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**Linking Library to Student Retention: A Statistical Analysis**

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**Abstract**

**Objective** - This study analyses both library expenditure and student retention. It seeks to determine if positive correlations found in a former study endure using more recent data or if alternative interpretations can be made. It includes the associate degree-granting colleges and examines whether library instruction has a greater significance on student retention over expenditure and if library instruction at the two-year college correlates to retention.

**Methods** - The colleges and universities included in the study grant associate, bachelor, masters, and doctoral degrees, based on Carnegie Foundation classification. Data was analysed to determine if a correlation exists between the library and student persistence. Library statistics were drawn from the Association of College and Research Libraries (ACRL) Metrics database which provides reports collected from academic institutions. When aggregated, the ACRL report yielded total library expenditures, total salaries of professional staff, the professional staff full-

time equivalent (FTE), fall semester student enrolment and data from a library instruction category of ACRL surveys for associate degree-granting institutions.

**Results** - After replicating the same mathematical approach, the single category that has remained constant for all institutions is professional staff. While the former study's analysis suggested that a relationship between library expenditure and retention existed in every Carnegie category, this study asserts that the same argument cannot be made for master's degree-granting institutions. The findings here indicate that total library and professional salary expenditure had a negative correlation. Also, while an analysis of instruction at the two-year school level cannot make the case that expenditure and staffing significantly influence retention, they can justify that instruction plays a factor in whether a student persists with their education.

**Conclusion** - The current research posits that there is no longer a relationship between library expenditure per se and student retention. Further research is needed to resolve the differences in the results of the study. Since there is a correlation between library instruction and retention at the two-year college, high-impact information literacy activities can form a bond between the student and the institution. Considering the low retention rates at the two-year school, a customised library instruction approach may be a solution to improving retention.

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## Introduction

Recently there has been extensive discussion in the press regarding free tuition for community colleges. Part of the debate centered on the question of whether there is an enrolment or retention issue in higher education. Some have suggested that if we are concerned with educational policy or resource allocations, we should focus on the retention part of the equation. Considering that 61.1% of undergraduate students were retained in 2012 ([U.S. Department of Education, National Center for Education Statistics](#) (2012) there are some merits to such a suggestion. When so many students leave before finishing their studies it poses serious educational and financial problems to the individual and the institution.

What is the role of the library in student retention? For the last twenty years the library community has begun to empirically examine the potential connection of library service and student success. Early studies suggested that academic difficulty was the most significant cause of student withdrawal. These research activities focused on correlating library use and retention (Mezick, 2007). More investigation

quickly pointed to the fact that a student's integration into the social and academic structure of the campus played a larger role than library use. In either case, the variety and quality of library service was essential to student performance and persistence. The question remained as how to identify what services contributed to whether a student returned the following semester and how to measure the potential contribution of such services.

In 2010 the Association of College and Research Libraries commissioned the *Value of Academic Libraries: A Comprehensive Research Review and Report* (VAL) to identify the value of libraries and establish a research agenda. "Student retention and graduation" is chief among them (p. 12). In the report, ACRL conveyed that libraries need to provide analytical evidence that students who engage in library instruction are more likely to graduate on time. Since 2010, several studies have examined the potential of library instruction. Correlations have been made between students' participation in library classes and grade point average (GPA) (Wong & Cmor, 2011). Other studies have concluded that library technology instruction improves student retention. Indeed, the more technologically-

prepared students are, the more likely they will persist (Haddow & Joseph, 2010). The VAL report also pointed out the importance of the collegiate experience, which is evident in the attention placed on a student's sense of belonging in recent literature. Often excluding questions directly related to libraries, experience studies aim attention at the entire student experience. To facilitate this campus experience and give students a sense of belonging, librarians can create institutional environments that foster retention and eventual graduation. Focusing on instruction, librarians can affect a student's decision whether to return to the campus the following fall (Kuh, 2008).

