Using and Experiencing the Academic Library: A Multi-Site Observational Study of Space and Place

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Abstract: This study examines how students are using academic library spaces and the role these spaces are playing in the campus community. Data was collected on five campuses (two community colleges, two undergraduate universities and one technical institute) via observational seating sweeps and questionnaires. The study found remarkably similar usage patterns across all library types. Academic pursuits remain the most common activities, despite perceptions of the modern library as a social space. The library as a place to study is shown to be a complex topic, with noise, need and personal preference influencing experience. The research provides libraries with evidence to demonstrate their support of student learning and engagement within their institutions.

Introduction

Transformations in the academic landscape, including the format and availability of information and new approaches to teaching, mean the role of the academic library is in flux. As Martell reports, virtual access is the preferred method for accessing information in post-secondary institutions, a fact which might lead some to call into question the very existence of the library as a physical entity.[1] John Regazzi reports that between 1998 and 2010 although there were large drops in reference and circulation statistics at most of over 3000 academic libraries examined, there was comparatively little change in the number of physical visits to these same spaces.[2] These changing statistics highlight questions about the role that academic libraries as physical spaces play in the academic community. This reason, in addition to tightening financial constraints and the resulting increase in pressure to prove value to the larger academic community, make studying the academic library as place a timely and useful topic

Scott Bennett reviews the evolution of the library in terms of several paradigm changes, from a reader-centered space where books were scarce, then, as accessibility of printed material exploded, to a book-centered space designed primarily to house materials.[3] Now the digital age returns us to a time when storage of physical materials becomes secondary, but instead of a return to a reader-centered paradigm, Bennett advocates embracing a learner centered approach.[4] After reviewing articles that consider the role of the library in the academic community, Danuta Nitecki concludes that there are three roles for libraries, that of 'accumulator' (for example, of books and equipment), that of 'service provider' (such as retrieving information or providing instruction) and that of 'facilitator'.[5] The role of facilitator links closely to Bennett's learner-centered approach and refers to the design of a physical or virtual environment that fosters connections amongst individuals (whether students, faculty or staff), supports self-directed learning and facilitates the creation of new knowledge.

To some extent, libraries have embraced this outlook and made student learning an important consideration when designing physical spaces.[6] Recent studies have examined how successful these modern spaces are in supporting student learning. Charles Crook and Gemma Mitchell examined a library space designed for group work with access to supportive technology. Their findings indicated that a significant proportion of the users of that space were not using it as had been intended by the design. In other words, they were either involved in no social interaction, were not using the technology

provided and / or were engaged in no study activity whatsoever.[7] Numerous studies have shown that students appear to like doing individual research in areas designed for social, noisier academic group work.[8] In spite of this, both Montgomery and Suarez found that for more "serious" study students would choose other, more private library locations to work.[9] Such studies tell us that there is still a lot to learn about how library spaces support learning and how we can design these spaces effectively.

Lawrence Paretta and Amy Catalano observed students using an academic library to determine what activities they were engaged in.[10] Their results indicate that close to 60% of activities observed were study related, such as reading, typing or visiting Blackboard. Although computers were heavily used for study related activities such as looking at online library materials and typing documents, the students using them were more likely to be engaged in non-study related behaviors, such as looking at non-educational websites, than individuals who were not using a computer. Other researchers have found that while in the library, students are likely to engage in both academic and social pursuits, often simultaneously.[11] Academic work remains their primary activity, however; Foster found that academic vs. recreational activities happened at a ratio of 6:1 in the library, while Suarez observed that even with their flirting, chatting and other social endeavours, students in the library are engaged in academic work most of the time.[12] Students have repeatedly indicated that they want library spaces to support both academic and social activities, and these researchers conclude that the library succeeds in fulfilling these disparate roles.

When examining library spaces one cannot ignore the topic of noise. This issue is significant for academic libraries and in spite of the increasingly collaborative nature of academic work; students still want and need quiet. Jeffrey Gayton concluded that what library patrons "find most useful and appealing are communal spaces that encourage serious study," defining communal activity as solitary and contemplative but in the company of others, and sitting in direct conflict with the social spaces found in many modern academic libraries.[13] This conflict can become tangible when social areas are co-located with quiet study areas, according to Bedwell and Banks, who found that such arrangements sometimes resulted in aggressive behaviours.[14] Yoo-Lee, Lee and Velez conclude that although both group and solo spaces in libraries are well used, and in spite of students appreciation for the flexibility and opportunity provided by these spaces, students still "consider the quiet communal spaces integral to their experience of the library."[15] This perception of the library and its illustration of students' need for contemplative space is a common refrain in the literature.[16] Vondracek found that quiet is a key driver for students choosing a place to study alone, with noise a leading deterrent for students who choose not to use the library to study.[17] Gordon-Hickey and Lemley show that, for some library users, the need for quiet is physiologically-based, and that this need is more widespread than modern thinking in the collaborative academic setting might suggest.[18] Noise, then, remains a divisive issue and one worth exploring in the academic library environment.

Research question

A review of the literature gives us an idea of what we want the library to be and tells us something about student desires for these spaces, but it leaves us with questions about what is currently happening in these spaces. Many studies, such as those by Paretta and Catalano, Howard

Silver or Kathleen Webb, Molly Schaller and Sawyer Hunley, while expertly executed, examine this topic from the perspective of individual libraries making generalizations more difficult.[19] Yoo-Lee, Lee and Velez, in their single site study, acknowledged the need for "more factual information from multiple end users' perceptions and use of library spaces" and called for library researchers to seek more multi-site study opportunities in order to validate the findings of existing research.[20] Against this background, our paper explores the actual use of physical space in academic libraries serving three distinct types of institutions, community colleges, undergraduate universities and a technical institute. We present the results of this study examining the use and meaning of space in five small Canadian academic libraries.

Methods

This study examines student use of five small to medium academic libraries in Canada. Institutions varied in size from four to twelve thousand (full time equivalent) students and included two community colleges, Lethbridge (LC) and Red Deer (RD) (smaller regional institutions offering primarily vocational programs and programs to prepare students for further study), two undergraduate universities, Grant MacEwan (GM) and Mount Royal (MR) (larger urban institutions offering bachelor's degrees and some two year certificate programs), and a technical college, Southern Alberta Institute of Technology (ST) (larger urban institution focusing on technical and vocational programs) (Table 1). Study libraries were selected both for variety and geographic convenience.

Data collection coincided with what are traditionally the busiest times of the year for the study libraries. We gathered data during the 2009-2010 academic year via seating sweeps and student questionnaires (Appendix A and B). Seating sweeps are a method of unobtrusive observation that produce detailed, quantifiable information about the use of library spaces (for a description of this method see Lisa Given and Gloria Leckie, 2003). Human research ethics approval was received from each of the five institutions involved. Preliminary results were presented at the 9th Annual Northumbria International Conference on Performance Measurement in Libraries and Information Services and printed in the resulting proceedings.[21]

[Insert Table 1]

We conducted rounds of seating sweeps twice at each library, once in the middle of the fall semester and once mid-winter. Each round of seating sweeps involved four separate sweeps of the library on a single day (morning, mid-day, afternoon and evening). During these sweeps observers recorded the location, possessions and activities of each individual observed. In totally 9268 individuals were observed during the seating sweeps (GM 3141, MR 2077, LC 712, RD 1711 and ST 1627). In areas where it was not feasible to make detailed individual observations stratified sampling was used, with basic information gathered about all individuals and detailed observations only recorded for every fifth person.

We circulated questionnaires to individuals in the library during the mid-winter visit, on the day following the seating sweeps. In larger libraries (GM, MR) a stratified sampling technique was used in high density areas (for example in a crowded computer lab only the individual located at every third occupied seat was invited to complete the questionnaire) but in smaller libraries (LC, RD and ST) all patrons in the library were invited to complete the questionnaire. At the first library (LC), questionnaires were distributed both in print and electronically. For those who were given a choice, preference was much stronger for the paper questionnaire and response rates were also much higher: 87% (n = 71) of paper questionnaires at LC were completed but only 43% (n = 31) of electronic). Subsequently, only paper questionnaires were distributed. Response rates were as follows: ST 85% (n = 134), GM 89% (n = 123), RD 81% (n = 122), MR 85% (n = 127). Combined response rate for all five institutions was 83%. Only a very few respondents identified themselves as being anything other than a student; due to the extremely low numbers, these responses were discarded.

Practical Limitations

The strength of the seating sweep method is the ability to survey and observe many student users of the library and to repeat the sweeps at different times of the day. This strength is also a limitation as it over-emphasizes activities that take longer to accomplish. A sweep captures a snapshot in time and people engaging in more time consuming activities will inevitably spend more time doing them and so be more likely to be recorded doing those activities. This method is also limited to collecting superficial observations of library users. In addition, neither the seating sweep nor the questionnaire allow for clarification or follow-up. For example some of the issues that were raised in the questionnaires to do with preferences for noise or quiet would have benefited from a deeper exploration such as would have been possible if focus groups or interviews had been employed. Ethnography, which has become popular in user behavior studies, can allow for the collection of deeper – though generally, less abundant - data and more nuanced observation. Such methods however were beyond the human resource means of our small research team and we chose our method in large part due to our desire to observe a large number of users at multiple sites. Finally, although we are unable to claim that our study is statistically generalizeable, we believe we have taken a step in the right direction by conducting a multi-site study of different library types and including a large number of library users.

Results and Discussion

Who is Using These Libraries and How Often?

Our observations indicate that males are somewhat more likely to use the physical library than females. When averaged over the five institutions females were observed in the physical library less (by 7%) than one would have expected based on the ratio of students enrolled, though the numbers varied by institution, with several institutions showing a small positive difference (Table 2). This corresponds with other research that has also found males to be overrepresented in terms of physical library use as compared to their percentage of the student population.[22] Most questionnaire respondents were under

the age of 25 and had been studying at the institution for two years or less (data not shown). This reflects the preponderance of two year diploma and university programs at the institutions examined.

