abstract: This study examines student use of and reaction to study spaces in academic libraries through the lenses of place attachment, including appropriation, affordance, and attention restoration theories. Experimenting with new methods of research (four of six methods were new), researchers identified the walking interview as the best for examining their research questions. They found that students identify the library as a study space, and they rely on the library and those within it to reinforce the discipline of study. Findings include more detailed insight into the “study ethos,” noise or distraction levels, decor, and other aspects of study spaces.

Introduction

Every student needs space to read, study, and think to succeed academically, but the elements that make up an ideal space for these activities are not fully understood. The library, a place where many students choose to study, is an ideal location to examine the elements that attract students to a space, that support their needs, and that they value.

To assist in the design of spaces that support successful study techniques, the researchers wanted to understand why students seek out specific spaces as well as what surroundings encourage them to stay longer, are used more often, and assist them in productivity. In addition, the researchers wanted to experiment with new methods of research that will add to the literature on the design of study spaces.

Research from the fields of library science, education, and psychology has improved our understanding of student needs for study spaces and of the cognitive functions involved in learning and memory. At the same time, great strides have been made in the field of environmental psychology to develop our understanding of how the attributes of spaces or places and our attachment to them impact our desire to use them and our ability to be productive within them. Knowledge of environmental psychology theories could inform library space and facility design to better support student needs. In looking for a theoretical and methodological approach that would add to the space studies...
already done, the researchers decided to use place attachment, including appropriation, affordance, and attention restoration theory, as lenses through which to examine questions around study spaces, particularly those in academic libraries.

This study was designed and implemented before the COVID-19 pandemic, and readers should consider the results within the context of what we now know about students post-pandemic. While much has changed, the researchers believe that studies focusing on place attachment and restoration are even more relevant now. In describing how Generation Z—people born between the late 1990s and the early 2010s—think about higher education institutions, Rachel Tanner and Larisa Hussak note two preferences that are applicable to this study. One is that students want to see their diverse identities reflected across the institution. The other is that students and their families, when assessing college options, favor those that have good resources to ensure students' well-being.1

Maintaining good mental health is critical to students' success. During the COVID-19 pandemic, 28 to 50 percent of undergraduates screened positive for major depressive disorder. Those from less stable economic backgrounds and traditionally marginalized races or ethnicities had the highest occurrences.2 EAB, a company that specializes in research and consulting to help education, has tracked the top factors in students' choices of a college or university. The company's annual surveys of thousands of students indicate that financial concerns, of course, remain the top factor, but an interesting change happened from 2020 to 2022. Three factors moved higher in the overall rankings: a beautiful campus, school spirit and traditions, and student facilities. Students and their parents paid more attention to both aesthetics and campus services, especially those affecting well-being.3

Washington State University (WSU) Vancouver is an ideal place to examine aspects of space and how students feel about the surroundings in which they read, study, and think. WSU Vancouver is a small commuter campus that had 3,577 students at the time of data collection in fall 2018. Its students use campus places, especially the library, to study between classes, to meet with classmates to work on group projects, and to have a quiet place away from home distractions. WSU Vancouver students are diverse, with 28 percent students of color and 43 percent first-generation college students. The average age is 25.4 The library occupies one floor of a building and has approximately 10,000 square feet of public space.

Literature Review

Research on Library and Other Study Spaces

There has been extensive research into academic library study spaces over the years. The book Assessing Library Spaces for Learning, edited by Susan Montgomery, assembles studies done before 2017. The research collected in the book offers an array of perspectives on library space assessments and how such spaces might better support student study needs.5 One chapter, by Karen Neurohr and Lucy Bailey, is especially relevant since it applies place attachment theory to academic library spaces.6 An overview of a wide variety of ethnographic methods is provided by researchers at Cornell University in an article published in 2016.7 A 2020 article by Xiang Ying Mei, Endre Aas, and Ove
Eide applies the servicescape model, which deals with the settings where services are provided, to academic libraries. A 2021 study by Priya Mehta and Andrew Cox looks at “homeness,” the qualities that make academic libraries feel like home. Young Hee Min and Soyeon Lee apply two concepts from environmental psychology—personal space, the region surrounding a person that they regard as theirs, and wall hugging, a preference for the edges instead of the center of a space—to a quantitative investigation of the use of quiet study space. Andrew Cox’s 2022 article about the design of academic libraries is a recent addition to the literature.

Theoretical Lens

Studies of place attachment, including appropriation, affordance, and attention restoration theory, explore reasons that people develop attachments to places and how these spaces can assist in emotional and cognitive restoration, stress reduction, and goal attainment. These factors can play a positive role in learning, and the research in this paper used place attachment theory as a starting point to understand student responses to physical library spaces.

Place Attachment

Place attachment can be generally defined as “the bonding that occurs between individuals and their meaningful environments.” Research has shown that place attachment can “create belongingness,” support memory, and provide “emotional and cognitive restoration and escape from daily stressors.” Place attachment can also develop out of the need for survival, when individuals develop connections to places that provide the necessities for survival and in which they feel secure.

For this research, the authors used the tripartite organizing framework developed by Leila Scannell and Robert Gifford. The framework “proposes that place attachment is a multidimensional concept with person, psychological process, and place dimensions.” The person dimension takes into account what individuals bring with them into a space, including experiences, expectations, and knowledge of the world, and the impact the space has on their sense of self. The process dimension examines the psychological interactions between people and places and considers three aspects of these interactions: affect, cognition, and behavior. Affect manifests itself in feelings of pride about the space and a general sense of well-being when there. Cognition involves the bonds that people form with a place because of events that happened there or when individuals see similarities between the space and their own identity. The behavior aspect considers such actions as choosing to spend more time within a space and remaining close to it. The place dimension of place attachment considers the characteristics of the place and how they support goals and “facilitate social relationships and group identity.” Appropriation, the process by which individuals turn a space into a specific place of importance, is another aspect of place attachment discussed in an article by Liliane Rioux, Fabrizio Scrima, and Carol Werner.

The sense of belonging and place attachment are related concepts. Jennifer Carter, David Hollinsworth, Maria Raciti, and Kathryn Gilbey note that belonging “may be thought of through the concepts of place attachment and place identity.” Ted Chodock
Place Attachment, Libraries, and Student Preferences

describes four facets of belonging that demonstrate how it is intertwined with place attachment. They are:

1. Psychological—a student has positive feelings about a place and begins to make connections because they think the people there are “their people.”
2. Spatial—a student finds spaces that provide “familiarity, comfort, security, and emotional attachment.”
3. Cultural—the opportunities a student has to connect with others from similar backgrounds.
4. Sociocultural—how a student participates in the learning activities of the institution and progresses from learning from others to the sharing of expertise.

Two articles that discuss the sense of belonging at libraries are by Jung Mi Scoulas and Rosalind Bucy. Scoulas’s 2021 article covers a survey at a large research institution and includes both physical and online spaces. Bucy’s 2022 study concentrates on Native American students at a land-grant campus.

