the relationship between early use of academic libraries, pre-collegiate student expectations, and college admissions.

Significance of the Study

The examination of the relationship may yield information of benefit for academic libraries as they develop programs that serve youth in their community. The study would benefit higher education recruitment of youth. As one pair of researchers pointed out in their study, an information literate

population is our nation's most valuable resource and information literacy is requisite for a democratic society (Carr & Rockman, 2003).

Research Questions

The following questions guide this study: Do student expectations of college admission correlate positively with student use of academic libraries? Therefore, do students who are familiar with academic libraries seek college admission in higher numbers than youth who have not used academic libraries?

Assumptions

Assumptions for this study are:

- Participants will reply honestly.
- There will be only one reply per individual.
- The questions will measure the study topic.
- The response rate will be high enough to make valid conclusions.
- This study does not control the conditions that led to student use or non-use of an academic library.
- This study does not control the conditions that led to formation of student expectations.
- This study does not control the conditions that led to student application or non-application to college.

Delimitations

The study is limited to youth ages 18 and over from the Grossmont Union High School District and the Grossmont-Cuyamaca Community College District. The characteristics of this population that affect the ability to generalize study results include the number of participants in the study as well as the number of participants who complete the survey and participant demographics. The short study period is also a delimitation. Delimitations of the phi coefficient calculations include possible attenuation.

Summary

This study seeks to examine the correlations between pre-collegiate student expectations, early use of academic libraries, and college applications. These relationships deserve further study, which would expand upon studies that examine these variables individually or in pairs. Study results may have an impact on the prevalent academic library approach to the presence of pre-collegiate youth being categorized as exceptions rather than as part of our experience.

Chapter 2: Review of the Literature

To examine the relationship between academic libraries, student expectations, and college admissions, literature regarding each of these topics investigated individually and in relation to each other. The search for information included access to the electronic journal collection of National University Library as well as inter-library loan services.

What Are Known Impacts of Academic Libraries?

Studies on academic libraries demonstrate that academic and research libraries have been influenced by the tradition of American public libraries' concept of free service and freedom of inquiry (Courtney, 2001; Guernsey, 1998; Waggoner, 1964). It has been noted that academic library catalogs are available online (Craver, 1987; Chambers, 1990; Johnson, 2000). Free internet access is a factor when academic and college libraries include pre-collegiate youth in their service population (Courtney, 2001; Guernsey, 1998).

While most academic libraries are aware of the presence of pre-collegiate users (LeClercq, 1986; Stewart, 1964), few studies focus on youth use of academic libraries. According to Craver (1987), existing studies address three distinct topics: problems of youth academic library use, a single aspect of library services used by youth, or oblique references to youth within a larger study of college student use of information.

Perceived problems of youth academic library use include a lack of space for primary users – students, staff, and faculty – of academic libraries

(Courtney, 2001; Guernsey, 1998; Waggoner, 1964) with regard to sheer number of seats occupied, as well as with regard to monopoly of computer terminals (Courtney, 2001; Guernsey, 1998).

Another set of researchers has speculated on why youth go to academic libraries. Offered suggestions include a lack of materials, facilities, and services at the secondary or public libraries (Archie, 1964; Courtney, 2001; Craver, 1987; Johnson, 2000) new curriculum demands that drive them there (Archie, 1964; Bailey, 1961; Courtney, 2001; Waggoner, 1964) the baby boom (Waggoner, 1964); the “post-war space race” (Courtney, 2001; Schwartz, 1970), and a lack of evening and weekend hours at school libraries (Courtney, 2001; Johnson, 2000; Schwartz, 1970; Waggoner, 1964). As concluded by Johnson (2000), youth needs are not being met at their school libraries. Josey (1967) noted that:

As ALA past-president James E. Bryan so eloquently put it “...student use of libraries is increasing, not just because there are more students but also because, on the average, each student’s use of the library is increased – not just of so-called reference tools but also in both the range and depth of materials used. Our libraries are not just crowded with students, they are overcrowded with students seeking and demanding library services.” (p. 196)

Suggestions on why these needs are not being met include a lack of funds at the secondary level (Bobp & Richey, 1994; Waggoner, 1964), again with explanations that new curriculum is partly to blame (Archie, 1964; Bailey, 1961; Courtney, 2001; Waggoner, 1964) or that public library collections should supplement school library collections (Bobp & Richey, 1994). Academic

libraries “were startled to find elementary school children (often accompanied by a parent) seeking information on dinosaurs, California missions, and other topics that are a part of the primary school curriculum” (Bobp & Richey, 1994, pp. 3-4).

At the time, researchers believed the situation was temporary, and that youth would return to school libraries when their resources, services, and hours were improved (Waggoner, 1964). Others were cognizant of the fact that academic libraries are an essential part of the information resources in this country and should be used (Chambers, 1990; Courtney, 2001; Craver, 1987).

Meanwhile, academic libraries responded either with barriers to youth or with collaborative programs for them (Craver, 1987; Ercegovic, 2003; Josey, 1967). In a survey of 1,100 libraries regarding youth access to their facilities and services, Josey (1967) recorded responses from 783 libraries. In these findings, only 24% of academic libraries responding did not place restrictions on youth academic library patrons.

The barriers to use included no services provided (33%), or limited use of facilities and materials (22%). Creative barriers included use by only seniors, honors students, or specific classes; allowing only up to 10 youth patrons per month; restricting youth use to specified hours, days, or summers only; no checkout privileges; or requiring a letter of introduction from a school official (Josey, 1967). Craver (1987) concluded from study results that the group was “genuinely unwelcome in American college and university libraries is the high

school student segment” (Craver, 1987, p. 46). At the same time “a significant percentage of students, especially the college-bound, evidence a determination to use academic libraries despite the erection of considerable barriers. Their success rate with the use of academic library materials in several studies was also quite high” (Craver, 1987, pp. 59-60).

At the other end of the spectrum, “Collaborative information literacy (IL) efforts between librarians and faculty in K-12 schools and in colleges are relatively well represented in the reviewed literature” (Ercegovac, 2003, pp. 75-76) and “the instigating force does not seem to be state funding, but rather a recognition by colleges that many of these high school students are potential attendees at their own institutions” (LeClercq, 1986, p. 16).