Student retention and graduation is important to higher education. A returning customer is the *raison d'être* for all businesses. In academia, the returning customer is the student whom the college wishes to retain for the complete duration of his or her academic career. Former retention studies have shown that both academic library expenditure and staff-to-student ratio contribute to student perseverance. However, current research suggests that a student's adjustment to an institution's academic setting contributes to a greater commitment to the college and the goal of graduation. While qualitative studies provide a context for meaning and interpretation, quantitative analysis may establish a potential correlation between library instruction and retention.

### **Aims**

This article re-examines library expenditure research methods and investigates library instruction class participation. Mezick (2007) analyzed both ACRL and Association of Research Libraries (ARL) data at academic institutions, as well as retention information, and asserted that there was a positive correlation between library expenditure and student retention percentage. She also advanced the notion that professional staff-to-student ratio was related to student retention. Reproducing

Mezick's methodology with more recent data, our study analyzes both library expenditure and student retention to determine if the positive correlations found by Mezick endure at baccalaureate, master, and doctoral degree-granting institutions or if alternative interpretations can be made. Secondly, using the same approach it will calculate if a relationship exists between these variables at associate degree-granting colleges. This category was omitted in the previous study. Using two fields of supplementary data and bivariate analysis, the study will also determine whether library instruction had a greater impact on student retention over expenditure. Lastly, data will be analyzed to determine if library instruction at the two-year college correlates to retention.

### **Literature Review**

Studies of academic libraries and retention can be categorized as either single or cross-sectional. Early retention studies concluded that students who used the library generally performed better academically than those that did not and had a higher percentage of persistence. One of the earliest studies was at California State Polytechnic College, Pomona. Kramer and Kramer (1968) uncovered a connection between library circulation and retention. It was determined that while 73.7% of freshmen students who borrowed books returned the following fall, only 57% who never checked out books returned (p. 310). In another single institution study four years later, Breivik (1977) discovered the retention potential in library instruction at Brooklyn College. Of students who received weekly library instruction, 77% completed course work the following semester compared with 68.75 percent who did not, with a difference of 8.25% (p. 46).

In the past decade, retention studies and literature suggest that a student's level of integration into the social and academic structure of campus life play a larger role than library use in the determination of persistence.

This approach follows the theory advocated by Tinto (1993) who argued for the importance of social integration. Mezick's study analyzed library expenditures, student enrolment, and professional staff data against student retention rates. *Academic Library Trends and Statistics: 2003* (Association of College and Research Libraries, 2003) provided raw library data and fall-to-fall retention percentage rates were obtained from the Integrated Postsecondary Educational Data System (IPEDS). Since retention data for Canadian post-secondary institutions were not provided by IPEDS, Canadian libraries were omitted, as well as institutions that did not report enrolment, expenditures, or retention rates. In the end, the total study population was 586 or 47% of the population represented in ARL/ACRL publications (p.563).

The specific expenditure categories were total library expenditures, total library materials, monographs, serials, and professional salaries. Data was standardized on a per student basis to minimize the effect of institutional size but this step was not performed for professional library staff data. Correlations between expenditure per student and retention rates were determined by calculating Pearson correlation coefficients ( $r$ ) for each category of library expenditure within Carnegie classification using IBM SPSS. Levels of significance were also ascertained using the rules of thumb for interpreting the bivariate correlation. Coefficients of determination ( $r^2$ ) were calculated to identify the percentage of variance in student retention rates that is explained by library expenditures. A similar method was performed to investigate the relationship between the number of professional library staff and retentions rates (p.563-564).

Mezick uncovered that positive relationships exist between each independent variable category of expenditure and the dependent variable of student retention within every Carnegie category, with the strongest at baccalaureate colleges. Mezick also noted that personalized library service, particularly at doctoral granting institutions, may account for a

relationship between library staff salary expenditures and student persistence. While data suggested that students continue to demand increased library hours and quiet study space, it also hinted that a student has a greater chance to persist if more funds are allocated to library staffing. A larger, experienced staff has more of a chance to interact with students and guide them in the academic setting (p.564-565).