Affordance

Most place attachment research has focused on “the steady, ‘slow’ development of strong attachments and stable meanings” but has failed to fully consider affordance theory. Affordance theory looks at how the features of an environment define the place and allow people to develop plans for action there. Because individuals bring their own history and understanding of the world into a space, different people perceive different possibilities within the same space. Affordance theory notes, however, that in addition to “immediately perceived place meanings,” other aspects of place attachment are slower to develop.
Attention Restoration Theory

Attention restoration theory, first developed by Stephen Kaplan, posits that specific features in an environment can assist in the recovery from mental fatigue and in restoring the ability for someone to focus their attention. Specifically, researchers note that “prolonged or intense cognitive effort depletes the ability to direct attention, and restorative environments assist in the recovery of directed attention.” Kaplan, in his early writings about attention restoration theory, noted that mental fatigue makes people irritable, easily distractible, and less able to pay attention. Research applying attention restoration theory to study spaces within academic libraries has shown that students report being able to complete their goals, want to stay longer, and return more often to spaces that meet the criteria for being restorative. Because restorative places provide some of the same positive results as place attachment does, the researchers included concepts from attention restoration theory when designing this study and analyzing their data.

Research Questions

This investigation sought to answer four research questions:

1. Do students assign place meaning to study spaces?
2. Do students develop place attachment to study spaces?
3. Do students indicate that specific study spaces help them employ good study habits?
4. What can we learn from using place attachment, affordance, and attention restoration theories when analyzing student comments about the spaces where they study that can help design better study spaces?

Methods

The researchers employed six different methods to gather data, three formal and three informal. IRB approval was sought, and this study was certified as exempt by the WSU Human Research Protection Program. By using a variety of methods, the researchers could combine findings from each method to help clarify results. In addition, they hoped to find new ways to understand student space needs and wanted to test methods that had rarely been used.

The three formal methods used were walking interviews, focus groups, and photo elicitation/autophotography. The three informal methods can be described as eight images/three phrases, love letter/breakup letter, and five adjectives. What follows are brief descriptions of each method.
Walking Interviews

In general, a walking interview involves one interviewer and one participant moving together through an environment and allowing it to influence the interview. There are many important considerations when setting up a walking interview, including whether the route is established by the interviewer or interviewee, how structured the questions are, and what aspects of the interview are recorded.27 The interview can use a standard set of questions or can be an unstructured discussion that arises from the moment and the stimuli of the environment. Studies suggest that allowing time to explore the unexpected interruptions of the environment can yield important insights.28 Interviewers may employ a variety of recording methods. They often choose such tools as tape recorders, GIS (geographic information system) mapping tools, photography, and GoPro video recorders to capture data.29

For this project, the researchers felt that the walking interview was an especially appropriate method because it would allow for exploration of the three place-appropriating behaviors defined by Rioux, Scrima, and Werner.30 A predetermined route was chosen starting from outside the library, crossing campus to the library front door, and then following a path, partially determined by the participant, through the public areas of the library. A GoPro camera (worn by the interviewee or, in one case, carried) was used to record audio and video of the interview. The interviewer took a few notes during the interview and made journal entries after the participant departed. Once inside, participants were prompted to engage with the space in different ways, including taking the interviewer on a tour of the library. Over the course of the interview, participants were given a series of 10 prompts, including:

• Tell me about the first time you remember using the library.
• When you look around the library, what do you see that reflects who you are?
• Take me on a tour of the library, and point out places you have used.
• Take me to your favorite spot in the library and tell me about it.

Prompts were selected to extract comments related to place attachment, affordance, and attention restoration criteria. See Appendix A for the instrument.

This walking interview method has some drawbacks. It works best with people who have enough mobility to move along the route. Recording devices may not pick up voices effectively if the environment is noisy or if the interviewee speaks quietly, and the devices may be distracting or uncomfortable for participants. To reduce noise and distraction, walking interviews were scheduled when the library was less busy. Participants were given the choice of wearing the GoPro camera on their head or carrying the camera.

Focus Group

The researchers chose the focus group method as an alternative for participants who may have difficulty navigating through a space or who were uncomfortable with the walking interview. A focus group is a common method of acquiring qualitative data from participants who have experience or familiarity with the topic being discussed. Each group typically consists of 6 to 10 people who are presented with open-ended
prompts. For this research, participants who had little experience in the library were put into a focus group rather than a walking interview since the interview questions assumed some library use.

Focus group participants were given three open-ended prompts by a moderator and asked to expand on their responses when appropriate. Sessions were audio recorded, and a notetaker was present to report which participants responded to a prompt. The three prompts were:

- Tell us about a recent experience you had studying alone. Describe the space you were in. What was helpful about the space? Not helpful about the space?
- Tell us about a recent experience you had working in a group for coursework. Describe the space you were in. What was helpful about the space? Not helpful about the space?
- If you were designing the perfect study space—one that you would want to use often and could be most productive in—what would be the essential features?

Common drawbacks of focus groups concern the need for a skilled moderator and how the “unnatural setting” and group dynamics may impact what is said. Another drawback, especially on a commuter campus where students frequently have family and work obligations, is the difficulty of finding a time that works for multiple participants and the facilitator. In addition, confusion over what spaces the participants referred to can occur when the spaces are not visible.

**Photo Elicitation/Autophotography**

Photo elicitation and autophotography are data-gathering methods that include the use of photographs and other images. Autophotography consists of “asking participants to take photographs of their environment and then using the photographs as actual data.” Photo elicitation uses “photographs or other visual mediums in an interview to generate verbal discussion to create data and knowledge.” In this research, photos were used in both ways with the focus groups. Researchers asked the participants to take up to five photos of places they use regularly for studying, whether or not the locations are their favorite places, and to submit these prior to the focus group. Before a session started, participants were given three sets of photographs and asked to arrange the images in the order of best to worst match for each of three phrases:

- I would be most productive here.
- I would stay longer in or return more often to this place.
- This space is closest to my ideal study space.

The researchers were curious how participants would rank the study spaces using criteria found to support successful learning in attention restoration theory research and that reflect behaviors associated with place attachment. In addition, the researchers felt that having participants go through this exercise before the focus group discussion might help them recall specifics of spaces that they might mention. It must be noted, however, that this exercise may also have influenced the direction of the focus group discussions.
Eight Images/Three Phrases

This informal data-gathering method was designed by the research team. At the campus Back to School Fair, where students gather to learn about services and clubs and to enjoy outdoor activities, researchers set up a table and displayed eight images of different study spaces. Passing students were asked to take three slips of paper, each with a different phrase typed on it, and match each phrase with the space that seemed like the best fit. The same phrases were used as in the photo elicitation exercise described in the previous section:

- I would be most productive here.
- I would stay longer in or return more often to this place.
- This space is closest to my ideal study space.

This method had the advantage of attracting many participants, and although demographic information was not collected, researcher observation indicated that participants represented a wide variety of demographic groups. The method yielded a
Figure 2. The eight images/three phrases method asked participants to arrange eight photos of study spaces in the order of best to worst match for three phrases: (1) I would be most productive here, (2) I would stay longer in or return more often to this place, and (3) This space is closest to my ideal study space.
large quantity of data but had multiple drawbacks. It was a challenge to locate enough high-quality images showing environments that included or excluded features of interest to the researchers. The nature of the event, with students expecting a brief interaction at each table, made capturing any additional data about the participants impractical, so no demographic data were collected.