Collaborative efforts have been recommended by an Association of College and Research Libraries (ACRL) & American Association of School Librarians (AASL) task force such as “joint association activities, continuing education for librarians, and outreach projects” (Ercegovac, 2003, p. 77) and by the Alliance for Excellence (U.S. Dept. of Education) that “school media centers, public and academic libraries be open to the fullest extent possible to elementary and secondary school students and to area residents” (Johnson, 2000).

Even as early as 1964, research suggested some of the many benefits of collaboration between school and academic libraries (Ercegovac, 2003; Wilson, 1964). Chambers (1990) noted there is little awareness of the extent of these

partnerships, while in another study (Carr & Rockman, 2003) there are claims that these partnerships are a recent phenomenon. Not so recently, in 1984, “an article was published which related the success of a consolidated college-school library in Scotland” (Craver, 1987, p. 41).

Less radical collaborative efforts than a consolidated college-school library take the form of an inter-library loan program (Craver, 1987; Josey, 1967), regular orientation and bibliographic instruction (Cahoy, 2002; LeClercq, 1986), reciprocal borrowing privileges (Craver, 1987), or other partnerships (Cahoy, 2002; Carr & Rockman, 2003; Smalley, 2004; Stewart, 1964).

In these partnerships, academic libraries benefit from improved academic performance and increased retention of students (Carr & Rockman, 2003; Craver, 1987; Smalley, 2004; Whitmire, 2003) and a better transition from secondary to higher education (Cahoy, 2002; Carr & Rockman, 2003; Craver, 1987; Johnson, 2000).

Whitmire (2001) noted that “high school library use remained a predictor of undergraduate academic library use after three years in college [and this] indicates the importance of assisting undergraduates to develop their library skills during secondary school” (p. 536). In her dissertation Mancall (1978) concluded that college-bound students demonstrated greater use of academic libraries.

Another tentative link between academic libraries and college admissions is expressed by Cahoy (2002) in the statement that “there’s no

better place for academic librarians to start learning about students' potential needs than at the local high school and its library" (p. 15).

What Are Known Factors of Student Expectations?

In a study that examined self expectation as measured against perceived expectations of others, Cheng & Starks (2002) discovered that self expectation is most closely correlated with parental expectation, that regardless of race parental expectations were perceived by the student as higher than self expectations, and that relations' expectations were perceived as being higher than non-relations' expectations for the student (Appendix B). Relations are defined as a member of the immediate or extended family of a student, and non-relations are not related by family to the student.

Several studies noted that the belief by the student that they can accomplish a goal makes it more likely that they will succeed – a self-fulfilling prophecy (Ansalone, 2002; Cheng & Starks, 2002; Tavani & Losh, 2003).

In addition, other researchers noted that if respected others such as parents, relatives, or teachers think the student can accomplish a goal, the student will also believe it is possible (Alexitch, 2004; Ansalone, 2002; Cheng & Starks, 2002; Knight, 2003; Lumsden, 1997) and that the reverse is also true – low expectations from others affect self-expectations (Ansalone, 2002; Lumsden, 1997).

Studies on the formation of educational expectations have also noted that socio-economic status (SES) and other non-cognitive factors have a

significant impact on students (Boulard, 2004; Dhesi, 2001; Dickson, 2004; Long, 2004; Meyers & Henderson, 2004; Noble & Sawyer, 2004).

Meyers & Henderson (2004) noted that “knowledge of alphabet letters at entry into kindergarten is a strong predictor of reading ability in 10th grade” and that “supportive efforts that begin very early in life have the best chances for success” (pp. 9-10). With this knowledge, it is not only important for academic libraries to be available for secondary school students, it is also important to recognize that outreach to preschool students teaching them their alphabet will have lifelong learning benefits. Preschool students who learn the alphabet before entering kindergarten are future college students.

Expectations of students that they will apply to college have been shown to be increasing since 1980 (Carr & Rockman, 2003; Manzo, 2005). The exception is found in studies demonstrating how changes in affirmative action have had negative impacts on minority applications to college unless supplemented with changes in admission processes and financial aid programs (Dickson, 2004).

It was also noted that many studies on the expectation of students that they will apply to college have been limited to qualitative or survey studies of high school seniors only (Knight, 2003).

In studies involving academic libraries, teachers and librarians generally believed the use of a college or university library might encourage students to apply for college who would not have done so otherwise (Johnson, 2000).

Craver (1987) noted a measured difference “in academic expectations...between users and nonusers of the NMSU Library” (p. 47).

What Are Known Factors in Seeking College Admissions?

Research has shown that proximity of colleges and universities is a factor (Donehower, 2005), as well as a student's capacity to act upon an opportunity to attend college (Dhesi, 2001). In addition, popularity and reputation of an institution among student peers influences student application decisions (Donehower, 2005; Donnellan, 2002). Research also asserts that “income, or lack thereof, may still be the single most important factor determining both college access and completion, according to a soon-to-be published study by the Mellon Foundation” (Boulard, 2004, p. 6).

High parental expectations, discipline, and preparation all impact the decision to apply to college (Boulard, 2004; Dhesi, 2001; Knight, 2003; McBride, 1996). Admissions policies and student understanding of college admissions requirements early in their high school years also have an effect, as well as the cost or availability of financial assistance (Donehower, 2005; Knight, 2003).

The admissions process itself has been examined and reveals differences in the use of paper-based and online applications by students, with online applications favored by white male students as shown in the table of Appendix C (Gifford, Briceno-Perriott, & Mianzo, 2005). Details were not

available to show if male minority students favored online applications more or less than female white students.

Donehower (2005) suggests direct contact with college personnel who are supportive may also play an important role. Researchers also identified that academic libraries may play a role in recruitment of capable youth patrons (Archie, 1964; Schwartz, 1970).

Summary

The relationship between student expectations, youth use of academic libraries, and college admissions is one that deserves further study. Studies are not found in the literature review that directly evaluate these three variables together. Studies were found that examine them individually or in pairs. Academic libraries are being accessed by youth users overcoming barriers to use of the resources of the institution. Collaborative programs between academic and school libraries have benefits for both institutions.

The self-expectations of students are directly influenced by parental expectations. Members of the student's extended family also may affect expectations in either positive or negative ways. A student's belief in their ability to accomplish a goal can be a self-fulfilling prophecy. SES and preparation also have an impact.

Student decisions to apply to college are affected by proximity, popularity, financial considerations, admissions policies, discipline, academic

preparation, application procedures, and even personal contact with college personnel.