[Insert Table 2]

The library occupies a prominent place in the timetable of most questionnaire respondents with the majority visiting the library several times a week or more (Table 3) and for extended periods of time (Figure 1). Questionnaire respondents self-report fairly strong grades, with over half reporting a GPA (grade point average) between 2.7 and 3.6 (correlates to a letter grade of "B" and the second highest of the five letter grade categories possible) (data not shown). The second most common grade was an "A" (GPA of between 3.7 and 4, the highest letter grade possible). This pattern was the same for all institutions. It is not possible to say how accurate these numbers are due to the fact that they are self-reported. Frequency of visits to the library does not appear to be related to self-reported GPA (Figure 2), a finding that is confirmed by other studies.[23]

[Insert Table 3]

[Insert Figure 1]

[Insert Figure 2]

How Do Students Make Use Of Library Spaces?

Students report engaging in a wide variety of activities in the study libraries (students could select multiple activities) (Table 4). Responses can be grouped into the following (overlapping) categories: completing academic work, engaging in social activities, using print materials and accessing the service desks / borrowing materials. Many of the reported activities are directly linked to the academic purpose of the library while others have a more tenuous connection. Unsurprisingly, technology continues to be an important part of the library experience as respondents overwhelmingly reported using computers, laptops, photocopiers and printers in the library. Previous research has found that, on average, students had three different purposes for visiting the library on a given day with top reasons similar to those reported here.[24] When asked about the main activity that brought them to the library on the day they filled out the questionnaire, the most common responses were to use either a desktop or laptop computer or to read print material, whether from the library or material that they brought with them (Figure 3).

[Insert Table 4]

[Insert Figure 3]

Academic work

Whether working on a computer or with print materials, academic work is a key reason that brought students to the library on the day they filled out the questionnaire. Observations of student

possessions and activities add further evidence to the studious nature of the activities taking place in these spaces. Although it is not possible to determine the exact nature of the activities observed, four of the top five activities (using a computer, either desktop or laptop, and reading and writing in print) are highly suggestive of academic work (Table 5). In addition, many individuals in the library were equipped with knapsacks or larger carry-all bags, print reading or writing materials (Table 6).

[Insert Table 5]

[Insert Table 6]

Further emphasizing the academic importance of the library space, almost 40% of questionnaire respondents report completing over half of their out-of-class academic work in the library (Table 7). This number closely matches that reported by Silver, who found that students reported an average of 55% of their studying took place in the library.[25] It is interesting to note that our data do not show a link between percentage of out-of-class academic work completed in the library and self-reported GPA (Figure 4).

[Insert Table 7]

[Insert Figure 4]

Social activity and food consumption

Close to one quarter of users observed were engaged in conversation (see Table 5). It is not possible to know whether those conversations were academic in nature, but student comments on questionnaires indicate that the library serves as a place to engage in group study and also that some individuals come to the library to socialize. One respondent said she came to the library to "work on a project with my Spanish partner" for example, while another said she came to "socialize in person". Some respondents were concerned about the ban on food in some of the libraries, reflected in comments such as "please allow students to eat in the library but of course they need to be tidy" and "having to pack my book up and leave to eat and then return is annoying." It is interesting that policies allowing food in the library appeared to make little difference as to whether individuals were observed with food. GM, LC and RD all allow food and 9, 6 and 10 percent of individuals observed had food with them, numbers that are only a very slightly higher than MR (5%) and ST (4%) which have policies against eating in the library (see Table 6). It may be that policies are not being enforced or that patrons are simply choosing not follow them.

Use of technology

Technology is of key importance to academic library users. Questionnaire responses show that use of a computer, whether desktop or laptop was one of the most common reasons that students came to the library that day (see Figure 3). Seating sweeps provide further evidence of the importance. Over one quarter of library users observed were using a desktop computer and close to another fifth of users were using laptops (see Table 5). This makes computer use by far the most frequently observed activity. This agrees with previous research which indicates that computer usage is one of the most common

activities for library users.[26] Paretta and Catalano had reported on the higher probability that computer users would engage in non-academic work than non-computer users, in the case of shared library computers it seems that this has the potential to cause tension[27]. As one student commented "BAN FACEBOOK!!! When you can't find and need a computer, people are always on Facebook." Others wanted more computers but recognized the need to maintain a variety of spaces in the library: "There are a lot of computers, but most are usually full. More would be appreciated, but I wouldn't want desks for study to be sacrificed."

Use of print materials

Although users are more likely to be observed accessing a laptop or desktop computer, the use of print materials in these libraries is still common. Close to a quarter of individuals we observed were reading print materials and another 13% were observed writing in print (see Table 5). These numbers fall between results reported elsewhere. Paretta and Catalano report that the most common behavior was reading of academic print material, noted in 18.8% of students observed,[28] while Anne Lehto, Leena Tolvonen and Mirjna Iivonen report 50% of students observed in the library were reading or writing (without computers).[29]

Print material supplied by the library remains an important resource for many students. One of the main activities that brought students to the library on the day of the questionnaire was to read or study print materials from the library although this trend was much stronger at GM and MR (see Figure 3). The focus on Bachelor degree programs at these two institutions may be the reason that users appear to be making relatively heavy use of the library's print collections. It is possible that the variation could be explained by the mix of programs or assignments assigned at each institution or perhaps by the nature or size of the collections.

Interaction with service desks / browsing of print collection

Compared to other locations in the library, we observed very few patrons in the library stacks (1%) or at a service desk (1%) (Figure 5). These numbers confirm previous research that found that some of the least occupied areas in the library included the book stacks and library service desks.[30] These results may reflect the dropping circulation and reference statistics and / or the relatively shorter length of time it takes to conduct such transactions. A patron may spend five to ten minutes asking a reference question or finding a book, and then study that book or use a computer for several hours. Questionnaire responses however indicate that users of these libraries do make use the service desks, 63% of respondents indicated that they had sought help from library staff in the library over the past year (see Table 4), library statistics indicate a range of 4-7 reference questions per FLE (see Table 1), and at least one individual reported she selected her seat in the library based on proximity to a help desk. Although patrons are less likely to be observed in these locations, this does not necessarily indicate that these services are not important to them. It may be, however, that they are playing a diminished role compared to in the past.

[Insert Figure 5]

How Do Users Experience Library Spaces?

Previous research has indicated that students have definite preferences for study space attributes, based on individual preference and / or the purpose that brings them to the library.[31] Such research also indicates that library users can hold completely contradictory views of a space, either in the way they describe it (there is always a seat vs there are never any seats available) or in their preferences (the library is better when it's quiet in the morning or its best at lunch when there is a busy buzz of activity). In one study, students who liked studying in the library said it was because it was, amongst other things, quiet, comfortable and without distractions. Conversely, in that same study, those who thought that same space was one of the worst places to study described it as noisy, quiet, uncomfortable and distracting![32] Patrons experience the library in very individual ways and the comments provided by questionnaire respondents surveyed for this study demonstrate this fact.

The library as a place to study alone

The answer to whether the library is a good place to study alone appears to be more complex than just "yes" or "no". When asked whether the library was a good place to study alone, over half of questionnaire respondents indicated that it sometimes was (Figure 5). Library usage at any institution varies with the time of day, day of the week and time of the semester, a fact that offers a possible explanation for these responses.

[Insert Figure 6]

Comments from those who had indicated that the library was only sometimes a good place to study alone grouped around a few main themes: noise, high occupancy levels, and interactions with other students (whether positive or negative). One respondent commented: "there's [sic] a lot of places to study alone but they're not always free". Others identified specific times of day (for example the evening or the morning) where the library was a better place to work alone. MR head-counting statistics provide support for these statements, showing peak occupancy between 11 a.m. and 4 p.m., with Monday to Thursday being significantly busier than other days (Mount Royal University, unpublished data). Some complained about a lack of respect by students who were noisy when others around them were trying to study quietly: "even though the basement of the library is considered a quiet area it can get loud and people talk on their cell phones". Some respondents acknowledged that sometimes distractions were self-generated. One indicated that "sometimes I can't control myself to go on Facebook or some other websites" and another acknowledge that "sometimes it is loud, but I contribute!".

Particularly interesting responses in this category were from individuals who found that they profited from the communal study atmosphere created when people study together:

> "I often need motivation to continue. If I see others working hard, I work hard also, so often I come with a friend, and while we are both working independently, we are still together."
> "I find it really helpful to have a "study buddy", someone studying with you, not necessarily or the same subject but focused on what they're doing".

Such responses support Gayton's stance that library users value the communal nature of academic libraries[33] and O'Connor's theory about "studying along" (as discussed by Bennett[34]), where students share a workspace but work independently.

When asked why they thought the library was a good or a bad place to study alone, respondents described the space in completely contradictory ways, a phenomenon that is not unique to this study. Many who cited the library as a good place to study alone indicated that it is a quiet place that promotes concentration. Although few respondents indicated that the library was not a good place to study alone, of those that did, by far the most common reason was due to the noise levels. It is possible that some of these individuals are only visiting the library during peak times and so are consistently finding it a noisy and crowded place. Noisy group areas of libraries are popular and thriving, but students also appear to appreciate the quiet, comfortable spaces offered by libraries.

MR had the fewest numbers of respondents respond positively to this question. It is not entirely clear why this is the case, but a combination of design and high occupancy levels make a plausible case. This library has the fewest computers, and one of the lowest numbers of seats per FLE (see Table 1). MR is also the library with the highest occupancy levels (when numbers of individuals observed during each seating sweep are compared to total numbers of seats available, data not shown). In addition to occupancy levels, design may also affecting student evaluation of the space. GM, ST and RD all have separate floors with areas designated for quiet study. LC, though all on one floor, has low ceilings and inner walls, allowing for more effective zoning. MR has one level, high ceilings and few space dividers, making noise containment less effective. Quiet study areas have been established at this library but some of those areas are located beside louder areas with no sound barriers or baffling. A plausible explanation then for MR's low rating as a place to study alone may be a combination of design and occupancy levels that mean seats in a preferred study area are not always available.