**Five Adjectives**

This method was developed by the researchers as an additional way of examining responses to the pictures used in the eight images/three phrases method. A display in the library showed the eight images and asked students to list five adjectives “to describe your overall impression of the study space depicted in the picture” for any of the images they chose. The display was on wheels and moved around to various places in the library. The goal of gathering these adjectives was to get a sense of student reactions to the spaces depicted and see how those reactions might inform results from the eight images/three phrases method. Participation was too low for results to be analyzed, however.

![Figure 3. A display in the library showed eight photos of study spaces and asked students to describe their overall impressions of the spaces depicted.](image)
Love Letter/Breakup Letter

This method has been used for participatory design of websites and has been employed by some libraries in UX (user experience) research.35 Participants are asked to write a love letter to their favorite aspect of a website or library and a breakup letter to their least favorite. The goal of this method is to capture nuances of how people are attracted to a space. Researchers adapted this method to focus specifically on physical library spaces. They placed blank paper, pencils, a collection box, and instructions in study areas around the library and invited patrons to write a love letter or breakup letter to the space in which they sat. Participation was too low for analysis. Only five students participated and only one reply demonstrated an understanding of the exercise.

Population

The population for this study was the undergraduate students at WSU Vancouver. For the three formal methods, ads in the student newspaper, tables at campus events, and ads posted around campus (including the library) were used to elicit names and contact information for students interested in participating. A screening questionnaire was used to create a purposive sample from those expressing interest to ensure representation around six key demographic criteria (see Appendix B for the full questionnaire.) The screening questions asked prospective participants if they started as first-year students or transferred in with 30 or more credits, how many semesters they had been at WSU Vancouver, and their age group, gender, major, and frequency of library use.

Formal Methods

A staff member who was not involved with data collection or analysis gathered all screening questionnaires and removed names and contact information before giving them to the researchers. The researchers analyzed the “scrubbed” questionnaires to select representative participants based on the six criteria. Respondents who indicated they were not frequent library users were put into focus groups since the questions for the walking interviews assumed regular library visits. Due to time and scheduling constraints, the researchers decided to limit the number of walking interviews to 11 and to restrict focus groups and photo elicitation to three or four sessions with five to eight participants each. Finding a time when potential participants were all available proved challenging. The result was four groups of two or three participants each, n = 9.

To reduce influence from the presence of library personnel on what participants were willing to say, the research partner not associated with the institution conducted the walking interviews and facilitated the focus groups. A member of the library faculty who was not identified as a library employee was the notetaker for the focus groups.

Eleven students participated in individual walking interviews. While there were nine majors represented and representation from each age group, this sample did not mirror campus demographics. Nine students participated in the photo elicitation and focus group method in a total of four sessions. Participants in the focus groups represented nine majors with good representation from age groups and some variety in library experience. Participants did not mirror the campus in age, gender, or transfer status, however.
Table 2.
Participant demographics for walking interviews (n = 11)

<table>
<thead>
<tr>
<th>Transfer status*</th>
<th>Time on campus</th>
<th>Age†</th>
<th>Gender‡</th>
<th>Major</th>
<th>Library experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 first year, 7 transfer</td>
<td>5 two years or less</td>
<td>5 age 18–22</td>
<td>5 male, 9 majors</td>
<td>11 frequent</td>
<td></td>
</tr>
<tr>
<td>3 more than two years</td>
<td>3 age 23–30</td>
<td></td>
<td>5 female, 1 nonbinary or prefer not to say</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3 over 30</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Overall campus is 31% first year, 49% transfer.
†Campus average age is 25.
‡Campus, with only binary choices offered, identifies as 54% female, 46% male.

Table 3.
Participant demographics for focus groups and photo elicitation (n = 9)

<table>
<thead>
<tr>
<th>Transfer status*</th>
<th>Time on campus</th>
<th>Age†</th>
<th>Gender‡</th>
<th>Major</th>
<th>Library experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 first year, 4 transfer</td>
<td>6 two years or less</td>
<td>3 age 18–22 years, 3 age 23–30 years, 3 over 30</td>
<td>2 male, 7 female</td>
<td>9 majors represented</td>
<td>5 frequent, 2 occasional, 1 first time</td>
</tr>
<tr>
<td>3 more than two years</td>
<td></td>
<td></td>
<td>1 nonbinary or prefer not to say</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Overall campus is 31% first year, 49% transfer.
†Campus average age is 25.
‡Campus, with only binary choices offered, identifies as 54% female, 46% male.
Informal Methods

All three informal methods used convenience sampling, and no demographic data were collected. Results of the eight images/three phrases method will be reported in the “Results” section. Approximately 235 undergraduate students participated in this method. The other two informal methods, eight adjectives and love letters, did not produce enough participation to be analyzed.

Results

Thematic Analysis of Walking Interviews and Focus Groups

To analyze the results from the focus groups and walking interviews, the researchers used a thematic analysis approach driven by key themes from place attachment, affordance, and attention restoration theories. The researchers identified 27 themes from the three theories that could relate to library space. Of these, 20 were used in the thematic analysis, with the other 7 employed in other ways during the study. This type of analysis “is particularly useful when you have a set of theoretical concepts you want to apply or test in a novel context. The aim . . . is to see if they are of use in making sense of the situation you are interested in.” Each researcher looked at the data separately and then discussed their ideas. If there was disagreement, the researchers looked at the transcripts together and came to a consensus.

Table 5 provides overall scores for each theme and each method. The scores indicate that aspects of place attachment and affordance played an important role in participants having positive reactions to either the library as a whole or specific areas of the library.

Participants agreed that the most important aspects of the space were familiar social structures and settings, a connection with the ambience (based on senses), and physical properties that allowed them to do what they wanted. These factors fell in the top 25 percent. Participants also ranked as important a sense of well-being in the space and feeling like an insider. These occurred in the third quartile. Three additional themes, physical properties that allow for a positive atmosphere, facilitating social bonds and relationships, and having symbolic meaning, fell into the third quartile in one ranking and into the top 25 percent in the other two. One theme, “fits schema of places with meaning,” fell into the third quartile in two of the three rankings and into the top 25 percent in the other.