Each of these three elements, college admissions applications, student expectations, and youth use of academic libraries, is found to have a role in the lives of pre-collegiate student success. There is a need to examine the impact that use of academic libraries before college has on student success, both in their personal expectations and their rate of application to college. The correlation between these three variables may assist academic libraries in their evaluation of programs and services provided to youth patrons.

Chapter 3: Research Design

If student expectations of college admission correlate positively with student use of academic libraries then students who are familiar with academic libraries will seek college admission in higher numbers than youth who have not used academic libraries. To validate this hypothesis, an anonymous self-report questionnaire (Appendix D) will be used to gather data on student expectations, use of academic libraries, and planned or completed application to college.

Design of Research

The approach to a design exploring the relationship between use of academic libraries, student expectations, and college admissions is basic survey research. Data will be gathered using a cross-sectional ten question online survey. The data will be analyzed for correlations between the three elements. Of the ten questions on the self-report questionnaire, nine are limited to dichotomy variable responses for a nominal structured item variable. The tenth is a request for residential zip code. The selection items assess an affective characteristic, such as perceived parental attitude. Measures of validity and reliability have not yet been determined for this survey.

Site Setting and Population

The online self-report questionnaire will be administered to two distinct groups of students. All responses will be made anonymously.

The first group consists of pre-collegiate youth age 18 and over attending Grossmont Union High School District. The target population for this group is

pre-collegiate youth currently attending secondary school in California. The accessible population to be studied is students attending Grossmont Union High School District. This group is a convenience sample of the target population. Published statistics for the 2003-2004 school year for this site indicate an enrollment of 23,693 students, 37% minority. In the most recent year with available statistics, 4,789 graduated with 31% completing admissions requirements for California State University (CSU) or University of California (UC) schools. Completion of the CSU or UC requirements is important because CSU and UC schools are California's public 4-year institutions of higher education. Appendix E has additional demographic information.

The second group consists of collegiate youth age 18 and over attending the Grossmont-Cuyamaca Community College District. The target population for this group is collegiate youth currently attending community college in California. The accessible population to be studied is students attending Grossmont-Cuyamaca Community College District. This group is a convenience sample of the target population. Published statistics for the Fall 2005 semester for this site indicate an enrollment of 23,270 students, 47% minority. 58% of students in this district indicated an Academic degree objective. Appendix F has additional demographic information.

To provide valid correlations, the sample size should be a minimum of 30 responses. Since validity and reliability have not yet been established a larger response will improve the results.

The average response rate for traditional mail surveys with one contact notice is 30 to 50% of recipients. Knowing the rates for paper surveys, and making the assumption that the response rates for online surveys will not be worse than those for paper surveys, it may be projected that a response rate of 30% is reasonable to expect for online surveys. If 20,000 students are surveyed then 6,000 replies would be expected.

Measurement Methods

The analysis of the correlation between student expectations, youth use of academic libraries, and college admissions will be gathered with data from an online anonymous survey questionnaire. Two questions identify academic library use, two questions address college admissions, and three questions investigate the application of expectations. The remaining three questions are used to categorize responses by gender, minority status, and residential zip code.

Procedure

Following Institutional Review Board (IRB) approval (Appendix H), school districts will be contacted to arrange for participation of their students age 18 and over. The online survey will be conducted using Survey Monkey software. School Districts will provide the survey links to students and notify them of the deadline for completion of the survey. Data will be gathered anonymously online. Data will be evaluated and reported. Zip codes in the area do not necessarily correspond to attendance at any particular school due to several

factors which include the presence of charter schools, intra-zip code boundaries, and transfers. Because of these factors it is possible to collect residential zip code and map it with proximity to college libraries without compromising the anonymity of the survey data. The timetable for completion is as follows:

- Step 1: Investigator will obtain IRB approval for use of the online survey with students age 18 and over.
- Step 2: Investigator will contact the school districts to obtain permission to conduct the survey.
- Step 3: The survey link will be provided to students.
- Step 4: The survey links will be open for students to respond.
- Step 5: Investigator will evaluate data.
- Step 6: Investigator will report data in thesis.

Ethical Considerations

The research survey is anonymous, and responses will be aggregated for analysis of correlations. There are no known risks for participation in this survey, as it is entirely anonymous and responses can not be traced back to a particular individual. Informed consent forms will not be collected. However, information will be included on the survey itself informing participants of their rights. Findings are reported in Chapter 4 of this thesis document.

Data Analysis

The results will indicate the response rate for each question, the total sample size, and the overall number of surveys returned. The results will also indicate the relative numbers of males to females responding, the relative numbers of minority to non-minority students responding, and the percentage of respondents by zip code.

Raw Data

Raw data will be reported for all questions (Appendix I). The response rate for each question, total sample size, and number of surveys returned will also be listed, along with the number of useable responses if that differs for any reason from the number of total responses.

Charts and Graphs

Pie charts will display responses to questions 1-9, showing the percentage of each of the two choices available to participants (Appendix J), including the relative number of females to males responding and the relative number of minority to non-minority students responding. A bar graph will display responses to questions 1-7, showing the number of respondents in each of the two response categories per question (Appendix K).

Maps

Zip code data will be plotted to a map to display responses to question 10, indicating number and percentage of respondents in each location. The map will include plotted points for each of the high schools in the district and for

many local colleges and universities (Appendix L). Geographic analysis will test the relationship of proximity and expectations.

Correlations and Inferential Statistics

Replies will be aggregated for all respondents and analyzed for correlations. Correlations by sub-group of gender and minority status will be done as long as these subgroups have a minimum of 30 respondents to yield stable results (Gay, Mills, & Airasian, 2006). The analysis will examine academic library exposure, applications and expectations. The phi coefficient will be calculated to determine the inter-item relationships. To be valid, the level of significance for the variance in the results will be .05 or less (Appendix M).

Questions 1-7 will be grouped by topic and correlated appropriately in pairs. Correlations will be a number between -1 to +1, where -1 is the strongest negative correlation and +1 is the strongest positive correlation. Results close to zero do not demonstrate a correlation. The replies to questions 8 and 9 will be used to study sub-groups of replies to questions 1 through 7 by gender and minority status. Finally, inferential statistics will also be calculated to determine if these results may be generalized to the larger population.

Summary

In conclusion, this proposal will investigate the statistical correlation between academic library use, student expectations, and college admissions. The narrative and tabular findings of the statistical analysis for this quantitative

study are in Chapter 4. This information will fill in gaps in existing research and may support the potential role of the academic library in recruiting students for higher education.