Students are aware of what qualities make for an effective study environment for them personally, with needs varying from person to person. For example, some respondents indicated that they sometimes found it difficult to study in the library because of distractions such as friends, others talking, people talking on cell phones, groups discussing projects, and social software utilities such as Facebook. Contrarily, many listed noise as something that actually *helped* them to concentrate: "it's easy to settle into the working mode right away in the library, no matter where I sit, or who I'm near. I like the buzz of voices as well. It helps me concentrate." Individuals mentioned several qualities that are specific to the library and wouldn't necessarily be available in other spaces, such as access to resources (including library staff, books, the internet, electrical plugins, etc.), a quiet space, behavior enforcement, and the communal study atmosphere. The library is not the only place available for individual study at these academic institutions; however, many respondents appear to appreciate these spaces because of these additional attributes that make it more than just a place with room to spread out one's books and computer.

What may be surprising considering the noise complaints made by some respondents is that most students reported that they usually worked alone at the library (Figure 7). This agrees with

previous research, where observations of academic library users indicated that they were far more likely to use the space alone rather than in a group.[35]

[Insert Figure 7]

Library as a place for group work

When asked whether the library was a good place to do group work, respondents were almost evenly split between those who said it was and those that said it only sometimes was, while very few indicated that it was not at all a good place to do group work (Figure 8). Responses to this question varied considerably between libraries. It may be that group study rooms play an important role in students' opinions about the library as a group study space; the institutions that provided the most dedicated group study space (see Table 1) were also much more likely to be rated as good places to do group work. Although they contradict aspects of the results reported by Crook and Mitchell[36], Silver's findings provide support for this hypothesis; he concluded that collaborative spaces in an academic library were being used as intended in the design and were succeeding in supporting collaborative learning.[37] It seems, however, that group rooms are not necessarily required to create a library that successfully supports group study. Despite its very low number of group rooms, observations of a relatively larger number of users working in groups indicate that ST succeeds in being fairly successful in supporting group study (Table 8). This library has two floors, one designated for quiet study and the other allowing conversation. It may be that this design helps to support a multiplicity of uses despite the low number of group rooms.

[Insert Figure 8]

[Insert Table 8]

In analyzing the comments corresponding to the library as a place for group work, respondents were most likely to cite the group study rooms, and then furniture such as large tables, and finally ample availability of space, as the reasons why the library was a good place for group work. It is interesting that some individuals felt the library was a good place for group work because it was generally a loud place and so there was less need to be quiet, reflected in comments such as "[the library has] loud volumes, [I] don't have to be considerate." Other informative comments referred to the ability to work in an environment that contained all the resources needed, where talking was permitted, and that everyone could access easily: "It is an easy place to meet, with a vibe that tends to promote being on task."

Most respondents who indicated that the library was only sometimes a good place to do group work indicated that their reasons had to do with availability of group study rooms or other group workspace. Others indicated that at times the library could be too loud and/or that they were concerned about being considerate to others working in the library. Although few respondents indicated that the library was not a good place to do group work, the most common reasons cited, again, were noise and availability of suitable group workspaces. It is notable that some respondents thought the library was not a suitable place for group work at all: "Group work should not be done in library as you need to be quiet".

Choosing a spot to sit in the library

When students were asked why they chose to sit in the spot they had chosen on the day the questionnaire was distributed, two responses, quiet and availability, were by far the most common with each given by approximately one quarter of respondents. A few respondents indicated they selected their seat at random, but more commonly, patrons indicated that because the library was crowded or the more popular locations were already full, they had to take whatever seat was available. For example, one patron stated that "it was pretty much the last spot available" and another, "mainly because all group study rooms were full, I don't prefer this location but I know it's quiet and I have a table to myself."

Other reasons for selecting a particular location in the library included the desire to sit:

- in an isolated spot
- with a friend or group who was already there,
- in a spot with ample workspace to spread out belongings,
- near to resources that may be needed,
- near a window,
- near an electrical outlet or in an area with wireless or network access
- in an area that permitted talking, or
- in a usual spot.

A third of respondents indicated that the spot they had chosen to study was somehow better than other places to study and the most common reason identified was quiet, either the location was quieter than other spots or it was designated a quiet spot. Though many respondents complained about the noise of the libraries it appears that many are successfully finding places to sit that are quiet.

Some patrons have very specific ideas about the types of spaces where they like to work. For example one patron succinctly described her reasons for choosing the particular carrel where she was sitting because it was "Bright, there's power. Alone but not so enclosed as the small brown cubicles. More space than small cubicles but not as loud as tables." Another makes choices depending on the type of work he needs to accomplish, on this day he needed a "…table to spread books out. Not intense studying [for example] for an exam or else [I] would have chosen to sit where others socializing would not bother me". The library serves different purposes for individuals on any given day; previous research has found that, depending on the purpose of their visit, students preferred different settings in the library.[38]

Having a favorite place in the library

Just over half of questionnaire respondents reported having a favorite place in the library (58%) (Figure 9). Results indicate that most people think of quiet spots away from others when they describe their favorite library location. In this study, when asked what qualities made for a favorite spot, noise level (mentioned by about half) was by far the most common factor affecting preference. A very few respondents indicated they liked to have some noise, but the vast majority said the best quality of their favorite spot was the quiet. Many also mentioned isolation or being removed from other people.

[Insert Figure 9]

Windows and lighting are also very important aspects of favorite library locations. About a fifth of this subset of respondents identified windows, natural light or a view outside as a factor that made a spot their favorite. These qualities created a relaxing environment for respondents and some said it helped them to recharge or regroup to stop and look out a window while studying: "I love looking out the windows when I need a break. I get to see lots of people I know."

Other common reasons for a place being described as a favorite are that it:

- promotes concentration (often due to other factors such as the quiet or lighting)
- is comfortable (for example due to soft chairs)
- is spacious (lots of room to spread out books on a large table for example or because of openness of area)
- offers access to resources such as books or library staff
- offers access to electrical outlets or the internet

Meaning of the Library to its Users

Johnathan Hunter and Andrew Cox, in a study examining informal learnings spaces, report that students consider background atmosphere as vital when selecting a space to study.[39] Our study reveals similar results; when asked about the meaning of the library space for them, the most common response - given by almost one quarter of respondents - was an appreciation of the atmosphere in the library. Others commented on the library as a good place to study or relax or simply described it as a good place without specifying any further. A few individuals expressed a strong sense of attachment to the library describing it as their "home away from home", as being "a vital part of [their] college experience" or simply as "awesome". Some respondents provided details about what aspects of the library made them appreciate it: "Excellent library. There are always available staff, resources for schoolwork, and always people who you can hang out with or get help from."

Not all respondents felt an attachment to the library: "It's a library, it has no emotional meaning to me. It's a place of and for reference of people and materials. It's like a place of business, it's not a hangout" and "It sometimes scares me because I don't totally know how everything works/where everything is so I avoid it (not the best)."

Opinions of the academic library are as varied as the people that use them. Some feel passionate about these spaces, some criticize them, while others are neutral. A library can never expect to fully please all its users (especially considering that opinions are often contradictory!), but we can listen as users express their needs and adapt space and services where possible.

Conclusion

It has been argued that the increasing availability of information in a digital format creates a major challenge for academic libraries as physical spaces.[40] This study and others show that when library use is evaluated in terms of the physical use of the library, the situation in academic libraries is less clear than falling reference and circulation statistics might indicate.

We show that there are many similarities across the different types of academic libraries studied here: community colleges, undergraduate universities and technical institutes. Although for the most part our results reveal that these libraries are being used in remarkably similar ways, there was some indication that the type of institution served may impact how users use the space. Users of the two university libraries were more likely to come to the libraries with the main purpose of consulting the library's print materials. Our results indicate that design and usage rates may be also be affecting how users evaluate the activities that a library space can support. At MR, a very busy library with a design that limits the ability to control noise, users were much less likely to rate the space as a good place for individual study.

Our research also highlights the important role that library design plays in how a library is perceived by its users, for example how well a library supports group versus individual work. Libraries are expected to be able to accommodate both types of work and some libraries, for example single floor libraries, libraries without interior walls or libraries lacking sound baffling, may be hampered in meeting this multiplicity of needs. With this is mind, it is important for libraries to consider carefully and attend to the needs of both groups and individuals, and ensure adequate choice when it comes to library spaces.

What the library literature wants and needs is a way to clearly demonstrate a link between libraries and learning. It is not an easy connection to make explicit. Many studies have shown what students are doing in the library, but the question remains “are they learning?” In this study, we are unable to correlate grades with time spent in the library – though others have been able to connect use of resources to academic success. Stone and Ramsden found a statistical relationship between academic achievement and both book borrowing and electronic resource use, although not with physical library entries.[41]

When a student chooses the library as a place to work on academic activities, he is choosing to place himself in a setting that connects information to the social experience of learning.[42] According to Kelly, Andrews and Adams work, social learning spaces such as the library foster social interaction between students and promote the development of a sense of belonging and community, all of which increase student engagement.[43] Add to this the existing evidence that use of library facilities may be associated with student retention[44] and persistence[45] and there exists the opportunity for libraries to demonstrate value and alignment with institutional goals.

Library visits alone may not be enough to influence academic achievement; rather, what seems to matter more is how a student uses the library when she is there. If as Stone and Ramsden suggest, there is a correlation between resource usage and better grades it would behoove the library to find ways to increase use of electronic and print resources by students. In our study we show that students are already in the library engaged in academic pursuits, which presents a ripe opportunity for libraries to potentially increase student success through in-house promotion of resources and advertisement of their link to better grades. This also offers an interesting avenue for further research.