The results of a few other themes are worthy of mention. The differences seen between walking interview and focus group results for “Time spent in place” might have resulted from those with the least library experience being assigned to focus groups. The results of “Displays territoriality” indicates how to read some of the differences seen in the chart. This theme scored in the third quartile in the focus groups because it
### Table 4.
Theme definitions

<table>
<thead>
<tr>
<th>Theme</th>
<th>Definition</th>
<th>Examples of responses mapped to this theme</th>
</tr>
</thead>
<tbody>
<tr>
<td>Place attachment (used in walking interviews and focus groups)*</td>
<td>Place attachment, person</td>
<td>Shared individual/group/culture meaning for a place</td>
</tr>
<tr>
<td></td>
<td>Symbolic meaning</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Invoke personal memories</td>
<td></td>
</tr>
<tr>
<td>Important milestones</td>
<td>Place where personally important event or realization happened</td>
<td>None mentioned.</td>
</tr>
<tr>
<td>Place attachment, process</td>
<td>Familiar social structures and settings</td>
<td>“Books, books”; “Big windows.”</td>
</tr>
<tr>
<td></td>
<td>Time spent in place</td>
<td>“Use every opportunity between classes.”</td>
</tr>
<tr>
<td></td>
<td>General sense of well-being in place</td>
<td>“Like the atmosphere”; “Really enjoy.”</td>
</tr>
<tr>
<td></td>
<td>Fits schema of place with meaning</td>
<td>Has features associated with that type of place.</td>
</tr>
<tr>
<td></td>
<td>Self-definition</td>
<td>Place supports self-definition; place provides information about one’s similarity or distinctiveness</td>
</tr>
<tr>
<td>Feeling like insider</td>
<td></td>
<td>“Nice sometimes to see a mix of ages (because I am an older student)”; “Place to work—didn’t want to be by myself.”</td>
</tr>
<tr>
<td>Feelings of pride in place</td>
<td></td>
<td>“This is an awesome library; it is the best spot.”</td>
</tr>
<tr>
<td>Theme</td>
<td>Definition</td>
<td>Examples of responses mapped to this theme</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>---------------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Displays territoriality</td>
<td>Sense of ownership of space and control over space</td>
<td>“Like to control the environment”; comfortable; changes the drapes [blinds].</td>
</tr>
<tr>
<td>Seeks out similar space in new spaces</td>
<td>Will try to reconstruct new place like old; will seek out a new place that is as similar as possible to old place</td>
<td>“Same access to computers as at home; same student rooms as Clark [College] has.”</td>
</tr>
<tr>
<td>Place attachment, place</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proximity to other places</td>
<td>Place is close to other places of importance</td>
<td>Writing center, outdoors.</td>
</tr>
<tr>
<td>Facilitates social bonds/relationships</td>
<td>Others important to you are in same place or others to whom you want to bond are in this place</td>
<td>Staff are helpful/nice, not left to figure [things] out. Everyone is focused; many study groups; easiest for study groups.</td>
</tr>
<tr>
<td>Community of interest</td>
<td>Connections between people based on lifestyle and common interests</td>
<td>“Nice to be surrounded by people doing the same thing.”</td>
</tr>
<tr>
<td>Survival</td>
<td>Place supplies necessities for survival like water</td>
<td>Water, restroom, lobby (for phone calls).</td>
</tr>
<tr>
<td>Sense of safety</td>
<td>Offers protection and sense of physical or emotional security</td>
<td>Library was place student felt comfortable going first; “expected for the individual to respect others.”</td>
</tr>
<tr>
<td>Provides resources/amenities to support one’s goals</td>
<td>[Researchers analyzed this as part of Affordance.]</td>
<td></td>
</tr>
<tr>
<td>Appropriation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diversity of destinations</td>
<td>How many different destinations are used within the place</td>
<td>A number of separate locations mentioned. Not used in thematic analysis.</td>
</tr>
<tr>
<td>Affordance (used in walking interviews and focus groups)†</td>
<td>Based on senses</td>
<td>Noise, light.</td>
</tr>
<tr>
<td></td>
<td>Immediate reaction</td>
<td>Not included in thematic analysis count.</td>
</tr>
<tr>
<td></td>
<td>Physical properties allow for action</td>
<td>Nice and light, people working.</td>
</tr>
<tr>
<td></td>
<td>Physical properties allow for atmosphere</td>
<td>Quick print, use computer, be private.</td>
</tr>
<tr>
<td></td>
<td>Mention of specifics</td>
<td>Views of nature, quiet room.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Whiteboards, wooden carrels.</td>
</tr>
</tbody>
</table>
was mentioned in three of four groups, representing three participants. In the walking interviews, however, this theme was only mentioned by 2 of the 11 participants and only once by each. How this theme scored in the combined category may be more representative of its importance.

In most place attachment studies, appropriation is defined to include how many different destinations are used, how many landmarks are known, and how many routes are used to navigate through the place. For this study, researchers counted only the number of destinations in the library mentioned by each participant in the walking interviews. Because the library is small, the number of landmarks and routes used to navigate it were not considered applicable. Considering the small size of the library, the researchers were surprised that the number of locations mentioned by participants ranged from 4 to 16, with a median of 9. Ten locations were the most common, named by three participants. In contrast, participant WI5, who displayed place attachment, noted that the library was the place to go when they were new, that it was a perfect place to hang out between classes, and that it felt like “them.” That participant had gone to only four locations, however, and admitted to using only about one-third of the library’s space.

As seen in Table 5, the researchers identified five themes connected to affordance. Only three were included in the thematic analysis because the walking interview included direct prompts for the other two themes and therefore all participants would speak to those. The verbal responses to those prompts will be covered in the “Discussion” section.

Looking at the overall scores, affordance stands out as the most-mentioned theory since all three of its themes appear in the top two quartiles. Within the tripartite definition of place attachment, the process aspect was mentioned most frequently, with five of its nine statements falling in the top two quartiles. Participants did not identify the library as a place in which they experienced important milestones.
Table 5.
Theme results*

<table>
<thead>
<tr>
<th>Theme</th>
<th>Theory</th>
<th>Walking interviews where mentioned (n = 11)</th>
<th>Focus groups where mentioned (n = 4)</th>
<th>Combined interviews and focus groups where mentioned (n = 15)</th>
<th>Total mentions in walking interviews</th>
<th>Total mentions in focus groups</th>
</tr>
</thead>
<tbody>
<tr>
<td>Familiar social structures and settings</td>
<td>Place attachment, process</td>
<td>11</td>
<td>4</td>
<td>15</td>
<td>42</td>
<td>14</td>
</tr>
<tr>
<td>Based on senses</td>
<td>Affordance</td>
<td>11</td>
<td>4</td>
<td>15</td>
<td>31</td>
<td>27</td>
</tr>
<tr>
<td>Physical properties that allow for action</td>
<td>Affordance</td>
<td>11</td>
<td>4</td>
<td>15</td>
<td>42</td>
<td>14</td>
</tr>
<tr>
<td>Physical properties that allow for atmosphere</td>
<td>Affordance</td>
<td>11</td>
<td>4</td>
<td>15</td>
<td>28</td>
<td>8</td>
</tr>
<tr>
<td>Facilitates social bonds/relationships</td>
<td>Place attachment, place</td>
<td>11</td>
<td>3</td>
<td>14</td>
<td>28</td>
<td>5</td>
</tr>
<tr>
<td>Symbolic meaning</td>
<td>Place attachment, person</td>
<td>10</td>
<td>4</td>
<td>14</td>
<td>16</td>
<td>12</td>
</tr>
<tr>
<td>Time spent in place</td>
<td>Place attachment, process</td>
<td>11</td>
<td>2</td>
<td>13</td>
<td>19</td>
<td>2</td>
</tr>
<tr>
<td>General sense of well-being in the place</td>
<td>Place attachment, process</td>
<td>9</td>
<td>3</td>
<td>12</td>
<td>15</td>
<td>7</td>
</tr>
<tr>
<td>Fits schema of places with meaning</td>
<td>Place attachment, process</td>
<td>7</td>
<td>4</td>
<td>11</td>
<td>14</td>
<td>13</td>
</tr>
<tr>
<td>Feeling like insider</td>
<td>Place attachment, process</td>
<td>9</td>
<td>1</td>
<td>10</td>
<td>17</td>
<td>4</td>
</tr>
</tbody>
</table>
Table 5, cont.