Chapter 4: Data and Analysis

An anonymous self-report questionnaire (Appendix D) was used to gather data on student expectations, use of academic libraries, and planned or completed application to college.

Data Collection

The response rate for both groups was much lower than anticipated. Each school site had a unique approach to student communication. One site asked the investigator to post flyers on the physical campus. One site posted flyers themselves. One site sent an email to their students. One site posted a link to the survey on their library home page. One site placed flyers in specific instructor mail boxes. One site announced the survey verbally in specific classes. The preferred method of survey distribution for this survey is via email, so any future distribution of these surveys would be conducted via organizations which, unlike the majority of these schools, are able to send email to their members. The reason email is preferred is because it can include a direct link to the survey, enabling students to respond immediately.

Data collection efforts began in July, 2006, and the minimum number of survey responses required (30) was acquired in mid-February, 2007, as a result of persistent communication with the contacts at various school sites, plus a lot of hard work on their part to advertise the study.

Data Summary

Data is presented in the appendices. The response rate for each question was 100%, and the total sample size was equal to the number of surveys returned at 32. The distribution by gender was 28% male and 72% female. Respondents were 44% minority and 56% non-minority. Eighteen unique zip codes are represented, with the largest percentage for any one zip code being 13% of respondents.

Raw data is reported for all questions (Appendix I). Pie charts (Appendix J) display responses to questions 1-9, showing the percentage of each of the two choices available to participants. A bar chart (Appendix K) shows responses to questions 1-7. Zip code data is displayed on a map (Appendix L) created with ArcView 2.1 software.

Correlations and Inferential Statistics

Replies were aggregated for all respondents and evaluated for correlations (Appendix M). Since data are nominal and dichotomous the Phi Coefficient is calculated with contingency tables (Andrews University, 2007). The formula for calculating Phi is $(BC-AD)/\sqrt{(A+B) * (C+D) * (A+C) * (B+D)}$ where C is a yes reply to both questions and B is a no reply to both questions.

Correlations by sub-group of gender and minority status were not done since these sub-groups did not have a minimum of 30 respondents per sub-group.

Inferential statistics (Appendix O) were calculated using Chi-square to determine if these results may be generalized to the larger population (Connor-Linton, 2007).

Chi-square can be calculated with the same contingency table, however the formula differs. For each cell, first the observed frequencies are compared to expected frequencies.

Expected frequencies are the result of taking the row total multiplied by the column total and then dividing that entire quantity by N, the number of participants. "For a 1 X 2 or 2 X 2 table, expected frequencies in each cell should be at least 5" according to Connor-Linton (2007).

Once the Expected frequencies are calculated, compute the difference between the observed and expected frequencies. Then square the difference. Finally, divide these squares by the expected value to find chi-square for each cell. The resulting chi-square values for each cell are then added together to give chi -square for the entire table.

Degrees of freedom are calculated and a level of probability is selected, giving a measure of whether or not the results are significant in that they can be applied to the population and are not just characteristic of the sample group (Connor-Linton, 2007).

Analysis

Analysis of this data for correlations is accomplished by calculating the Phi Coefficient for dichotomous nominal responses. As Phi approaches an

absolute value of 1 the relationship between the two variables may be stronger.

The Phi Coefficients are ranked for the pairs examined.

Andrews University (2007) notes that the Phi Coefficient is “the Pearson correlation coefficient, just calculated in a simplified manner”. The process for determining a true relationship between the variables for the Pearson r is detailed in Gay, Mills, & Airasian (2006) in Chapter 7.

Gay, Mills, and Airasian (2006) suggest that absolute values of greater than .40 are useful in a relationship study but not a prediction study or reliability study. They caution that “in a study designed to explore or test hypothesized relationships, a correlation coefficient is interpreted in terms of its statistical significance...(which is) the conclusion that results are unlikely to have occurred by chance” (p. 195).

To determine if the Phi coefficient represents a true relationship (not due to chance) with a level of significance for the variance in the results of .05 or less, the phi coefficient is compared against a table of values (Appendix N).

The table requires three numbers – the Phi Coefficient (which is a simplified Pearson correlation coefficient), the variance (.05 or less), and the degrees of freedom. According to Gay, Mills, and Airasian (2006), “for the Pearson r are always computed by the formula $N-2$ ” (p. 329). Since our sample size (N) is 32, then our degrees of freedom are equal to $N-2$, or 30.

From the table (Appendix N) with $df=30$ and $p=.05$ an absolute value of .3494 and above is significant for Phi – in other words, 95% certain that the relationship is not due to pure chance.

Looking at the Phi values, we can take the significant relationships and test them with inferential statistics by computing Chi-square to see if they can be applied to the general population.

Chi-square is calculated using the same raw data and contingency tables that we used to calculate the phi coefficient (Appendix O). For this data the degrees of freedom are equal to the number of rows minus one, multiplied by the number of columns minus one, which equals one as shown in the equation: $(2-1) \times (2-1) = 1$.

Probability remains at the level of .05 or less for error, which gives 95% confidence that the results are accurate. A table of Chi-square values (Appendix P) is used with the degrees of freedom and the probability level to determine that a minimum Chi-square of 3.84 is needed in order to apply these results to the greater population.

For tables of this size (2 by 2) there should be a minimum expected value of 5 in each cell. Unfortunately, none of the data tables achieve this minimum, so these results should not be applied to the general population, despite chi-square values that appear promising.

Summary

This data may be valuable to academic libraries in planning policies, programs, and services for their patrons including those patrons who are unaffiliated youth. Studies that examine the statistical correlation between academic library use, student expectations, and college admissions together are lacking, and analysis of this information fills in gaps in existing research.

Chapter 5: Implications and Recommendations

Implications

Among the strongest relationships were those between Questions 3 and 4 (applying to college) and Question 7 (teacher expectations). Unlike the findings in Cheng & Starks (2002), the opinion of teachers had the highest influence on this group of students when it came to their intention to apply for college.

Another very strong relationship on the list was between Question 2 (use of a college/university library website while in high school) and Question 3 (application to college while in high school). This is important information for academic libraries to acknowledge. Unaffiliated youth, who are potential future undergraduates, are making use of the information and resources available to them via academic library websites. Further study of this relationship would be worthwhile, especially with regard to the potential to consider the library website as a marketing tool for college admissions.