Emmons and Wilkinson performed a cross-sectional study to investigate library instruction. Rather than bivariate, Emmons and Wilkinson (2011) utilized univariate statistics, developing a scatterplot in order to perform a regression analysis of each independent and control variable against each dependent variable. Controlling for socio-economic status (SES) and gender their conclusion was that the independent variables of staff-to-student ratio and students receiving instruction had an impact on student persistence. The more library staff available per student provided for a greater opportunity at welcoming interactions. Therefore, students who were engaged were more likely to persist.

Two other institutions examined SES more closely. A Curtin University study hypothesized that library data pointed to a relationship among library use, student engagement, and retention. But more importantly, the authors wanted to link these variables with student age and SES. Derived from the library's management system, the library use data set included number of loans, workstation logins, and other logins such as catalogue, database, and electronic reserve (Haddow, 2013). Ultimately, there were higher than expected rates of library workstation logins by students from low SES backgrounds. The contention was that low SES students may have less access to information technology in their homes and rely on campus resources, the library in particular (Haddow & Joseph, 2010, p. 240).

At California State University, Monterey Bay, reference librarians initiated an ongoing

informal study and focused on non-research-related questions asked at library service desks. It was discovered that 47% of questions did not directly relate to library research. In fact, a majority was about the use of computer hardware and software since the college served primarily first-generation students who were at a low SES status and possibly the first in their families to go to college. Grallo, Chalmers and Baker (2012) hypothesized that the academic library could assist in student retention through the development of programs and services geared to help students become accustomed to academic life.

Based on ACRL’s recommendation, studies have examined correlations between library instruction and GPA. One of the largest was at Hong Kong Baptist University. In the study, student library workshop attendance and graduation GPA were examined for over 8,000 students. Results suggested that if several workshops were offered, students had a higher GPA and were more likely to return the following semester (Wong & Cmor, 2011, p. 464).

Another study at the University of Minnesota – Twin Cities examined the association between a variety of library services and GPA. Based on student logins and those who participated in instruction sessions and reference interactions, results suggested that freshmen first-semester undergraduate students who used the library had a higher GPA in their second year and were more likely to return than non-users. The mean

average GPA for students who used the library was 3.18 compared with 2.98 for those who did not use the library (Soria, Fransen & Nackerund, 2013, p. 151).

**Methods**

Culling information from the years 2010 and 2011, the current study employed methods similar to Mezick but also extracted data from pre-baccalaureate institutions granting the associate degree. Raw numbers were drawn from the ACRL Metrics database which provides reports collected from academic institutions. The colleges and universities included in the study based on Carnegie classification grant associate, bachelor, masters, and doctoral degrees. When aggregated, the ACRL report yielded total library expenditures, total salaries of professional staff, the professional staff full-time equivalent (FTE), and the fall semester student enrolment.

To provide an accurate comparison, some institutions were omitted or deleted. For example, if data was erroneous, such as negative numbers for full-time professional staff, or not included at all, the college was removed. Another criterion for removal was if institutions reported some fields but not others. The final list yielded full data in all fields for all colleges and universities. For 2010 the number of schools was 1,179 and for the year 2011 it was 1,194 (see Table 1). Similar to Mezick’s methodology to minimize the effect of institutional size, expenditure per student was calculated using fall semester student enrolment.

Table 1  
Number of Institutions by Carnegie Classification

	2010	2011
Total	1,179	1,194
Associates	316	339
Bachelors	273	248
Masters/Professional	351	375
Doctorate	239	232

Data was also selected from a library instruction category of ACRL surveys for associate degree-granting institutions to seek an argument for improved instruction at the two-year school. The first set of instruction data analyzed was the number of instruction presentations to groups. It may also be defined as the total number of sessions during the academic year in the category of bibliographic instruction programs and other scheduled class presentations, orientation sessions, and library tours. Beyond instruction, it may be for cultural, recreational, or educational purposes, outside of the physical library as long as it is library-sponsored. If the library sponsors multi-session or semester credit courses, each individual session was counted as separate events. However, meetings sponsored by other groups, using library space, were not included. Neither was training for library staff. Some of the counts are based on a full tabulation but sampling was also acceptable. Libraries are allowed to use numbers based on a typical week that may be extrapolated to a full year. The other instruction data was previously used by Emmons and Wilkinson - the number of participants in the instruction presentations. It does not however include personal, one-on-one consultation. For multi-session classes with a constant enrolment, each student was counted only once. Similar to the previous instruction question, in addition to the data set, data also included if the number was based on sampling.