We are able to demonstrate that the library users we studied are likely to be good students, and that that they are likely to be completing a large proportion of their academic work in the building. We also show that students continue to visit their libraries, that they see them as a scholarly destination, and that their primary purpose in visiting is to engage in scholarly work. They value the library for its proximity to the resources they need to do their work, for its communal academic atmosphere, for the convenient setting it offers for engaging with peers, and when they can find it, for its quiet. Is this evidence of learning? Students are certainly coming with the goal of learning and are engaging in learning behaviors while they are there. We argue that students perceive the combination of setting, resources and community that the library provides as an incubator for learning, and that by virtue of being among these things, they believe they will learn. As Foster explains it, students want to be in a "place with the scholarly gravitas that the library affords" (p115). We are wise to pay close attention to the gravitas we foster within our four walls.

Tables and figures

Table 1. Comparative descriptive statistics (2009-2010) of the five study libraries.

	GM	MR	LC	RD	ST
FLE[2] (Full Load Equivalent*)	11156	9670	4123	4001	11645
Total seats / FLE[1]	0.119	0.057	0.051	0.127	0.038
Computer seats/FLE[1]	0.044	0.008	0.058	0.056	0.01
Group study room seats /FLE[1]	0.019	0.002	0.007	0.019	0.004
Gate count / FLE[1]	no data	96	185	143	46
Volumes / FLE[1]	27	29	12	34	8
Circulations/FLE student[1]	16	12	4	16	2
Reference transactions /FLE student/ year[1]	4	4	no data	7	2
Number of students receiving information literacy instruction /FLE	1.1	2.3	0.7	0.7	0.2

**FLE is a method of comparing enrollment across institutions. This unit of measurement is the equivalent of a student taking a standard full course load during an academic year. Students who take less than a full course load generate less than one full FLE.*

Sources:

[1] Alberta Association of Academic Librarians Statistics, 2009-2010

[2] MR Office of Institutional Analysis and Planning

Table 2. Sex of questionnaire respondents and individuals observed during seating sweeps (%)

	GM (n = 125)	LC (n = 104)	MR (n = 130)	RD (n = 131)	ST (n = 135)	Total (n = 622)
Sex of questionnaire respondents						
F	49%	61%	59%	61%	53%	57%
M	50%	37%	36%	36%	43%	40%
Sex of individuals observed in the library						
F	49%	53%	56%	58%	39%	51%
M	50%	47%	44%	41%	61%	49%
Male/Female ratio (%) at each institution[1]						
F/M	64/36	62/38	52/48	56/44	57/43	58/42
Difference between percentage of females enrolled and observed in library						
Difference (negative)	(15)	(9)	4	2	(18)	(7)

[1]MR Office of Institutional Analysis and Planning 2009-2010

Table 3. Reported frequency of visits to the library by questionnaire respondents

Frequency	GM (n = 125)	LC (n = 104)	MR (n = 130)	RD (n = 131)	ST (n = 135)	Total (n = 622)
At least once per day	35%	21%	30%	38%	30%	31%
Several times a week	43%	42%	31%	34%	50%	40%
Once a week	9%	16%	19%	7%	11%	12%
Once a month or less	7%	2%	7%	4%	3%	5%
It varies	0%	20%	13%	12%	4%	10%
Other	6%	0%	0%	6%	2%	3%

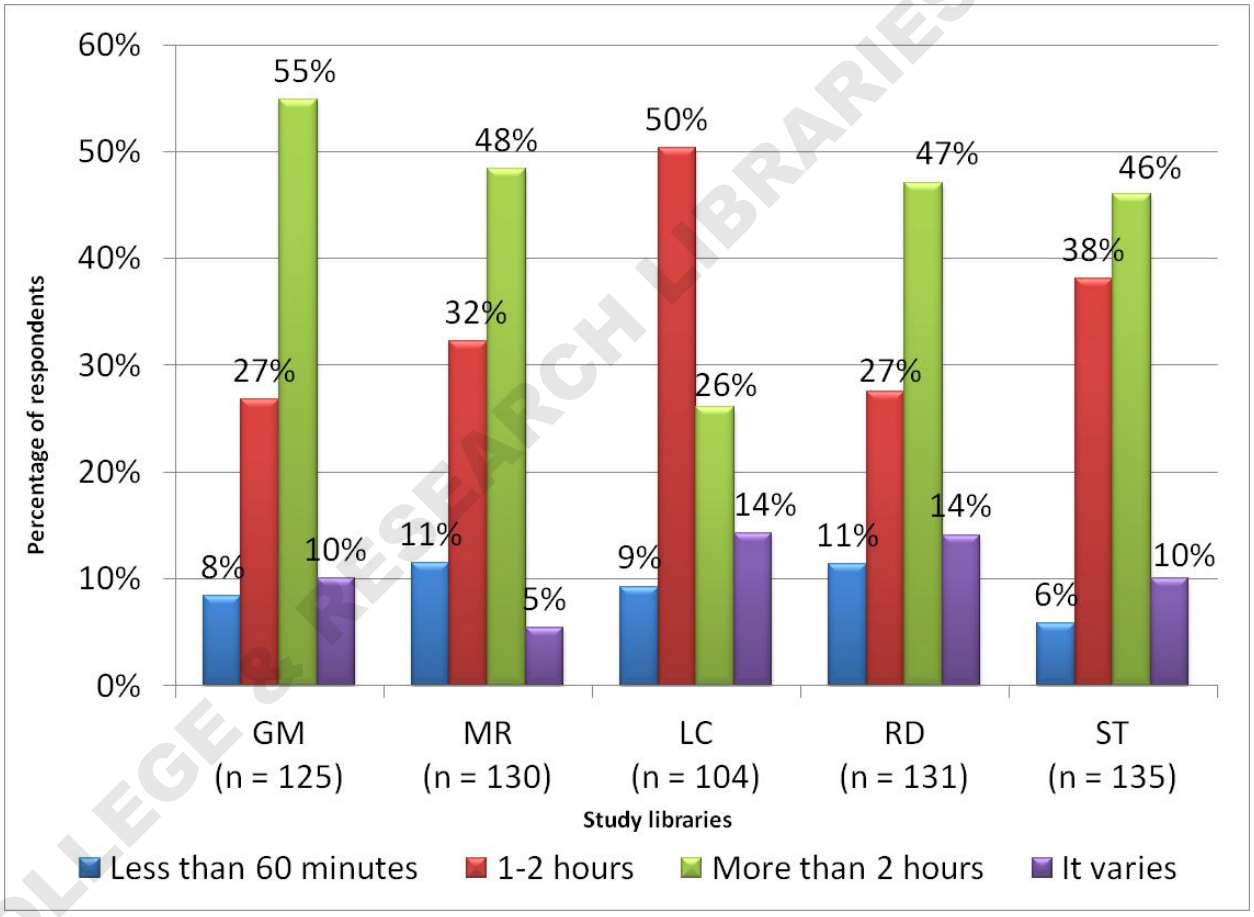


Figure 1. Usual length of library visit reported by questionnaire respondents.

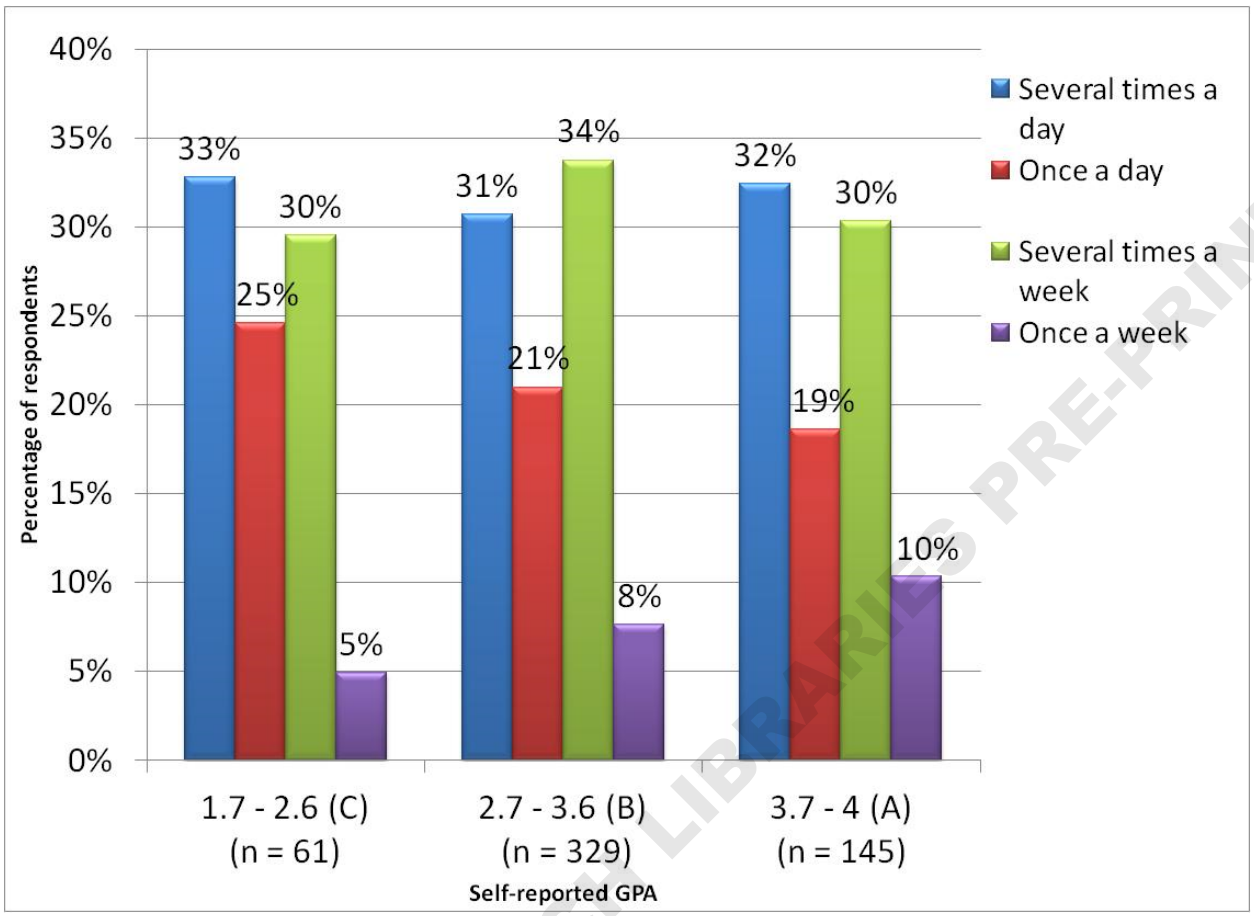


Figure 2. Frequency of visits to the library by self-reported GPA

Table 4. Activities done in the library by questionnaire respondents in the past year.