Since the relationship between teacher expectations and application to college is positive, it would also be advisable for college/university libraries to establish and foster relationships with high school teachers, who in turn influence their students' academic goals specifically with respect to application to college.

Additional relationships were less strongly indicated, and further study with larger sample sizes would be ideal.

Zip code data, when examined carefully, reveal some flaws in the survey design. One of the errors is that participants who have moved out of the area marked their current zip code, rather than their former San Diego County zip code. These data points do not assist in the evaluation of proximity to a college/university academic library as a high school student in this geographic area. Another flaw was typographical error. One zip code was listed which does not appear on the map at all. This leaves only 12 zip code areas to study.

Additionally, there are one or more students in each of these zip code areas who did indicate they had visited a college/university library in person while in high school. This means that proximity to a college/university library is not the only factor to consider in the use of academic libraries by high school students.

Recommendations

The purpose of the study was to identify the relationship between early use of academic libraries, pre-collegiate student expectations, and college admissions.

The existence of positive relationships between the use of academic libraries by unaffiliated youth, student expectations for their academic career, and rates of application for college admissions in this sample group is promising.

Correlations were noted most strongly between teacher expectations and application to college, followed by academic library use while in high school with rate of application to college while in high school. Additionally, map data reveal that proximity to an academic library may not be the only factor in college/university library use by high school students.

Based upon the literature review and the results of this study, further study with larger sample groups is required in order to project the study results onto a larger population, however, this preliminary data may still prove useful to academic libraries when shaping policies that address the use of their collections by unaffiliated youth, possibly even providing a strong venue for college recruitment.

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Appendix A – Definitions

Research terminology included in this section is based on readings from the eighth edition of *Educational Research* (Gay, Mills, & Airasian, 2006). For purposes of this study, the following words are defined:

Absolute value	The value of a number without its sign, for example - 2 becomes 2.
Academic library	A library with the primary mission of serving a population of college or university students, staff, and faculty.
Accessible population	The available group to be studied.
Affective characteristic	Emotional characteristic such as attitude.
Anonymity	Researchers do not know the identity of study participants.
Assessment	The process of gathering and evaluating information.
Assumptions	Factors that may influence a research project.
Attenuation	Low correlation coefficients due to low reliability in the sample.
Basic research	Research for the purpose of developing or refining a theory.
Bibliographic instruction	Teaching students and classes how to search for information sources and how to record them.
College admissions	College admissions in this study include admission to any degree granting institution beyond the secondary level.
Confidentiality	Researchers know but protect the identity of research participants.
Convenience sample	A non-random sample that is available at the time of the study.
Correlational coefficient	The degree to which two variables are related expressed as a number between -1.00 and +1.00, where unrelated variables evaluate closer to zero and related variables evaluate closer to an absolute value of 1.
Correlational research	Collecting data to evaluate the relationship between two or more quantifiable variables.
Cross-sectional survey	Information is gathered in a single, stand alone study.
Delimitations	Delimitations are limits to the ability to generalize from a research project. These are generally under

	the control of the researcher and include limits that affect the breadth and depth of the study.
Descriptive research	Collecting data to assess the current status of the subject of study. Also called descriptive research. Also called survey research.
Directional hypothesis	A hypothesis that specifies the direction of the relationship between elements being studied.
Inferential statistics	Taking the results from a sample and trying to see if it can be generalized to a target population.
Information literacy (IL)	The ability to find and report information, especially in an academic environment.
Measurement	Scoring an assessment after the data have been collected.
Negative correlation	As one variable increases the other variable decreases.
Nominal variable	A variable that has two or more category values. No category is higher than or better than another.
Non-random sample	A sample that is not randomly selected.
Phi coefficient	A calculated number that describes the relationship between two variables which are true dichotomy variables.
Positive correlation	As one variable increases the other also increases.
Pre-collegiate	A person who has not attended college.
Qualitative research	Collection and analysis of categorical data.
Questionnaire	A collection of self-report questions.
Reciprocal borrowing privileges	Where one institution grants the right to borrow materials to patrons of another institution in exchange for the right to have their own patrons borrow materials from that other institution.
Reliability	Consistency over time.
Sample	A number of items selected from a target population.
Simple random sample	Every student has an equal chance of participating.
Socio-economic status (SES)	The rank of a family or individual in society based upon economic and cultural factors.
Structured item	A closed-ended item where the response is selected from a list of choices.
Student expectations	Student expectations are the beliefs that students hold regarding their personal abilities and their future accomplishments with regard to their own education.
Survey research	Collecting data to assess the current status of the subject of study. Also called descriptive research.
Target population	The ideal group to be studied.
Test	A formal procedure for gathering information.

True dichotomy	Variables with only two values, such as yes/no, on/off, male/female.
Unaffiliated user	An academic library patron who is not a faculty member, staff member, a current student, or an alumni member of the institution.
Validity	Relevancy of the data with respect to answering the research question.

Appendix B – Cheng & Starks 2002 Graph

Appendix C – Gifford, Briceno-Perriott, & Mianzo Graphs

Appendix D – Survey Instrument

You are asked by investigator Virginia C. Hire to participate in a research study investigating the relationship between “Academic Libraries, Student Expectations, and College Admissions.”

An understanding of this relationship will assist Academic Libraries in planning policies and services for pre-collegiate youth who visit or access the library.

You will be asked to answer ten questions in this anonymous online survey. The results of this study may be published, however your identity will not be recorded and no responses are traceable to an individual.

Consent to participation in this survey is given voluntarily by persons age 18 and over. No service of any kind, to which you are otherwise entitled, will be lost or jeopardized if you choose to “not participate” in the study. You may refuse to participate in the entire study or in any part of the study. You have the right to not answer questions you do not wish to answer. If you decide to participate in this study you may withdraw from participation at any time without any negative effect on your relations with San Jose State University. Similarly, the investigator may cancel the study at any time.

There is no risk of physical or mental harm to an individual as a result of survey participation. No discernible personal benefits to an individual participant are expected as a result of survey participation.

Questions about this research may be addressed to Virginia C. Hire (vhire@nu.edu) (858) 541-7932. Complaints about the research may be presented to Dr. Ken Haycock, Director, School of Library and Information Science, (408) 924-2491. Questions about a research subjects’

rights, or research-related injury may be presented to Pamela Stacks, Ph.D., Associate Vice President, Graduate Studies and Research, at (408) 924-2480.