<table>
<thead>
<tr>
<th>Theme</th>
<th>Theory</th>
<th>Walking interviews where mentioned ($n = 11$)</th>
<th>Focus groups where mentioned ($n = 4$)</th>
<th>Combined interviews and focus groups where mentioned ($n = 15$)</th>
<th>Total mentions in walking interviews</th>
<th>Total mentions in focus groups</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proximity to other places</td>
<td>Place attachment, place</td>
<td>8</td>
<td>2</td>
<td>10</td>
<td>10</td>
<td>2</td>
</tr>
<tr>
<td>Self-definition</td>
<td>Place attachment, process</td>
<td>7</td>
<td>2</td>
<td>9</td>
<td>12</td>
<td>3</td>
</tr>
<tr>
<td>Invokes personal memories</td>
<td>Place attachment, person</td>
<td>7</td>
<td>1</td>
<td>8</td>
<td>12</td>
<td>4</td>
</tr>
<tr>
<td>Feelings of pride in place</td>
<td>Place attachment, process</td>
<td>5</td>
<td>1</td>
<td>6</td>
<td>12</td>
<td>1</td>
</tr>
<tr>
<td>Community of interest</td>
<td>Place attachment, place</td>
<td>5</td>
<td>1</td>
<td>6</td>
<td>9</td>
<td>1</td>
</tr>
<tr>
<td>Survival</td>
<td>Place attachment, place</td>
<td>5</td>
<td>1</td>
<td>6</td>
<td>9</td>
<td>3</td>
</tr>
<tr>
<td>Displays territoriality</td>
<td>Place attachment, process</td>
<td>2</td>
<td>3</td>
<td>5</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>Seeks out similar new places</td>
<td>Place attachment, process</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Sense of safety</td>
<td>Place attachment, place</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Important milestones</td>
<td>Place attachment, person</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

*For each of the last three columns, boldface indicates a theme in the top 25% of responses, and italic indicates the third quartile.*
Figure 4. The floor plan of the Washington State University Vancouver Library.

Photo Elicitation

Before the focus groups, each participant was asked to take up to five pictures of places in which they study and submit them to the research assistant. Participants were given three copies of each picture and asked to rank the space based on how well it matched the following statements:

- I would be most productive here.
- I would stay longer in or return more often to this place.
- This space is closest to my ideal study space.

No participant ranked the same space “best” for all three statements, and only five (n = 9) ranked the same space “best” for two of the statements. There was slightly more agreement on which places were worst. Two participants ranked the same space “worst” for all three statements, and six participants ranked the same space “worst” for two of the three statements.
Eight Images/Three Phrases

Of the informal methods, only the eight images/three phrases method had enough participation to analyze the results. This exercise had approximately 235 participants. Votes were tallied by each of the three statements for all eight photos, and the results were examined by the number of votes per statement for each image. Quartiles were calculated to assist in looking for patterns. Carrels were seen as spaces in which someone can be most productive and as closest to ideal study spaces. Modern open seating with ample windows and the outdoor balcony space were seen as spaces best suited for staying longer or returning more often.

Discussion

Population

Since the methods employed in this study were qualitative and thematic analysis was used to analyze most of the data, the researchers acknowledge that the results are not generalizable to other small academic libraries. Rather, the intent was to test different methods, examine how place attachment and other theories might assist in understanding what features in library spaces are important to students, and identify future research questions.

With the exception of the eight images/three phrases method, sample sizes were small. Nevertheless, a diversity of voices was represented in both the walking interviews and the focus groups, with especially good representation of majors, ages, and transfer status. Participants in the walking interviews were all frequent library users, which must be taken into account since repeated use of a space is one indicator of place attachment. The focus group participants were mostly female. Researchers decided not to ask demographic questions about race, ethnicity, or disability. Prior research on this campus indicated that other methods of recruitment are needed to encourage traditionally minoritized groups to participate. Researchers in this current study intend to learn from their research, further refine the methods, and then reach out to other groups on campus to include their voices. The interviewer in the walking interviews noted that two participants were differently abled. One self-identified when talking about chairs, and the other asked the interviewer to walk more slowly and allow for breaks because of an unspecified disability. In addition, one focus group participant arrived in a wheelchair but moved to a stationary chair for the focus group. The value of being inclusive in this research was brought home when considering the comments from these participants. One person whose disability was hidden talked about the unwieldy chairs at many tables and the heavy bathroom doors, which created barriers for them. The participant in the wheelchair noted how the extension cords and surge protectors that are provided because of a lack of outlets in the library created problems in navigation.
Table 6.
Results of eight images/three phrases exercise

<table>
<thead>
<tr>
<th>Photograph</th>
<th>I would be most productive here (n = 235)</th>
<th>I would stay longer or return more often to this place (n = 234)</th>
<th>This space is closest to my ideal study space (n = 236)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carrel at window</td>
<td>1st (78)</td>
<td>2nd (26)</td>
<td>1st (43)</td>
</tr>
<tr>
<td>Carrel—red</td>
<td>1st (66)</td>
<td>2nd (30)</td>
<td>1st (61)</td>
</tr>
<tr>
<td>Modern open seating and windows</td>
<td>2nd (24)</td>
<td>1st (43)</td>
<td>2nd (39)</td>
</tr>
<tr>
<td>Library outdoor balcony</td>
<td>3rd (18)</td>
<td>1st (52)</td>
<td>2nd (40)</td>
</tr>
<tr>
<td>Beanbag</td>
<td>4th (13)</td>
<td>1st (66)</td>
<td>3rd (17)</td>
</tr>
<tr>
<td>Alone</td>
<td>3rd (18)</td>
<td>4th (6)</td>
<td>3rd (15)</td>
</tr>
<tr>
<td>New library traditional</td>
<td>3rd (15)</td>
<td>4th (8)</td>
<td>3rd (15)</td>
</tr>
<tr>
<td>Library modern, crowded</td>
<td>4th (3)</td>
<td>4th (3)</td>
<td>4th (6)</td>
</tr>
</tbody>
</table>

*Quartile ranges are 4th quantile 43–78; 3rd quartile 21–42; 2nd quartile 14–20; 1st quartile 0–13.

Methods

The formal methods employed in this study worked well. The walking interview was especially informative, and researchers look forward to using it again. Much information was gained and was easy to analyze. There was never a question about which space a participant was referring to, and seeing particular items or features reminded participants to make comments that they may not have otherwise remembered. The interviewer, who was also the facilitator for the focus groups, felt that the “power distribution” was more balanced. The interviewee had more control of the experience, with the interviewer going along. The downside of this method was the time that it takes to schedule, conduct, and analyze the interviews, although the researchers feel that it is worth the investment.