The decision to use both 2010 and 2011 was based on the latest entry in retention study by Crawford (2015). While the study agreed with previous findings, suggesting that library expenses per student had the highest correlation with graduation and retention rates, it also pointed out that doctoral institutions pay the most to provide library instruction. The author noted that his study was limited by using only one year's worth of data (p. 16).

While we attempted to replicate Mezick's analysis, which is not normally done in library science, we also introduced a slightly different strategy (see Table 2).

## Analysis

For the study, data was analyzed to determine if a correlation exists between the library and student persistence. The independent variables were library service and the dependent variable was retention. Using IBM SPSS, a Pearson correlation coefficient ( $r$ ) was calculated to determine any interrelation between each selected category and student retention, in degree, direction, and significance. In replicating Mezick's methodology, a coefficient of determination ( $r^2$ ) was also computed to establish the percentage of variance in retention that is explained by library independent variables or more simply, identifies the impact that the independent variable may have on the dependent variable (Hamilton, 1990, p. 355).

By definition, the value of  $r$  is a measure of the covariance of two variables divided by the product of their standard deviation. Analysis focuses on how two variables vary in relationship to each other. Calculation of the correlation coefficient returns a value between -1 and +1, with "0" indicating no relationship at all. The closer to 1 or -1 represents a strong relationship (Prion & Haerling, 2014, p. 535). Similarly, the closer to zero the coefficient of determination is the less likely there is a relationship between variables. The coefficient of determination is the square of the correlation coefficient. Mezick utilized this to estimate the percentage of variance of the dependent variable explained by its relationship independent variables (Cheng, Shalabh & Garg, 2014, p. 137-138).

## Results

To replicate the Mezick study, the value of  $r$  was calculated for the categories of total library expenditure, professional staff FTE, and professional salaries for the years 2010 and 2011. They are displayed in Table 3. Results were analyzed using the rules of thumb for interpreting the bivariate correlation coefficient and the coefficient of determination. While

Table 2  
Comparison of retention studies

<b>Mezick (2003)</b>	<b>Eng/Stadler (2010/2011)</b>
Analyzed total library expenditures, professional salaries, and staff FTE	Same method
Studied institutions that grant the bachelors, masters, and doctorate degrees	Same
Used Carnegie classification	Same
Calculated the correlation coefficient ( $r$ ) and the coefficient of determination ( $r^2$ )	Same
Used the rules of thumb for interpreting bivariate correlation coefficients	Same
Analyzed data from 2003	Data from 2010 and 2011
Utilized ARL, ACRL, and IPEDS data	Relied on the ACRL Metrics since all data is now available from this database
Analyzed total library expenditures as well as the four subcategories that comprise it	Used total library expenditures
Analyzed only institutions that grant the bachelors, masters, and doctorate degrees	Added the associate degree-granting institution
Did not analyze library instruction categories	Examined two instruction variables

social and physical scientists interpret values differently, this study, like Mezick's, made use of linear relationships as defined in Hamilton's (1990) *Modern Data Analysis* (p. 481). For the value  $r$ , the closer to zero there is no relationship between variables. Weak positive or negative relationships range from  $r=0.2$  to  $r=0.49$  while moderate are  $r=0.5$  or greater.

In review, for the bachelor degree-granting institution the correlation coefficient has remained relatively constant for total library expenditure, professional salaries, and professional staff FTE. Mezick's calculations for the value of  $r$  are listed in Table 4. A comparison of all three years reveals that the numbers are similar. Total library expenditure and retention had a moderate positive relationship in 2003, 2010, and 2011, indicating that they are directly related. While the value of  $r$  for professional salaries and professional staff FTE is a weak relationship, it is however

positive. The same cannot be said about the master degree-granting institution. In 2003, the total expenditure and professional salary coefficient revealed a weak positive relationship. However, the value of  $r$  for the master degree-granting college was negative in 2010 and 2011. In fact, for the year 2011 the coefficient reveals a weak negative relationship at  $r=-0.220$ . The doctoral degree-granting institution calculations are an oddity. For the categories of expenditure and salaries the value of  $r$  for 2010 was slightly negative while in 2011 it was positive. Actually, expenditure and retention had a moderate positive relationship in 2011 at  $r=+0.500$ .