By agreeing to participate in the study, it is implied that you have read and understand the above information and that you are at least 18 years old. Print this screen to keep a copy for your own records.

Academic Library Research Survey – High Schools

Please Note:

For the purpose of this survey, a College/University is defined as a two (2) or four (4) year higher education institution.

1. As a High School student, have you ever been to a college/university library? (Yes/No)
2. As a High School student, have you ever used a college/university library web page for information? (Yes/No)
3. As a High School student, will you apply to a college/university? (Yes/No)
4. If you are not planning to apply to a college/university as a High School student, will you apply to a college/university in the future? (Yes/No)
5. As a High School student, does someone in your family expect you to apply to a college/university? (Yes/No)
6. As a High School student, do any of your friends expect you to go to a college/university? (Yes/No)
7. As a High School student, do your teachers expect you to go to a college/university? (Yes/No)
8. Are you male or female? (Male/Female)
9. Do you belong to a minority group by race/ethnicity? (Yes/No)
10. What zip code do you live in?

Academic Library Research Survey – Community Colleges

Please Note:

For the purpose of this survey, a College/University is defined as a two (2) or four (4) year higher education institution.

1. As a High School student, had you ever been to a college/university library? (Yes/No)
2. As a High School student, had you ever used a college/university library web page for information? (Yes/No)
3. As a High School student, did you apply to a college/university? (Yes/No)
4. As a Community College student, will you apply to a 4 year college/university in the future? (Yes/No)
5. As a High School student, did someone in your family expect you to apply to a college/university? (Yes/No)
6. As a High School student, did any of your friends expect you to go to a college/university? (Yes/No)
7. As a High School student, did your teachers expect you to go to a college/university? (Yes/No)
8. Are you male or female? (Male/Female)
9. Do you belong to a minority group by race/ethnicity? (Yes/No)
10. What zip code do you live in?

Appendix E – Grossmont Union High School District Demographics

School	2003-2004 Enrollment	% Minority	School Librarian FTEs	Number of Graduates	UC/CSU prep completed	% Prep
01 – Grossmont High School	2360	35%	0	413	189	46%
02 – Helix Charter High School	2415	60%	1	444	252	57%
03 – El Cajon Valley High School	2230	52%	0	302	62	21%
04 – Mount Miguel High School	2140	76%	0	407	87	21%
05 – El Capitan High School	2026	17%	0	385	125	32%
06 – Granite Hills High School	2722	23%	0	614	206	34%
07 – Monte Vista High School	1942	61%	0	399	157	39%
08 – Santana High School	1787	15%	1	373	139	37%
09 – Valhalla High School	1775	24%	1	564	248	44%
10 – West Hills High School	2281	21%	0	478	178	37%
11- Steele Canyon High School	1873	32%	0	373		
12 – Chaparral High School (Phoenix)	142	31%	0	37	0	0%
TOTALS	23,693	37%	3	4,789	1,643	31%

Appendix F – Grossmont-Cuyamaca Community College Demographics

The following demographic information was obtained from the district website:
<http://www.gcccd.edu/research/> on 14 June, 2006.

Fall 2005 student data

Enrollment

23,270 students

Educational Goals

Academic degree objective 58%

Gender

58% female
43% male

Ethnicity

47% Minority
53% Non-minority

Most common zip codes in order:

#1 El Cajon 92021
#2 Santee 92071
#3 El Cajon 92020
#4 El Cajon 92019
#5 Spring Valley 91977
#6 La Mesa 91941

Educational Status

84% High School Degree or Equivalent
11% Have a College Degree
5% No High School Degree

Appendix G – Local Colleges & Universities

Information from district website <http://www.guhsd.edu> retrieved 14 June, 2006.

UNIVERSITIES

California State University at San Marcos	92096
National University	92123
Point Loma Nazarene University	92107
San Diego State University	92182
University of California, San Diego	92093
University of San Diego	92110

COMMUNITY COLLEGES

Cuyamaca College	92019
Grossmont College	92020
Mesa College	92111
Mira Costa College	92056
Miramar College	92126
Palomar College	92069
San Diego City College	92101
Southwestern College	91910

Appendix H – Institutional Review and Informed Consent

San Jose State University Human Subject – Institutional Review Board Request for Exemption from Human Subjects Review

Name: Virginia C. Hire Department: School of Library and Information Science
Phone Number: (619) 549-6136 cell (858) 541-7932 work
E-mail address: vhire@nu.edu
Address: 9393 Lightwave Avenue, Attn: Virginia C. Hire, San Diego, CA 92123
Select one: SJSU Student ☒ X SJSU Faculty ☐ SJSU Staff ☐
Non-SJSU Investigator ☐ If Non-SJSU Investigator, SJSU contact: _____
If Student, Name of Faculty Advisor: Dr. Daniel W. Fuller
Signature of Faculty Advisor: _____
Title of proposed project: The Relationship Between Academic Libraries, Student Expectations, and College Admissions
Abstract: This study will measure the correlation between the use of academic libraries with student expectations and their rate of application to college. Correlations may be of assistance to Academic libraries in developing policies and programs related to library use by pre-collegiate youth. The literature review shows that there are few studies which examine the relationship between these three variables, while there are a few studies examining them singly or in pairs.
Funded by: Virginia C. Hire

Instructions

Describe:

1. Purpose of proposed research
2. Methodology
3. Timelines
4. Procedure for selecting subjects
5. Number and age of subjects
6. Status of the information collected is
 - ☐ Archival
 - ☐ Data Base
 - ☐ Non-Collected
 - ☐ Others: _____
7. How and where information collected will be kept safe

Attach:

1. Example of materials such as questionnaires, interview questions, representation of computer-generated stimuli, etc.
2. Document (on SJSU letterhead) that ensures informed consent (form for subjects' signature, text to be read in telephone interviews, or introduction to inquiry with "primary sources")
3. Agreements or permission letters from participating institutions (as sources of subjects, or other participation)

CATEGORY OF EXEMPT RESEARCH B (see Categories of Exempt Research, next page)

Do not write below this line — for IRB use only.