Where the interviewer and participant met changed between the first and second set of walking interviews. Originally, they met at a bus kiosk near the main area of campus. This is an exterior place, protected from the weather, easily identifiable, and within a short walk to the library. During the first set of interviews, however, the interviewer noted that a much greater percentage of males participated. The researchers had thought about safety when meeting participants outside after dark, and they made sure that the interviewer was identifiable and the bus stop well lit. Nevertheless, they wonder if safety was a concern for female participants. After several interviews, the meeting place...
was moved to a location within the building housing the library but outside the library itself. More females responded in the second set.

Overall, these researchers highly recommend the walking interview method for gathering detailed user input about library spaces. Careful consideration should be given for its use if participants have physical challenges, and its usefulness would need to be tested for those who do not regularly use the library.

The main concern with the focus group method is a common one, the difficulty in scheduling sessions, which is increased on a commuter campus where students may not come to campus regularly. As mentioned earlier, the results from the thematic analysis for the theme of “time spent in library” may look more discordant than they really are because of the difference in demographics between the focus group and walking interview participants. By design, participants with less experience in the library were placed into focus groups.

Pairing the focus group method with the photo elicitation method may have influenced the discussion in the focus groups since participants ranked their photos of study spaces just before the group started. The researchers are skeptical about the value of the photos in this particular study. The lack of participants and doubts about the representativeness of the photos, even to the participants taking them, meant that they were not useful in identifying specifics.

Of the three informal methods employed in this study, one was successful while two were not. The eight images/three phrases method went as planned, and participation was high. Timing and visibility are important in garnering participation. This method was employed as part of a long-standing, popular campus event, one in which the library offers a fun participatory activity each year. The only difficulty associated with this method involved the challenge of finding high-quality images that depicted the wanted attributes without showing others. The researchers were not entirely happy with the images found and would encourage others to build in time to take their own pictures so they can control what is shown.

A disappointing aspect of this study was the lack of participation in the other two informal methods, five adjectives and love letters. Researchers had hoped that these fun and quick methods would attract participation, especially since they took place within study areas of the library. Students ignored both methods, however. Researchers are mystified about why, especially when similar methods have been successful at other libraries. The only guess—and it is only a guess—is that the student population on this campus is older and is so seldom on campus because of other life commitments that they lack the time to participate.
Findings

The Meaning of Study Spaces for Students

Research question 1 asked, “Do students assign place meaning to study spaces?” Results indicated that students choose to study in spaces to which they assign meaning. This meaning is centered around the idea of imposing discipline to get schoolwork done. One participant, FG21, noted that the library “puts me in a school mindset—pretty helpful,” while WI29 commented that “seeing the books and silence—it tells me it is a library.” (Focus group and walking interview participants are identified by the abbreviations FG and WI, respectively.) Two aspects of the space were key to viewing the library as an important place to study: the books and the presence and behavior of the people there. One participant, WI8, compared seeing the books and others studying to “a community of minds that are stretching all at the same time—which is nice.” WI122 remarked, “The library focuses me on my homework—everyone else is doing their work so I should instead of being on my phone or messing around.” In fact, the presence of people within the space is key, as exemplified by WG15’s comment “I really like the atmosphere when I go in there because everyone is focused—it is nice to be around that kind of environment.” Being part of a community yet working individually was also mentioned. For example, FG119 stated that “people passing, not sequestered in corner—improves productivity.” FG121 noted that they liked “being part of everything but not having to be involved with it. Having awareness of what is going on.” Finally, WI23 pointed out that “other places can’t expect” users to keep their voices low, “but in the library [there is] more respect for individuals around.”

Another way that students indicated their application of meaning to the library was through their comments about their first time on campus or in the library. WI5 said that the “first week, first semester, I didn’t really know any places on campus, so the library was a go-to place for me.” WG29 mentioned that when students need to find their first good study space, “the library usually is it.” A few transfer students mentioned that they brought prior positive experiences in academic libraries with them, noting that on a new campus, the library would be “a comfortable space going into” (WI28) and “a quiet place to get work done in” (WI26).

Place Attachment to Study Spaces

Research question 2 asked, “Do students develop place attachment to study spaces?” Students display behaviors and refer to library spaces in ways that demonstrate their place attachment to the settings. While themes for the person aspect of place attachment were mentioned less frequently, one personal recollection stood out. Participant WI7 reported that they attended preschool on campus and that a favorite memory was walking with a parent after school and stopping by the library for the bathroom and the water fountain. This participant felt connected to the library and visited it the first day they arrived on campus as a college student.
Many themes from the process aspect of place attachment are represented in comments. The library clearly has features that students expect to see in a place to study. WI15 declared, “I really like the atmosphere when I go there because everyone is focused; [it] is nice to be around that kind of environment.” FG3 noted that the “books—look at all of these different peoples’ thoughts on the same thing—helps me understand a bit more.” Supporting their self-definition or feelings of being an insider also came up, exemplified by WI8’s comment, “Nice sometimes to see a mix of ages because I am an older student.” The ability of specific furnishings to speak to self-definition came out as WI5 commented on a line of carrels next to the windows, saying, “I am [a] private reserved person, that is what I like, private spaces.”

While territoriality was mentioned less often than other themes, a few students definitely claimed library space, if not for themselves directly, then as a space in which certain activities should be avoided. FG3 reported that when a table of students started to play music from the rock band Queen, another student asked them “Seriously?” and the music was turned off. WI28 told some students who were talking in the quiet room to “Leave—this is a library.” The same participant also noted how sometimes the actions of students in the juvenile room (where the juvenile book collection is kept) were just that—juvenile. This participant (WI28) also demonstrated territoriality by noting that they logged into every computer on their first visit so that their individual profile would come up more quickly as they used the computers throughout the semester. The comments of another participant, FG6, indicated how territoriality, along with place attachment, may slowly develop. This individual noted that they at first hesitated to close the blinds even when the sun caused problems because they were not sure if they should do so. But, in time, they felt comfortable opening and closing the blinds.

While the place aspect of place attachment was mentioned less often than the process aspect, the specific themes of “supportive of social bonds” and “community of interest” came together in student responses. They were expressed most directly through students identifying with the social group of “students studying at this institution.” Being in the library helped these participants focus on their group identity as students with schoolwork to do. As noted previously, WI8 described the library as a place that has a “community of minds that are stretching all at the same time.” FG3 compared this community to their home study area, saying that in the “library people murmuring about what they are doing, etc., helps me focus as compared to at home, [where Mom] asks you to do laundry [and your] kid brother [is] playing video games loudly.” Finally, FG21 mentioned that it was easier for a study group to stay on task when they met in the library. The facilitator of the first focus group noted in his journal that participants emphasized seeing others as a “confirmation that they are in the right place doing the right thing.”