Activities	**Responses (%)** (n = 622)
Worked on academic work using the library computers	84%
Worked on academic work using a laptop	82%
Used the printers / photocopiers	82%
Socialised in person (i.e. chatting with friends)	75%
Drank	75%
Ate	69%
Socialised online (for example by using Facebook or email)	68%
Used a group study room	67%
Got help from library staff	63%
Read or studied print materials NOT FROM THE LIBRARY	60%
Borrowed or returned library materials	54%
Physically searched for information (i.e. in the bookshelves)	50%
Read or studied print materials FROM THE LIBRARY	46%
Attended a library instruction session or workshop or tour	36%
Took a nap	30%

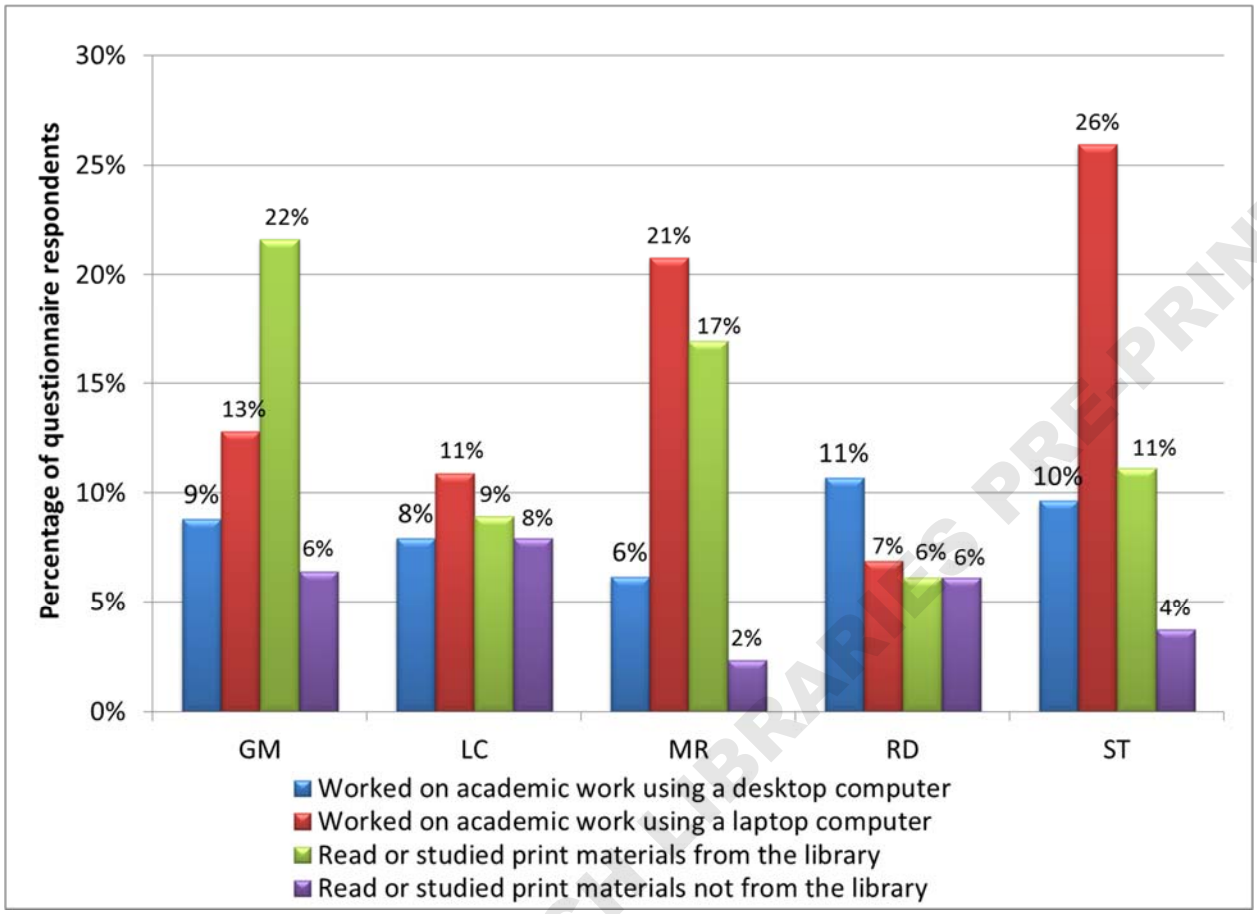


Figure 3. The main activity that brought respondents to the library on the day they filled out the questionnaire (most common responses only)

Table 5. Activities observed in the libraries.

Activity	GM (n = 1819)	LC (n = 610)	MR (n = 2077)	RD (n = 915)	ST (n = 1209)	Total (n = 6046)
Using desktop computer	20%	37%	20%	25%	31%	27%
Reading [in print]	30%	21%	15%	11%	30%	24%
In conversation, talking, listening	26%	27%	12%	26%	22%	23%
Using laptop	18%	15%	17%	12%	23%	19%
Writing [in print]	19%	10%	8%	7%	15%	13%
Listening to headphones	9%	10%	6%	4%	10%	9%
Using a cell phone	6%	2%	3%	5%	3%	4%
Physically searching, retrieving, browsing	2%	0%	1%	1%	2%	2%
Drinking	2%	0%	1%	3%	1%	1%
Eating	2%	1%	1%	2%	1%	1%
Sleeping/napping	1%	2%	1%	0%	1%	1%
Watching/sitting/contemplation	1%	0%	1%	2%	1%	1%
Using calculator	0%	0%	0%	1%	1%	1%
Using library technology (excluding computers)	1%	2%	0%	0%	1%	1%

Table 6. Percentage of library users observed with each category of possession.

Possession	GM (n = 1819)	LC (n = 610)	MR (n = 2077)	RD (n = 915)	ST (n = 1209)	Total (n = 6046)
Knapsack, Carry-all bag	80%	79%	57%	47%	81%	75%
Reading materials [in print]	64%	51%	38%	48%	58%	56%
Writing materials [print], pens, paper…	44%	45%	30%	33%	41%	41%
Drink	33%	20%	21%	24%	21%	27%
Laptop computer	26%	22%	22%	19%	29%	26%
Cell Phone	25%	16%	21%	20%	18%	23%
Calculator /other electronics	7%	3%	5%	5%	14%	8%
Food	9%	6%	5%	10%	4%	7%
MP3 Player / Portable music player	7%	4%	8%	3%	4%	7%

Table 7. The percentage of out of class academic work completed in the library, as reported by questionnaire respondents.

Percentage	GM (n = 125)	LC (n = 104)	MR (n = 130)	RD (n = 131)	ST (n = 135)	Total (n = 622)
Less than 25%	19%	36%	31%	23%	27%	27%
26-50%	33%	32%	36%	31%	38%	34%
51-75%	29%	27%	21%	27%	23%	25%
76 - 100%	18%	5%	12%	18%	11%	13%
No response	2%	0%	0%	2%	1%	1%