On the other hand, the professional staff FTE correlation is consistent between the years. For example, in 2003, Mezick calculated the coefficient to be +0.458, +0.231, and +0.536 for the bachelor, master, and doctoral degree-granting institutions, respectively, while in 2011, they were +0.432, +0.297, and +0.513.

Table 3

Values of  $r$  in Retention for 2010 and 2011

	Bachelors		Masters/Professional		Doctorate	
	2010	2011	2010	2011	2010	2011
Total Library Expenditure	+ 0.531	+ 0.592	- 0.002	- 0.220	- 0.033	+ 0.500
Professional Salaries	+ 0.376	+ 0.447	- 0.046	- 0.196	- 0.037	+ 0.486
Professional Staff FTE	+ 0.447	+ 0.432	+ 0.311	+ 0.297	+ 0.242	+ 0.513

Table 4

Values of  $r$  in Retention from Mezick study (2003)

	Bachelors	Masters/Professional	Doctorate
Total Library Expenditure	+ 0.505	+ 0.318	+ 0.476
Professional Salaries	+ 0.411	+ 0.255	+ 0.421
Professional Staff FTE	+ 0.458	+ 0.231	+ 0.536

Table 5

Values of  $r^2$  in Retention for 2010 and 2011

	Bachelors		Masters/Professional		Doctorate	
	2010	2011	2010	2011	2010	2011
Total Library Expenditure	0.282	0.350	0	0.049	0.001	0.0250
Professional Salaries	0.141	0.200	0.002	0.038	0.001	0.236
Professional Staff FTE	0.200	0.187	0.097	0.088	0.059	0.263

The value of  $r^2$  was also calculated and the results appear in Table 5. Using the same rules of thumb, a weak positive or negative relationship is 0.04 or greater, while moderate is 0.25 or higher. The figures will be used to summarize the data in the next section.

In addition to replicating Mezick's analysis, this study looked at the associate degree-granting college. The values of  $r$  and  $r^2$  for the years 2010 and 2011 are in Table 6. For total library expenditure and professional salaries, the value of  $r$  indicates there is only slight or no relationship at all, either positive or negative. In each year, the number was very near zero and reveals that no correlation exists between them

or retention. However, the calculation for professional staff FTE was positive. For example, in 2010 the value of  $r$  was +0.185 nearly indicating a weak relationship between the number of staff within the two-year college library and retention.

The supplementary ACRL data examined shows the number of library instruction classes and participants. The number of participants in instruction classes and retention are directly related. Looking at the first year, the value of  $r$  for number of participants was +0.207 illustrating that there is weak positive relationship between the independent and dependent variables. In the second it was just



shy of weak at +0.132. It can be hypothesized that the more students enrolled in library

Table 6

Associate Degree-granting Institutions

	Value of $r$		Value of $r^2$	
	2010	2011	2010	2011
Total Library Expenditure	- 0.031	+ 0.007	0.001	0
Professional Salaries	- 0.041	- 0.039	0.002	0.002
Professional Staff FTE	+ 0.185	+ 0.102	0.034	0.010
Number of Presentations	+ 0.167	+ 0.091	0.028	0.008
Number of Participants	+ 0.207	+ 0.132	0.043	0.017

instruction in a given year the greater the student retention percentage the following fall. The value of  $r$  for the number of library instructions revealed a very slight correlation, although positive. In 2010 it was +0.167, nearly weak, but in 2011 it was +0.091.

Similar to the Emmons and Wilkinson study, a case can be made that library instruction positively impacts retention at the two-year college. All correlation coefficients were positive numbers. For both years the value of  $r$  was somewhat greater for number of participants. While the number of instructional presentations was important, the number of participants was of greater significance to retention.