Researchers were not surprised that students frequently mentioned aspects of affordance as they were asked to describe spaces. Windows, views to nature, light, power outlets, noise, and interesting but not distracting decor were often cited as participants expressed their attachment to specific spaces. The facilitator for the second focus group noted in his journal that “a lot of focus seemed to be on senses, the heat, light, sound elements of the space.” Other amenities mentioned multiple times but less frequently were “decently sized tables” (WI29), “having books for reference” (FG3 and FG14), and
“group study rooms so not worry about others hearing” (WI29). Access to assistance was also a valued attribute. WI122 noted that studying in the library meant someone was there “when I need reference help—nice,” and both FG3 and FG14 indicated having “librarian time” was important. A few participants noted that the lack of certain amenities are reasons to avoid a location. WI15 noted that “no windows, no outlets” would keep them from studying in a space, and FG19 mentioned that an absence of whiteboards reduced the efficiency of their chemistry group study sessions. FG21, when describing the good features of their study area at home, noted its downside, “It doesn’t have much natural light, which is sad.”

Participant responses frequently combined themes of affordance with themes from attention restoration theory. Windows and views of nature were continually mentioned as the most positive features of the library and ones that students want preserved. WI12 declared that they are “always impressed with the window view here” and added that the window seats were popular and therefore not always available. WI7 noted how the scenery could lower stress, stating, “Great view; sit there and destress after [a] test or something.” FG19 said that seeing “outdoors improves my productivity,” and WI23 declared that looking out the window was nice and relaxing.

Numerous participants mentioned “soft fascination,” which occurs when watching something that does not require intense focus, as a key feature in spaces that are restorative. Having something interesting to look at, either through a window or in the interior, was helpful, but participants also noted that views could become distracting if they were too cluttered or busy. Their comments mirrored extensive research findings on soft fascination and restoration. FG14 noted that windows to nature were great as long as they did not show too much activity that would distract from studying: “Nature but not activity, playground [would be] too much.” WI22, explaining that they appreciated the art in the library, commented, “Art—I appreciate that, not just empty space, nice big windows not just stuck inside.” Another participant, WI23, criticized the plain walls in a study area at a former institution, saying, “When environment is too plain, it is distracting; put something up.” WI23 also talked about needing a break from studying and appreciated that they could “stop, relax, look at something, be distracted but not completely distracting.”

**Windows and views of nature were continually mentioned as the most positive features of the library and ones that students want preserved.**

How Study Spaces Affect Study Habits

Research question 3 asked, “Do students indicate that specific study spaces help them employ good study habits?” Students expressed definite preferences for study spaces that allow them to employ good study habits, and the settings vary depending on individual needs (some due to learning disabilities or physical challenges) and the type of study they plan to do. Space attributes important to students revolve around five areas: the “study ethos,” noise/distraction, lighting, temperature, and conveniences. The most common reason students expressed for finding the library conducive to
The most common reason students expressed for finding the library conducive to study was the “study ethos” associated with it. WI122 declared, “The library focuses me on my homework, everyone else is doing their work, so I should instead of being on my phone or messing around.” This sentiment, as reported earlier, was expressed repeatedly. While participants used different words to say it, they agreed that seeing books on shelves, other students studying, and a background “murmur” of schoolwork being discussed are key components making up the atmosphere of a place to study.

While participants had different ideas about what level of background noise and movement were the “right amount” to help them concentrate rather than become a distraction, many did mention that the amount was key. WI23 noted that the library is the “right amount [of quiet],” and FG3, with agreement from FG14 and FG141, said that the best noise level is “not totally silent, low murmuring.” FG14 added, “not necessarily silence, [but] peacefulness.” FG25 summed up the complexity of the noise/distraction conundrum as “I need some distraction, or [I] get more distracted.” Many also commented on the need for quiet spaces and that such areas were hard to find on campus. WI127 was one of five \( n = 11 \) walking interview participants who mentioned the importance of quiet spaces eight or more times within the interview, commenting, “It is so hard to find a quiet place on campus.” In fact, all walking interview participants mentioned an appreciation or need for quiet spaces in which to study. Quiet came up much less frequently in the focus groups, occurring in only three of four sessions. The number of mentions per session was also less than the number of comments by most individual participants in the walking interviews.

A few participants, including WI8, noted that acceptable noise levels differed based on what type of work they needed to do and that they valued access to spaces with different noise levels. WI23 appreciated that the library had various areas for activities demanding different levels of quiet, identifying the study carrels and quiet room as spaces for individual study and the larger tables for group work demanding some conversation. Some participants noted interruptions by others as a distraction. In focus group discussions about home study spaces, for example, FG25 and FG101 both commented that studying at home may be more comfortable in terms of furniture and lighting, but that family members might interrupt their studies and become major distractions.

Lighting was also mentioned frequently as an important attribute of a good study space, with temperature listed less often. The most agreed-upon aspect of lighting was that natural light from windows was the best. After that, there was little agreement. Some indicated the overall lighting was fine, while others preferred having task lighting that they could control. Two (FG25 and FG3) mentioned that they liked low lighting all around with task lighting providing a “spotlight” on what they were doing. In the eight images/three phrases method, the top scoring images all included ample natural light. A source of natural lighting is directly seen in the “carrel at window,” “modern open
seating,” and “library outdoor” photographs and implied in the “carrel-red” image. The lowest scoring images, while having other features that could have contributed to their negative scores, also had much less direct natural light.

Some participants noted that a comfortable temperature was also key to their ability to concentrate, but those who mentioned it did not agree on what temperature was good. During the second focus group, two participants had a discussion about temperatures, with one who preferred a colder temperature and the other who found chilliness too distracting.

Access to other services or conveniences from a study space was also frequently mentioned. Some compared the library to their home study areas. FG3 said the one advantage to being at home is “everything is right at hand,” and they could gather study materials, food, and pillows and spread them all out within reach of a comfortable chair. Others, like WG127, had such busy schedules that they needed to eat and study simultaneously, and the cafeteria was too noisy. Many provided lists of “useful items” (WG15) that were available in the library as one reason for preferring that setting. These lists most often included books, whiteboards, printers, copiers, outlets, food, a place to fill water bottles, and people who could provide assistance.

Designing Better Study Spaces for Students

Research question 4 asked, “What can we learn from using place attachment, affordance, and attention restoration theories when analyzing student comments about the spaces where they study that can help design better study spaces for students?” Students identify the library as a place to study, and they rely on the library and those within it to reinforce the discipline of study. For the library to provide this valued service, it must maintain the essential look and feel of what students associate with an academic library. Participants clearly told us that, although they may never use the books on the shelves, they want to see books, which are a key to the symbolic meaning and schema of a library. When studying alone, they want a certain level of quietness or peacefulness within the space. They also want to see others engaged in study so that they feel part of the social structure of “students studying” and develop social bonds, whether as individuals studying in the same place or groups working on common assignments. Many participants also indicated that the library gave them a general sense of well-being, even as a new student on campus, and some frequent library users even developed feelings of being an insider. These are concepts that could be further explored in future research. Because a sense of well-being in a space and feeling like an insider are key components to developing place attachment, it is important to include students from traditionally minoritized populations in our studies. The researchers who performed this study intend to reach out to specific groups of students in an effort to be more inclusive. See the preliminary work by Kelly Broughton for a longer discussion.