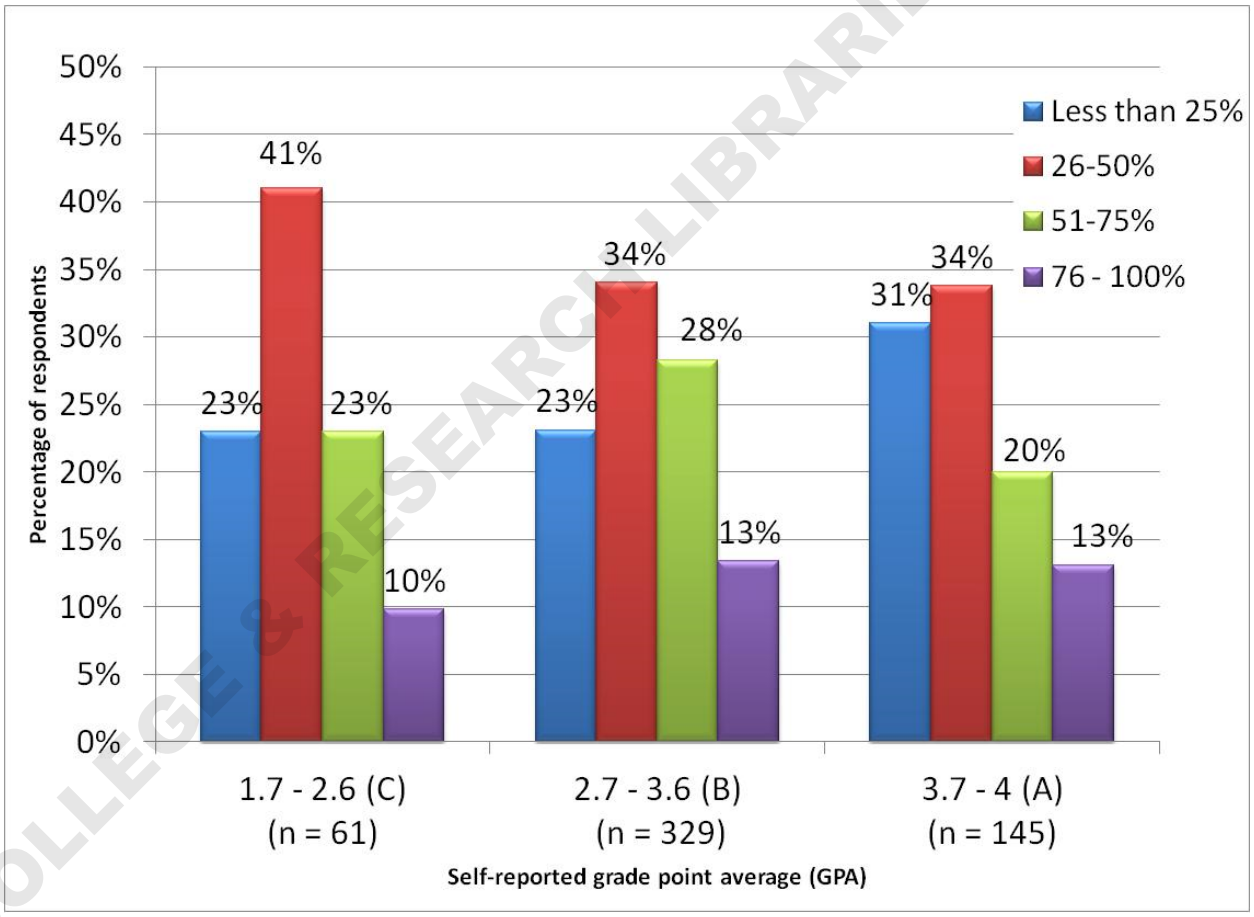


Figure 4. Percentage of out-of-class academic work completed in the library by self-reported GPA

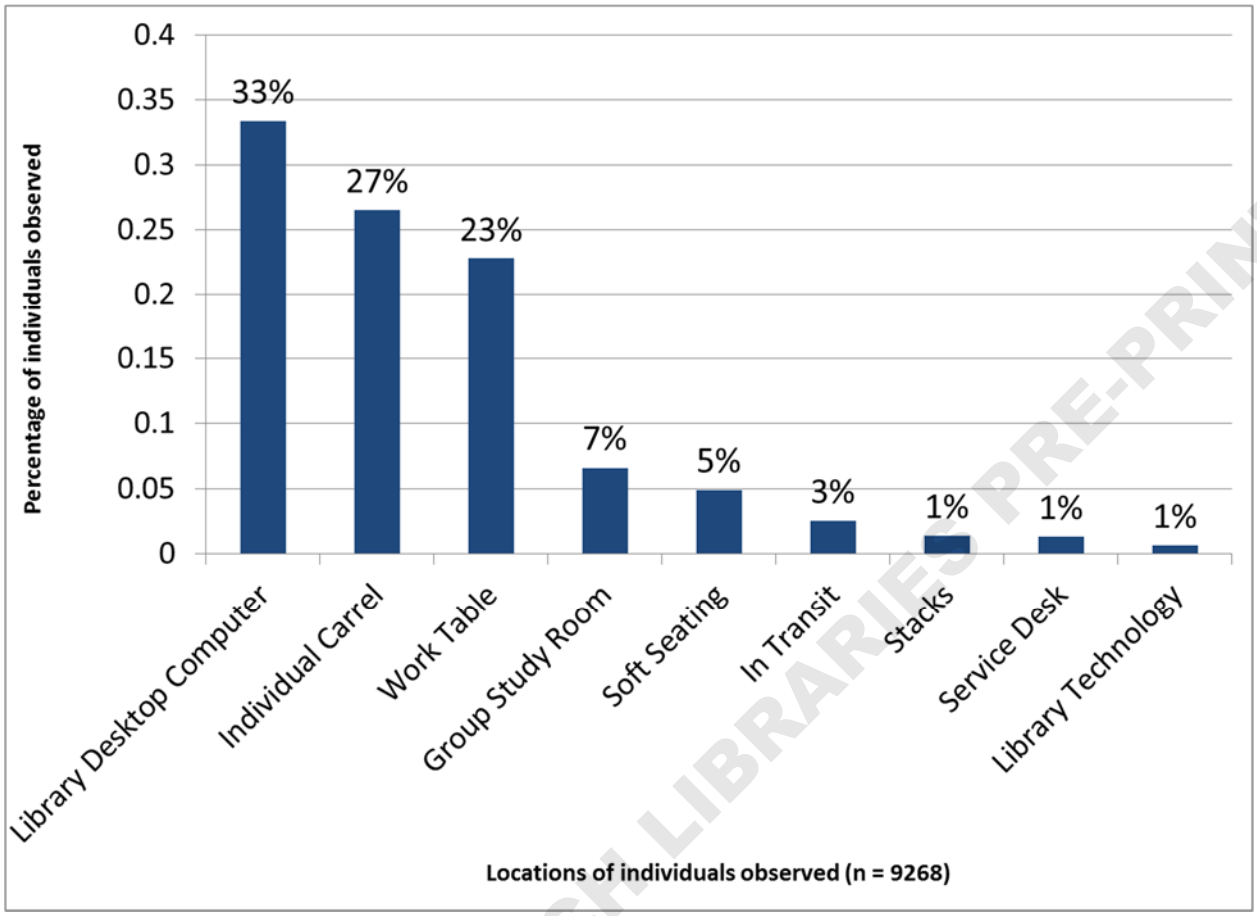


Figure 5. Locations of individuals observed in the library (n = 9268)

How do users experience library spaces?

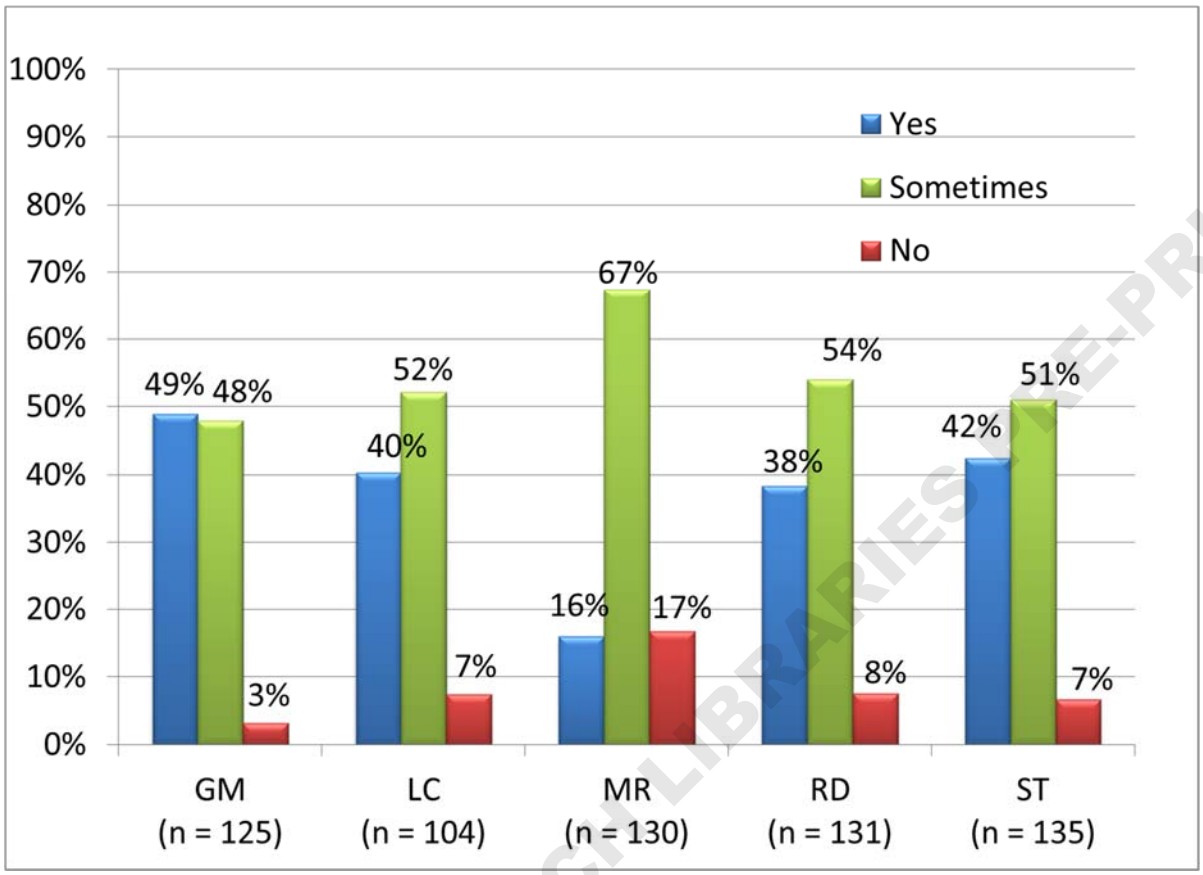


Figure 6. Questionnaire respondents' opinions about whether the library is a good place to study alone.