## Discussion

Mezick made the argument that for 2003 data analysis suggested that a relationship between library expenditure and retention existed in every Carnegie classification category. It was strongest for the baccalaureate college. Indeed, that argument, along with professional salary expenditure, can be made for both the years 2010 and 2011. Using the value of  $r^2$ , total library and professional salary expenditure in 2010 reveal 28% and 14% of the total variation in student retention, respectively. In the year 2011 it was 35% for library expenditure and 20% for professional salary.

However, the same argument cannot be made for master's degree-granting institutions. The findings here indicate that total library and professional salary expenditure had a negative correlation for both years. While not a significant negative correlation, the case can be made that neither category affected student persistence. One possible explanation for the change in correlation is the growth in online learning. By the fall of 2012, students taking at least one online class surpassed 7.1 million (Holzweiss, Joyner, Fuller & Young, 2014, p. 311). In the same year, the United States Department of Education (2012) estimated that almost 30% of students enrolled in distance learning were at the graduate level; while only 26% were at the undergraduate level. Currently, the expenditure of in-house library resources is of less significance for a student to return the following semester. Therefore, the validity of Mezick's 2007 hypothesis is questionable in the present time.

The anomaly of the doctoral calculations makes any assumptions unjustified. The significant difference between the years may be attributed to the fact that only 147 institutions reported data to ACRL in 2010 compared with 231 in 2011. Are doctoral students more independent and self-sufficient in later years? Are more

databases and tools contributing to this independency?

The single category that has remained constant for all institutions is professional staff FTE. For all years studied the correlation was positive but for the most part a weak relationship. Mezick noted that the strongest relationship between professional staff and retention was at the doctoral-granting institution. The value of  $r^2$  for 2003 was a moderate relationship at +0.287 or 29%. The same applies to 2011 when 231 institutions reported to ACRL. The value of  $r^2$  was +0.263 or 26%. While not a comparable positive relationship for the years 2010 and 2011, the value of  $r^2$  for professional staff at associate degree-granting institutions was 0.185 and 0.102 respectively. Indeed, there was only a 3% (2010) or 1% (2011) variance in student retention based on professional staff FTE. Although the percentage is modest, it can be argued that the professional staff-to-student ratio is directly related to retention.

Analysis of instruction at the two-year school raises intriguing conversation. While the associate degree-granting colleges cannot make the case that expenditure and staffing significantly influence retention, they can justify that instruction plays a factor in whether a student persists. When analyzing the year 2010 the number of library instruction classes given influenced retention by 2%. Furthermore, the more students enrolled in those instructions shaped the variance in retention by 4%. Though not as strong, the values of  $r^2$  for 2011 were also positive.

Can regression analysis be applied to the variables of library instruction and retention? In their study Emmons and Wilkinson argued that there is a positive but weak relationship between instruction and retention at ninety-nine institutions. In the current study a case can be made that instruction at the two-year school plays a minor role in persistence. Our analysis shows that the number of students enrolled is a stronger correlation than the number of classes

given. Such a hypothesis is important when looking at the two-year school where persistent rates are comparatively lower than at the baccalaureate institution. Even though students are already less likely to return, they are more likely to persist if given library instruction. Further studies will be needed to understand this phenomenon.

By controlling for the two-year college, this study echoes current library literature. Recent retention studies focus on single institutions, controlling for students with a low socio-economic status. In general, findings indicate that a higher proportion of retained students were logging into authenticated library resources more often. In the Curtin University study, it was hypothesized that this was the result of the awareness of library resources through the instruction program (Haddow, 2013, p. 130). There were also higher rates of logins from students from low SES backgrounds. The two-year school is typically attended by students who may be from a low SES. The contention is that these students may have less access to information technology in their homes and rely on campus resources and the library in particular. A City University of New York (CUNY) library study revealed that while other low SES students may have access to information and communications technology, whether at home or in the library, they may not have skills to perform course-related research. Often students shared home computer resources with other family members thus constraining access to academic technology. While plentiful resources are available on campus, students do not have the necessary instruction to research efficiently (Smale & Regalado, 2014).