HUMAN SUBJECTS—INSTITUTIONAL REVIEW BOARD ACTION	
Request Approved ☐	More Information Required ☐ HS-IRB Review Required ☐
Provide the following information:	
To: HS-IRB Reviewer: _____	Date: _____
Reviewer's Signature: _____	Date: _____

San José State University Policy (F90-4) exempts several classes of research from HS-IRB review. SJSU bases recognition of these exemptions on the following two assumptions:

1. The risk to participants in the proposed activity is so minimal that required HS-IRB review represents unwarranted intrusion into the process.
2. Investigators (faculty, students, or staff) understand, accept, and will implement the principles of informed consent contained in Appendix C of policy F90-4.

At SJSU, investigators who conduct exempt research are required to provide individual participants with reasonable and necessary information so they may form their own decision to participate (e.g., cover letter to a questionnaire) and/or secure permission to conduct research from participating institutions.

Categories of Exempt Research

- a) Research conducted in established or commonly accepted educational settings, involving normal educational practices, including research on regular and special educational packages and comparisons among instructional techniques. This category will generally allow educational institutions to evaluate their educational programs.
- b) Research involving the use of educational tests, survey procedures, or observation of public behavior unless the information obtained is recorded in such a fashion that individuals can be identified and/or disclosure of responses outside the research could place the subjects at risk of criminal/civil liability and/or damage subjects' financial standing, employability or reputation.
- c) Research involving public officials or collection of personally identifiable information for which federal statutes require permanent confidentiality (rendering HS-IRB review unnecessary).
- d) Research involving the collection or study of existing data, documents, records, pathological specimens, or diagnostic specimens, if these sources are publicly available or no individual identification can be made.
- e) Research and demonstration projects approved by public agency heads and designed to study, evaluate, or otherwise examine public benefits or service programs.
- f) Taste or food quality evaluation and consumer acceptance studies if wholesome foods without additives are consumed or all ingredients are at or below safe levels set by the FDA.
- g) Requests for information from persons who agree to serve as "primary sources" subject to attribution in the professional writings of journalists, biographers, historians, anthropologists, etc.

NOTE: *The decision to exempt a protocol from HS-IRB review is made by the HS-IRB reviewer. Exemptions from HS-IRB review will not be granted for research involving protected classes of subjects (e.g., fetuses, pregnant women, prisoners, children, or those institutionalized as mentally disabled), even though the research may appear to belong to exempt category.*

Please submit **two copies** of this request and all supporting materials (as needed) to:

HS-IRB Coordinator
Graduate Admissions and Program Evaluations
San Jose State University
One Washington Square
San Jose, CA 95192-0025
If you have questions, please call (408) 924-2480

Describe:

1. Purpose of proposed research

The purpose of this study is to identify the relationship between academic libraries, student expectations, and college admissions.

2. Methodology

Following Institutional Review Board (IRB) approval, school districts will be contacted to arrange for participation of their students age 18 and over. The anonymous online survey will be conducted using Survey Monkey software. School Districts will provide the survey links to students and notify them of the deadline for completion of the survey. Data will be evaluated and reported.

3. Timelines

Week 1	Obtain IRB approval for use of the online survey with students age 18 and over.
Week 2	Contact the school districts to obtain permission to conduct the survey.
Week 3	Survey links for each school district will be sent to the district.
Week 4	Survey links will be open for 1 week.
Week 5	Data evaluated.
Week 6	Data reported in thesis.

4. Procedure for selecting subjects

Following Institutional Review Board (IRB) approval, school districts will be contacted to arrange for participation of their students age 18 and over. The local Grossmont Union High School District and Grossmont-Cuyamaca Community College District were selected for convenience due to geographic proximity to the responsible investigator.

5. Number and age of subjects

All students age 18 and over from these districts. Most recent data from the 2004-2005 school years implies that there will be less than 4,500 participants from the Grossmont Union High School District, and less than XXX participants from the Grossmont-Cuyamaca Community College District.

6. Status of the information collected is ☉ Data Base

7. How and where information collected will be kept safe

Collected data will be sent via Survey Monkey online survey company to the responsible investigator. Electronic copy of the data will be stored on USB flash media owned by the responsible investigator.

Attachments:

1. Example of materials: Survey Questionnaire
2. Informed consent document: N/A – see Survey Questionnaire
3. Agreements of participation letters from participating institutions: N/A

It is my understanding that it is inappropriate to contact the school districts prior to receiving approval from the San Jose State University Human Subject Institutional Review Board.

**San José State
UNIVERSITY**

**Office of the Provost
Associate Vice President
Graduate Studies & Research**

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To: Virginia C. Hire
9393 Lightwave Avenue
San Diego, CA 92123

From: Pamela Stacks, Ph.D. *Pamela C Stacks*
Associate Vice President
Graduate Studies and Research

Date: July 10, 2006

The Human Subjects-Institutional Review Board has approved your request to use human subjects in the study entitled:

"The Relationship between Academic Libraries, Student Expectations, and College Admissions"

This approval, which provides exempt status under Category B, is contingent upon the subjects included in your research project being appropriately protected from risk. This includes the protection of the anonymity of the subjects' identity with regard to all data that may be collected from the subjects. The approval includes continued monitoring of your research by the Board to assure that the subjects are being adequately and properly protected from such risks. If at any time a subject becomes injured or complains of injury, you must notify Dr. Pamela Stacks, Ph.D. immediately. Injury includes but is not limited to bodily harm, psychological trauma, and release of potentially damaging personal information. This approval for the human subject's portion of your project is in effect for one year, and data collection beyond July 10, 2007 requires an extension request.

Please also be advised that all subjects need to be fully informed and aware that their participation in your research project is voluntary, and that he or she may withdraw from the project at any time. Further, a subject's participation, refusal to participate, or withdrawal will not affect any services that the subject is receiving or will receive at the institution in which the research is being conducted.