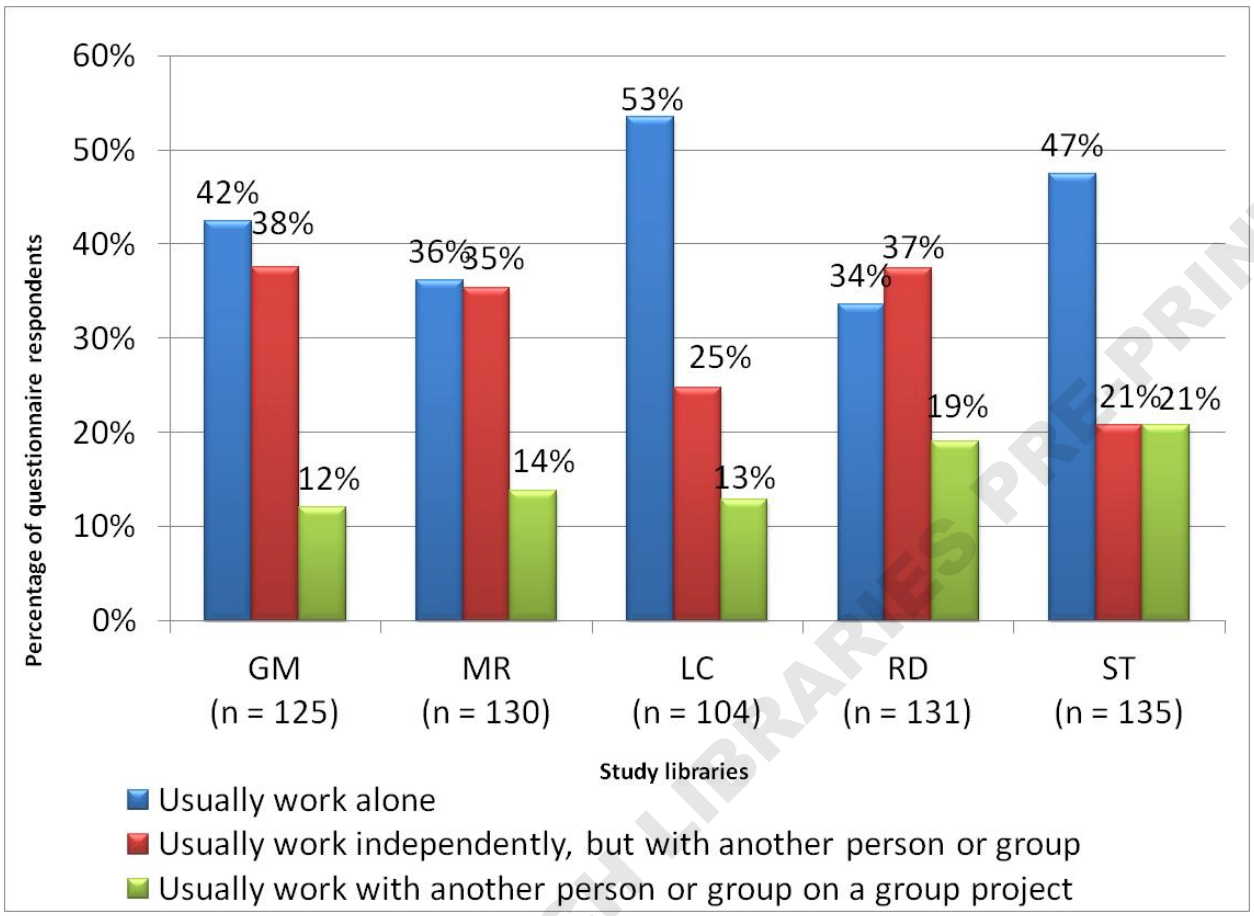


Figure 7. Usual companionship of questionnaire respondents when in the library.

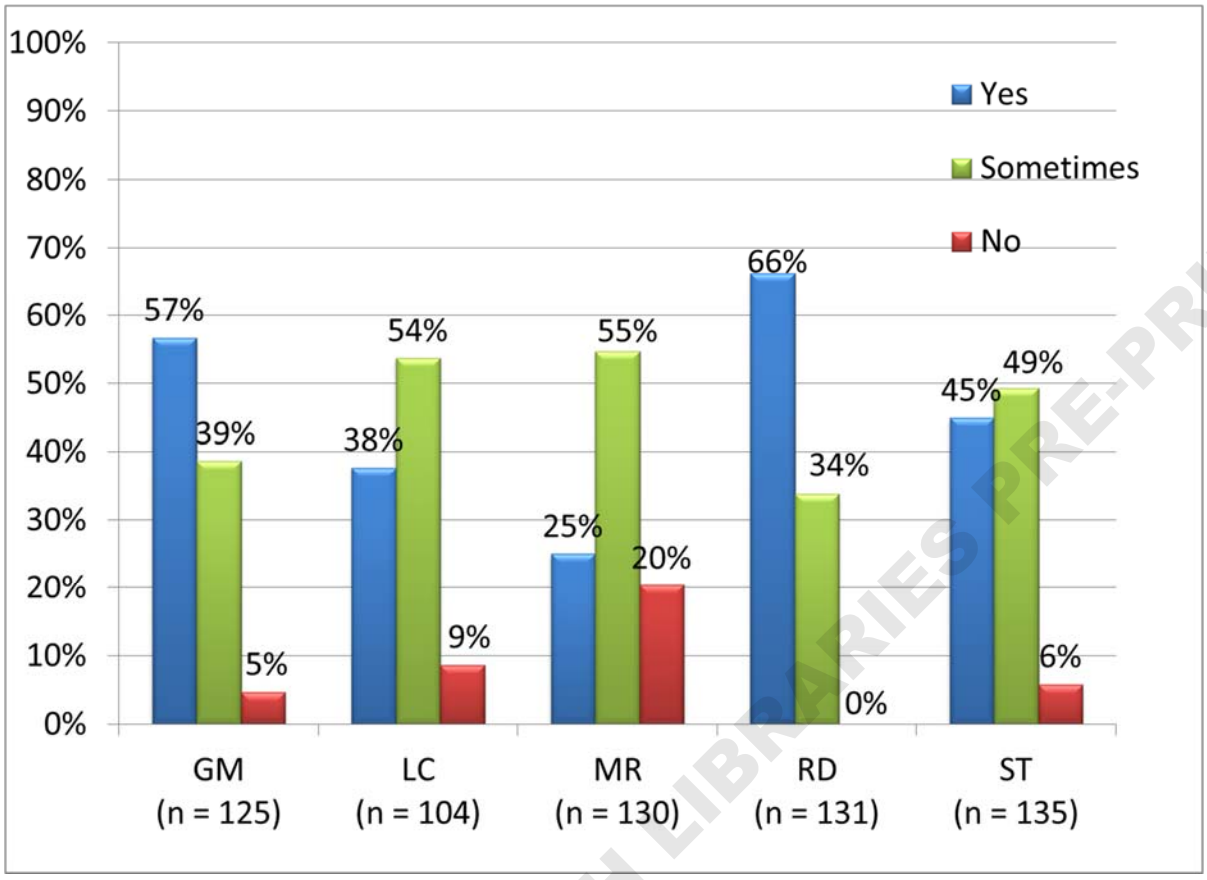


Figure 8. Questionnaire respondents' opinions about whether the library is a good place to do group work.

Table 8. Percentage of people observed working in groups

Group size	GM (n = 3141)	MR (n = 2077)	LC (n = 712)	RD (n = 1711)	ST (n = 1627)	Total (n = 9268)
2	18	11	15	17	16	16
3	8	8	7	9	8	8
4	4	5	2	7	6	5
5	3	2	1	2	3	2
6 and up	<1	2	0	1	2	<1
All groups	32	26	25	35	33	31

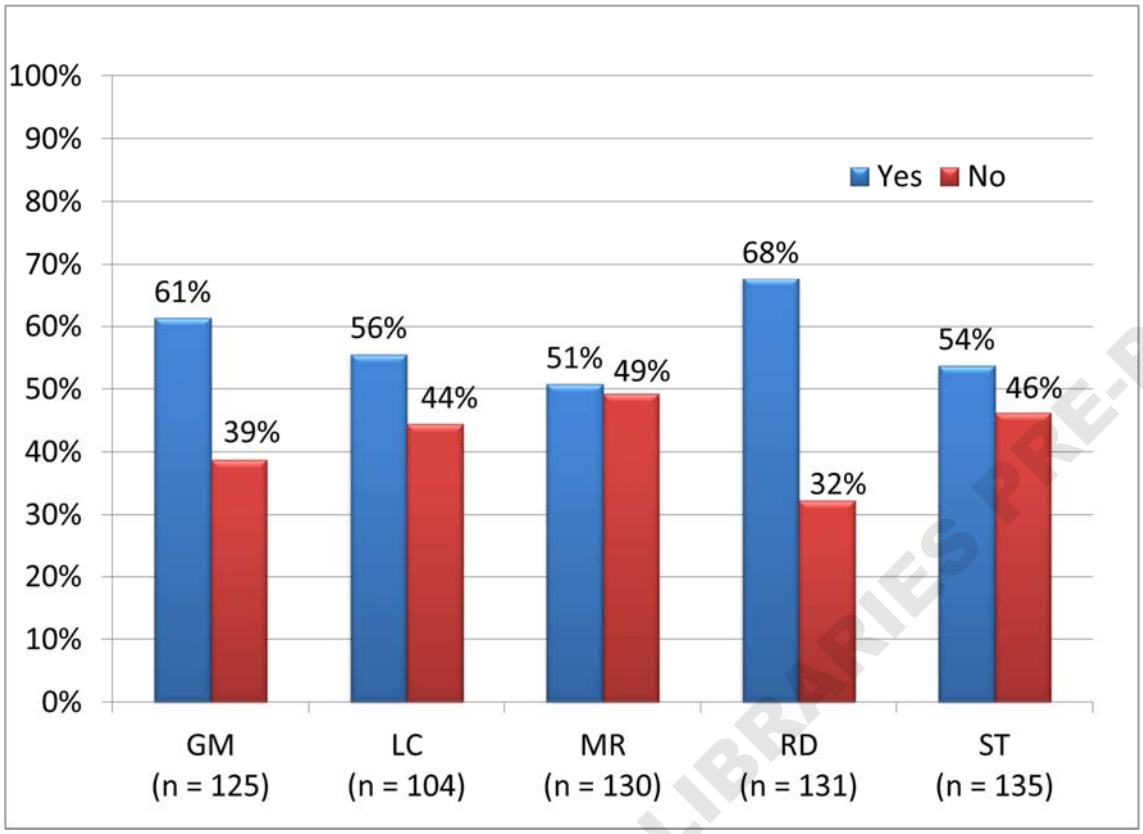


Figure 9. Do you have a favourite location or place in the library?