In 2010 ACRL called attention to the student experience and the sense of belonging to an institution. Library instruction serves as a valuable asset in two ways. Through technology training, library instruction is an ancillary student experience assisting retention. Also, attention to the first-year student needs can gear students to become accustomed to academic life

and increase their sense of belonging to the institution. The notion opens up the possibility of expanding library service to those students who may need the technology help and thus increase retention. By focusing on the type of questions asked at reference desks and gearing instruction towards technology, the library can also adjust a student to academic life and further increase persistence.

### **Conclusion**

Overall, available information suggests that retention is aided by a good support network and relationships with faculty, administrators, and yes librarians. They provide direct research support and education. The National Survey of Student Engagement in 2014 indicated that while an overwhelming majority of instructors emphasized library skills only 37% of first-year students and 36% of seniors critically evaluated the quality of an information source (p. 14). High-impact information literacy activities can support student success and promote retention by emphasizing the value of creditable information. The library can serve as a bridge between social and academic engagement to produce learning outcome. Bell (2014) argues that when librarians become part of a student's support network a student performs better academically. The quality of the service is therefore vital to student persistence. Also, current retention studies pay particular focus on graduation. In fact, fewer than half of students who entered college in 2007 finished school where they started. Bell offers the notion of an Alt-Higher Ed, which is based on the new scenario wherein multiple and more affordable paths to graduation reduce the significance of single-institution retention. His reasoning is that no single provider retains a monopoly on a student's college education but rather what really counts is if the student graduates. Under the model, institutions that wish to retain students must create an "educational ecosystem" that matches students to the type and level of education that allows them to graduate (p. 12). Successful transfer and

completion should be counted towards retention.

While related studies differ in sample group, there is one common theme. It can be best summarized by a guide for both librarians and libraries: "there's very strong evidence to suggest that students tend to be more engaged with learning...if they engage with library services, interact with library staff, and spend more time using libraries" (as cited in Haddow & Joseph, 2010, p. 234). Such students are more likely to persist. Hagel, Horn, Owen and Currie (2012) provided five worthy recommendations for the library to assist in student retention. One of these is a close working relationship between librarian and student, and the introduction of programs that help students commit to and engage with their library studies. Another is collaborative teamwork with other support services across the campus to provide students with integrated support (p. 221). In looking to the future, Bell (2014) suggests that academic librarians can emphasize the delivery of individualized research assistance and focus on building research skills. They can demonstrate how the library can contribute to student retention by providing data that links student persistence and satisfaction to the library's services, resources, and people (p. 14). These guidelines advance the notion that the library is no longer simply bricks and mortar but rather a place where the constructive interaction of staff and student is a catalyst for retention.

Contrary to former research, library expenditure is no longer directly related to student retention at all levels of academia. Regardless of how much is spent on materials and collection support, student persistence is not a guaranteed reflection of expenditures. While online learning could be one of the reasons, higher education's approach to the acclimation of a student to college life and society in general is of greater significance. Today, the college or university stresses the interaction of the faculty and the student body. The trend is apparent considering that professional staff-to-student

ratio is directly related and has remained constant in the past dozen years. At the associate degree-granting college, instruction focused on technology training, or simply providing an academic location for computing, will form a bond between the student and the institution. Since the library may no longer be the "heart of the university," it must conform to current learning paradigm and make itself marketable (Association of College and Research Libraries, 2010, p. 11). Lastly, considering the low retention rates at the two-year school, a customized library instruction approach may be a solution to retaining students. With a focused program the library can focus on the basic needs of freshmen students who may be from a low SES. By focusing on common non-library related questions asked at the reference desk, librarians can make the student more adapted to the campus and college life, and of course, compel them to return the following fall. It is high time for the academic library to align its mission with student success by reconsidering its functions and service. At Borough of Manhattan Community College we hope to drill deeper into the nexus between library instruction and retention by tracking a cohort of students who have received library instruction over their entire career in the college. We may find certain activities to be conducting to student engagements.

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