If you have any questions, please contact me at (408) 924-2480.

cc. Daniel Fuller, 0029

The California State University:
Chancellor's Office
Bakersfield, Channel Islands, Chico,
Domestic Affairs, East Bay, Fresno,
Fullerton, Humboldt, Long Beach,
Los Angeles, Maritime Academy,
Mountain View, Northridge, Pomona,
Sacramento, San Bernardino, San Diego,
San Francisco, San Jose, San Luis Obispo,
San Marcos, Sonoma, Stanislaus

Appendix I – Raw Data

Raw Data

As a High School student, have you ever been to a college/university library?	As a High School student, have you ever used a college/university library web page for information?	As a High School student, will you apply to a college/university?	If you are not planning to apply to a college/university as a High School student, will you apply to a college/university in the future?	As a High School student, does someone in your family expect you to apply to a college/university?	As a High School student, do any of your friends expect you to go to a college/university?	As a High School student, do your teachers expect you to go to a college/university?	Are you male or female?	Do you belong to a minority group by race/ethnicity?	What zip code do you live in?
No	No	No	No	No	No	No	Female	Yes	92119
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Female	No	92119
No	No	No	No	No	No	No	Female	No	92021
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Female	Yes	91942
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Female	Yes	95064
Yes	No	No	Yes	Yes	No	Yes	Male	No	92544
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Female	No	92019
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Female	No	94015
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Male	No	91941
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Female	No	92021
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Female	No	91935
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Female	Yes	92120
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Female	No	94720
No	Yes	Yes	Yes	Yes	No	Yes	Male	No	91942
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Male	Yes	92114
No	Yes	Yes	Yes	Yes	Yes	Yes	Female	Yes	92114
Yes	No	No	Yes	Yes	Yes	Yes	Female	No	94108
No	Yes	Yes	Yes	Yes	No	Yes	Female	Yes	91977
No	Yes	Yes	Yes	Yes	Yes	Yes	Male	Yes	91945
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Female	Yes	91945
No	No	Yes	Yes	Yes	Yes	Yes	Female	No	91941
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Female	Yes	91945
No	Yes	Yes	Yes	Yes	Yes	Yes	Female	No	91977
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Female	No	91944
No	No	Yes	Yes	No	No	Yes	Male	Yes	91941
No	No	No	Yes	Yes	Yes	No	Male	No	91945
Yes	No	Yes	Yes	Yes	No	Yes	Female	Yes	91942
Yes	No	Yes	Yes	Yes	No	Yes	Male	No	92020
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Female	No	92020
Yes	Yes	Yes	Yes	No	Yes	Yes	Male	No	92020
Yes	Yes	Yes	No	Yes	Yes	Yes	Female	Yes	92115
Yes	Yes	Yes	No	Yes	Yes	Yes	Female	Yes	92114
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Female	No	91942

Appendix J – Charts

Question 1 – Have you been to a college/university library?

Question 2 – Have you used a college/university website?

Question 3 – Did you apply to college in High School?

Question 4 – Will you apply to college in the future?

Question 5 – Does someone in your family expect you to go to college?

Question 6 – Do your friends expect you to go to college?

Question 7 – Do your teachers expect you to go to college?

Question 8 – Are you male or female?

Question 9 – Do you belong to a minority group by race/ethnicity?

Appendix K – Graphs

Bar graphs display responses to questions 1-7, showing the number of respondents in each of the two response categories per question.

Question 1 – Have you been to a college/university library?

Question 2 – Have you used a college/university website?

Question 3 – Did you apply to college in High School?

Question 4 – Will you apply to college in the future?

Question 5 – Does someone in your family expect you to go to college?

Question 6 – Do your friends expect you to go to college?

Question 7 – Do your teachers expect you to go to college?

Appendix L – Maps

Yellow areas represent valid zip codes of participants in San Diego County.

At least one subject in each zip code area of the study had been to a college/university academic library as a high school student. This indicates that geographic proximity to an academic library is not the only factor to consider when examining the use of college/university libraries by high school students.

Grossmont Union High School district boundaries within San Diego County.

Overlay of zip code areas with high school district boundaries in yellow.

Colleges and Universities

Appendix M – Correlations

Question 1 – Have you been to a college/university library?

Question 2 – Have you used a college/university website?

Question 3 – Did you apply to college in High School?

Question 4 – Will you apply to college in the future?

Question 5 – Does someone in your family expect you to go to college?

Question 6 – Do your friends expect you to go to college?

Question 7 – Do your teachers expect you to go to college?

Appendix N – Correlation Coefficient Table

Degrees of freedom	.10	.05	.01	.001
1	.98769	.99692	.99988	.99999
2	.90000	.95000	.99000	.99900
3	.8054	.8783	.95873	.99116
4	.7293	.8114	.91720	.97406
5	.6694	.7545	.8745	.95074
10	.4973	.5760	.7079	.8233
15	.4124	.4821	.6055	.7246
20	.3598	.4227	.5368	.6524
25	.3233	.3809	.4869	.5974
30	.2960	.3494	.4487	.5541
35	.2746	.3246	.4182	.5189

Appendix O – Inferential Statistics

Calculated values of Chi-square, ranked from largest to smallest, with significant values highlighted. Note that none of the data tables achieved the minimum expected values in each cell for a two by two matrix, so these results cannot be extended to the general population.

Q3 vs Q7	11.52
Q2 vs Q3	9.560494
Q4 vs Q7	6.968889
Q2 vs Q6	6.837607
Q2 vs Q7	6.4
Q2 vs Q4	5.451852
Q2 vs Q5	4.968944
Q1 vs Q7	4.693333
Q1 vs Q6	4.311422
Q3 vs Q5	4.097354
Q1 vs Q5	4.072727
Q5 vs Q6	2.930403
Q4 vs Q5	2.742857
Q5 vs Q7	2.742857
Q1 vs Q3	2.279865
Q3 vs Q6	1.756505
Q4 vs Q6	1.367521
Q6 vs Q7	1.367521
Q1 vs Q4	0.349091

Question 1 – Have you been to a college/university library?

Question 2 – Have you used a college/university website?

Question 3 – Did you apply to college in High School?

Question 4 – Will you apply to college in the future?

Question 5 – Does someone in your family expect you to go to college?

Question 6 – Do your friends expect you to go to college?

Question 7 – Do your teachers expect you to go to college?

Appendix P – Chi Square Table

Degrees of Freedom	Alpha (α) level = 0.05
1	3.841
2	5.991
3	7.815
4	9.488
5	11.071

Chi-square	{ A- [(A+B)*(A+C)] / N } ²	+	{ B- [(A+B)*(B+D)] / N } ²	+	{ C- [(C+D)*(A+C)] / N } ²	+	{ D- [(C+D)*(B+D)] / N } ²
=	$\frac{[(A+B)*(A+C)]}{/ N}$		$\frac{[(A+B)*(B+D)]}{/ N}$		$\frac{[(C+D)*(A+C)]}{/ N}$		$\frac{[(C+D)*(B+D)]}{/ N}$

For the following

Y\X	Question 3 – Yes	Question 3 – No	Totals
Question 1 – No	A	B	A + B
Question 1 – Yes	C	D	C + D
Totals	A + C	B + D	N