Appendix 1: Student Questionnaire

Part A. About how you use the library

1. When you come to the library to do schoolwork which do you do most often:
   - ☐ Work or study by yourself
   - ☐ Work or study independently, but with another person or group
   - ☐ Work or study with another person or a group on a group project
   - ☐ I do not come to this library to do schoolwork
   - ☐ Other (please explain below)

2. Think of all the schoolwork that you do outside of class time. What percentage of that work do you estimate that you do in this library?
   ☐ 0 ☐ Less than 25% ☐ 26 – 50% ☐ 51 – 75% ☐ 76 – 100%

3. How frequently do you visit this library?
   - ☐ Several times a day
   - ☐ Once a day
   - ☐ Several times a week
   - ☐ Once a week
   - ☐ About once a month
   - ☐ About once a semester
   - ☐ It varies (please explain below)
   - ☐ Other (please explain below)

4. How long do you usually spend in the library?
   - ☐ Less than 15 minutes
   - ☐ 15 – 30 minutes
   - ☐ 31 – 60 minutes
   - ☐ 1- 2 hrs
   - ☐ More than 2 hours
   - ☐ It varies (please explain below)
   - ☐ Other (please explain below)

5. Is this library a good place to work by yourself?
   ☐ Yes ☐ No ☐ Sometimes

   a. Please explain your response.

6. Is this library a good place to do group work?
   ☐ Yes ☐ No ☐ Sometimes

   a. Please explain your response.

7. Please check the box(es) beside any activities that you have done <u>in this library</u> in the past year.
   - ☐ Worked on school work using the library computers
   - ☐ Worked on school work using a laptop
   - ☐ Borrowed or returned library materials
   - ☐ Physically searched for information (i.e. in the bookshelves)
   - ☐ Read or studied print materials <u>from the library</u>

- ☐ Read or studied print materials that you brought with you
- ☐ Used a group study room
- ☐ Got help from library staff
- ☐ Used the printers / photocopiers
- ☐ Attended a library instruction session or workshop or tour
- ☐ Socialised in person (i.e. chatting with friends)
- ☐ Socialised online (for example by using facebook or email)
- ☐ Ate
- ☐ Drank
- ☐ Took a nap
- ☐ Other (please list them below)

a. Please circle the main activity (above) that brought you to the library today. If it is not listed please write it in below.

Part B. About the place you chose to sit in the library today

Only answer the questions in this section if you have chosen a place to sit in the library today. If not, skip to Part C.

8. Why did you pick this specific location to sit the library today?

9. Is there anything about this location that makes it better or worse than other spaces for the activities you are doing in the library today? Please explain

☐ Yes ☐ No ☐ Not sure

Part C. Your opinions about the physical space

10. Do you have a favourite location or place in this library?

☐ Yes ☐ No (continue on to question 11)

a. If yes, what place is it?
b. What is it about that place that makes it your favourite?

11. Please share any other comments that you have about how you use this library, what this library means to you, or what you think about it as a physical space.

Part D. A Few Questions About You

12. Please check the box beside the category that matches your GPA (grade point average) last semester. If this is your first semester at this institution estimate what your GPA will be at the end of the semester

☐	< 1(F)	☐	1-1.6(D)	☐	1.7-2.6(C)	☐	2.7-3.6(B)	☐	3.7-4(A)	☐	Don't know

☐ I prefer not to answer this question

13. What is your gender (sex)?

14. Please select the box beside the age category to which you belong.

☐ < 18 yrs ☐ 18-24 yrs ☐ 25-30 yrs ☐ 31-40 yrs ☐ 41-50 yrs ☐ > 50 yrs

15. How many **semesters** have you been studying at this institution?

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ More than 8

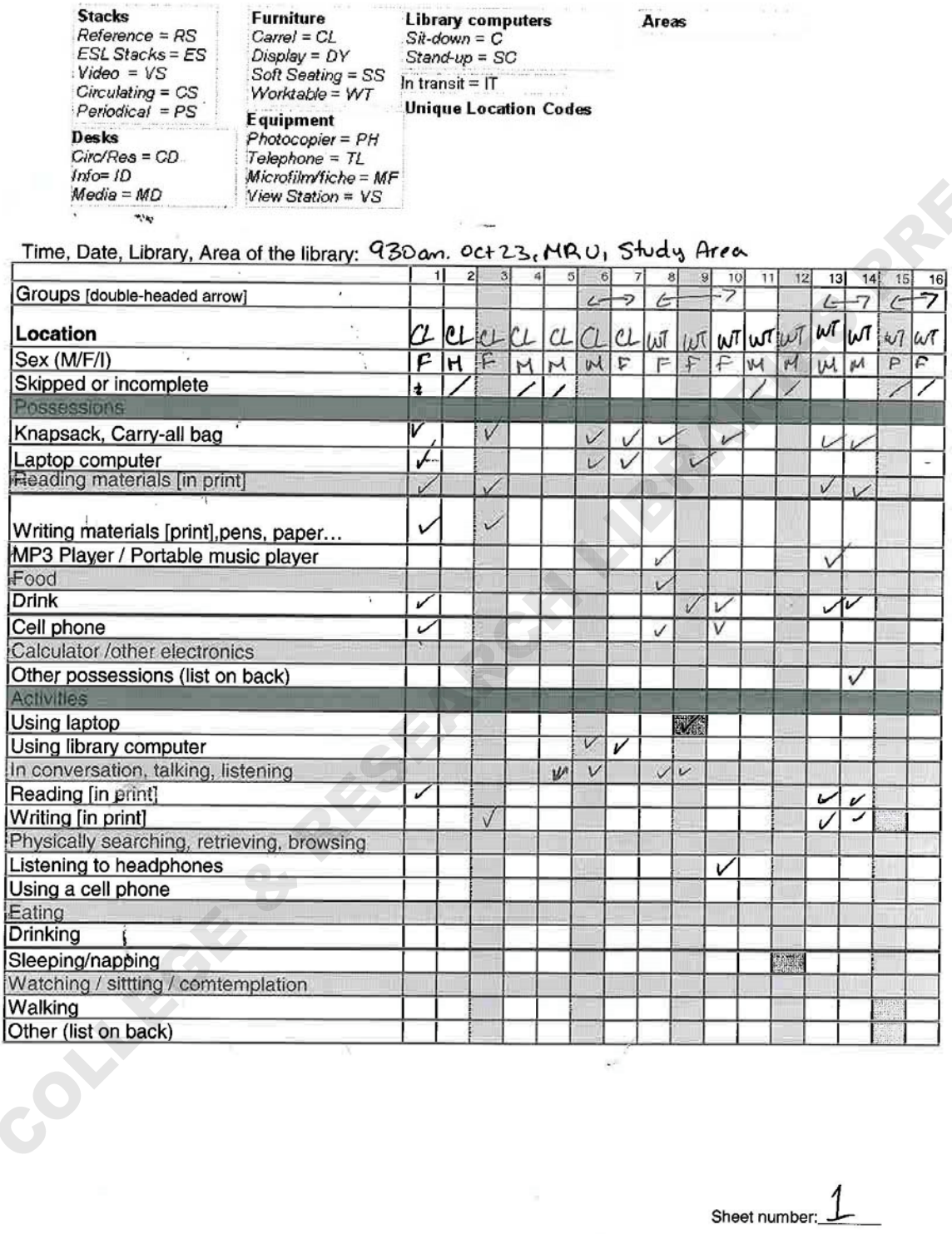
16. Please check the box beside your program of study.

☐ University Transfer
☐ Upgrading
☐ Continuing education
☐ Apprenticeship
☐ Trade
☐ Certificate
☐ Degree program (not applied)
☐ Applied degree
☐ Diploma
☐ Other (please explain below)
☐ Not sure

17. What is your topic of study? Which degree, diploma, trade, etc. are you studying?

18. Please share any other comments you have about this library or about this questionnaire.

Appendix 2: Seating Sweep Form (Sample)



Stacks
Reference = RS
ESL Stacks = ES
Video = VS
Circulating = CS
Periodical = PS

Desks
Circ/Res = CD
Info= ID
Media = MD

Furniture
Carrel = CL
Display = DY
Soft Seating = SS
Worktable = WT

Equipment
Photocopier = PH
Telephone = TL
Microfilm/fiche = MF
View Station = VS

Library computers
Sit-down = C
Stand-up = SC
In transit = IT

Unique Location Codes

Areas

Time, Date, Library, Area of the library: 930am. Oct 23, MRU, Study Area

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Groups [double-headed arrow]						↩→		←→					←→		←→	
Location	CL	CL	CL	CL	CL	CL	CL	WT	WT	WT	WT	WT	WT	WT	WT	WT
Sex (M/F/I)	F	M	F	M	M	M	F	F	F	F	M	M	M	M	P	F
Skipped or incomplete																
Possessions																
Knapsack, Carry-all bag	✓		✓			✓	✓	✓		✓			✓	✓		
Laptop computer	✓					✓	✓		✓							-
Reading materials [in print]	✓		✓										✓	✓		
Writing materials [print],pens, paper…	✓		✓													
MP3 Player / Portable music player								✓					✓			
Food								✓								
Drink	✓								✓	✓			✓	✓		
Cell phone	✓							✓		✓						
Calculator /other electronics																
Other possessions (list on back)														✓		
Activities																
Using laptop									✓							
Using library computer						✓	✓									
In conversation, talking, listening					✓	✓		✓	✓							
Reading [in print]	✓												✓	✓		
Writing [in print]			✓										✓	✓		
Physically searching, retrieving, browsing																
Listening to headphones										✓						
Using a cell phone																
Eating																
Drinking																
Sleeping/napping												✓				
Watching / sittting / comtemplation																
Walking																
Other (list on back)																

Sheet number: 1

Conclusion.

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