Using affordance theory as a lens, it became clear that participants’ responses to the space were frequently based on their senses and on the physical properties that made...
up their preferred atmosphere. This correlates well with the results from place attachment on the importance of space matching the symbolic meaning and expected schema of a library. Participants also stressed that the physical properties of a space should allow them to do what they needed to do in order to accomplish their current task. This included the idea that the space should provide access to other services or be close to other places of usefulness or importance.

The results indicate agreement among participants on overall atmospheric properties, such as ample natural light, interesting (but not too active or interesting) views and artwork, and the presence of books and other students studying. There was much less agreement on what physical properties were required. As W18 pointed out, different “activity demands different spaces; table, carrel or [group] room—each one is potential study space depending on [the] activity.” W17 listed six different spaces within the library and noted that they used each one for different types of study. In addition to the variety of study activities, personal preferences and needs show up most strongly when talking about such attributes as task lighting, chairs, and temperature. Libraries would be best served to provide a variety of choices. Levels of acceptable or helpful noise and movement varied, but some common elements become apparent. Participants indicated that some baseline noise and movement were necessary, or the lack of them would become a distraction itself. In addition, noise and movement were less distracting when predictable. In other words, a continual low hum of noise and people walking to and from tables were generally seen as helpful background sounds. On the other hand, sudden bursts of loud sounds and movement not connected to what “should” be happening in that space would be disruptive.

Results from the photo elicitation and eight images activity, where participants were asked to apply three statements from attention restoration theory research to photos or to rank photos according to these statements, also support the idea that no single space answers all needs. Clearly, a setting being a place of productivity, an environment in which to linger, and an ideal study space are different concepts. It was rare for any one space to satisfy all three statements. In the more extensive results from the eight images activity, spaces could be both ideal and a place in which to be productive but not necessarily an environment in which to linger. One possible explanation is that a place to linger is more often seen as a setting for relaxation than a place of work. There may be evidence of this when looking at the results for the library outdoor balcony and beanbag images. (See Table 6.) Both rank high as a place to linger or return to, but lower as places of productivity or as ideal study spaces.

**Conclusion**

This study demonstrates that students at this small public institution see the library as a place in which they can successfully study, and the researchers learned much about the key features that play a role in students’ attachment to the space. Designing the
investigation around the theoretical concepts found in place attachment, affordance, and attention restoration theories helped in identifying themes that relate directly to creating supportive places for successful study. While not all the research methods used were successful, both the walking interview and the eight images/three phrases methods worked well. Giving participants a more active role and more control in their interviews and hearing their comments in situ produced rich, authentic data. It would be interesting to see if the walking interview method (with slightly different prompts) would succeed with participants who never or rarely used the library. The success of the eight images/three phrases method is evidence that data gathering at a popular campus event can lead to greater participation.

This was a small study partially designed as an experiment to test different methods of research. There is much more to be done. First and foremost is the need to be more inclusive in the student voices. As noted earlier, the authors suspect that the methods used to advertise this research failed to produce a demographically diverse and representative sample. They plan to reach out to specific groups on campus and use the walking interviews to develop a more inclusive data set, and they encourage others to do the same. The research done by both Broughton and Bucy on inclusion and belongingness as it relates to students from traditionally minoritized populations should remind all of us to be sure that our research designs and implementation are inclusive.39

There are also some interesting questions in this research that need further exploration. One revolves around the concept of acceptable or helpful noise. Our participants want a quiet, peaceful place to study but define this as one with an acceptable and even helpful level of noise and movement. What does that really mean, and is there any commonly held definition? We find this question intriguing and worth pursuing. Finally, there are further questions to explore around the idea of the library as a place that encourages a “study discipline.” Do students bring with them a commonly held “schema” or understanding of an academic library as a place of study? Does it develop as they use our campuses, or does it result from having no other place available? We hope that others will find these questions, and others, as intriguing as we do and pursue research to help us answer them.

Karen R. Diller is director of the Washington State University Vancouver Library; she may be reached by e-mail at: diller@wsu.edu.

Sam B. Wallin is the manager of Mobile Services and Distribution for Whatcom County Library System; he may be reached by e-mail at: samuel.b.wallin@gmail.com.
Appendix A

Walking Interview Instrument
Instructions for Interviewer

A. Meet participant #_________ at (time)____________
Where:___________________________

B. Ask for signed consent form. If don’t have, provide consent form and get signed. Ask if they have any questions. Review:
- When ready, will turn on audio recording and walk to the library—your normal route.
- At library, will also turn on video recording.
- You can stop and withdraw at any time—no questions, no penalty.

C. Fit GoPro and be sure black paper is over camera lens.

D. Confirm participant’s readiness.

E. On the walk:
1. Tell me about the first time you remember using the WSU Vancouver Library.
2. What types of situations cause you to think about going to the library?
3. If you could tell me the one most important reason you choose to use the library instead of someplace else, what would it be?

Take paper off of camera lens when get to the library.

As entering library:
4. When you look around the library, what do you see that reflects who you are?
5. Think about a time when you decided to go to the library—can you describe the situation and why the library was your choice?

Walking around the library (questions 6–7 may be asked in any order—whatever feels best):
6. Take me on a tour of the library, and point out places you have used.
7. Take me to your favorite spot in the library and tell me about it.
8. If you could redesign the library, what is something you would change immediately? Why?
9. What is something that you would want to keep? Why?
10. Anything else you would like to say about study spaces?

Ask participant to wait and make a copy of the consent form for them. Give them the copy along with a $5 print card. (If they ask, they should use the number on the card instead of their ID number.)
Appendix B

Screening Questionnaire

WSU Vancouver Library study space research screening questionnaire for undergraduate students only.

Thank you for your interest in helping us learn about what spaces are helpful to you when studying or working in groups. In order for us to collect information from a representative group of students, we ask that you fill out this brief questionnaire. Those selected will be asked to participate in either a focus group or individual interview.

1. Please indicate if you: (select one)
   - Started at WSU Vancouver as a first-year student (transferred less than 30 credits).
   - Transferred 30 credits or more when starting at WSU Vancouver.

2. Please indicate approximately how long you have been taking classes on the WSU Vancouver campus:
   - 2 years or less
   - More than 2 years

3. Please indicate your age category (select one):
   - 18–22
   - 23–30
   - Over 30

4. Please indicate your gender (select one):
   - Female
   - Male
   - Prefer to self-describe: ____________________________
   - Prefer not to say

5. What is your major or department: ____________________________

6. Which of the following best describes your WSU library experience (select one):
   - Never used the WSU Vancouver Library
   - First-time user
   - Occasional use (once a month)
   - Frequent use (at least once a week)

Name __________________________________________________________
Phone number _______________E-mail address:
I prefer to be contacted by: Phone ____ E-mail: _____
(Your name and contact information will only be used if we need to contact you further. Otherwise, it will be shredded. Thank you for your time.)
Notes


2. Tanner and Hussak, “Challenge 2.”


22. Raymond, Kytät, and Stedman, “Sense of Place, Fast and Slow.”


30. Rioux, Scrima, and Werner, “Space Appropriation and Place Attachment.”


34. Diller, “Restorative Library Study Space.”


