# *Preference and the Productive Mind: How Environmental Influence Affects Study Locations*

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## Abstract

This study collected data regarding the students of Allegheny College and their preferences of study spaces on campus by examining the natural influences within the study spaces on campus. Using an analysis of five particular buildings on campus through a method called site scans, the environmental influence and popularity was recorded. A selection of fifteen students from varying class year, major, and gender were then interviewed about their perceived favorite and most productive study spaces. The data from the site scans and interviews were synthesized to create an understanding that correlated preferred study spaces with environmental influence and productivity. It was found that most students preferred a study space that had environmental influence, but was not the defining factor for why they chose a study space. The preferred study spaces were chosen mostly because of availability, convenience and how productive the student felt in the study space. Environmental influence was supplemental to the factors in the previous sentence, improving the experience of the study space. Study breaks turned out to be the most preferred use of environmental influence. The conclusions articulate which study spaces on campus are the most popular and most productive based on the interviews and site scans.

## Introduction

Allegheny College is a growing community of liberal arts undergraduate students. 2,200 students are attending this institution during 2015, its 200th year. The rigorous academics at Allegheny are often a point of complaint for the students here, which can often be a distracting factor from the world around them. These students are very lucky to have a beautiful campus integrated with nature within and around the campus. But do the students recognize it? Do they watch the leaves change or the weather evolve or even reach out and feel the trees, grass or snow that is around them? I am wondering if these students' innate connections with nature affects or inspires these kind of thoughts. I want to know if recognition of the world around these students helps them succeed in their schooling and within relationships that he or she has with their peers, within their own minds and with their educational pursuits. Some people walk around campus looking at the ground and not taking in their surroundings. Some walk with their head up but they might just be lost in their own thoughts and aren't concerned with the world around them. Scientists have studied these particular types of environmental influences on college campuses and found through Biophilia (Kellert and Wilson, 1993 & Louv, 2008) and Attention Restoration Theory that nature can play a part benefiting a student's mentality and focus while in school (Hartig et al, 1991, Felsten, 2008 & Madureira et al. 2014).

I personally have a connection to this campus through its green spaces. I have explored every nook and cranny of this campus and the surrounding forests and find myself entranced by the beauty that is present. This study is important to me because I think it is easy to look over the little things, but if students did pay attention to the environment around them it would affect them in a positive way. By examining various study spaces around campus and the environmental influences in each of these study spaces I will look for notions that the natural influences of Allegheny College affect the productivity of students and their preference on study location.

## Background

The Biophilia Hypothesis as created and defined by Edward O. Wilson is "humans innate connection to nature" (Kellert and Wilson, 1993; Louv, 2008). This innate connection formed thousands of years ago when we were just evolving from *homo erectus* to what we are today as *homo sapiens.* We grew up in nature, lived in and used nature as our home and for our resources. We were more or less animals just as the rest of living organisms aside from plant life on our planet. Humans fought for territory, gobbled up what we could scavenge and celebrated over a rare and large kill. These were the things that connected us with nature; simply being immersed and living in the natural world that surrounded the human species. In the modern civilized world, this is hardly ever the case anymore. Today, most people if they want to experience nature, go for a day hike, bird watch, fish or hunt. The more extreme outdoorsmen and women go on long whitewater rafting trips, climb seemingly impossible peaks, or take a two month break from modern life to hike the popular coastal trails in our country, the Appalachian Trail and the Pacific Crest Trail. All of these, small and large, are incredible ways to immerse ourselves in nature as we did before, albeit recreationally.

To start, it is easy to be inattentive to nature in settings that actually lack an influence of nature in the first place, such as inner cities and urban dwellings. The lack of nature in these conditions can influence violence, stress, obesity and mental strain. These factors can be reduced through the implementation of natural elements (Wells, 2000). Heightened contact with natural elements within these settings is linked to a reduction of violent acts. Residents of apartment buildings with greenery outside had less aggressive acts against their partners then residents of a similar building with no greenery outside (Louv, 2011). Natural settings can also break down barriers such as ethnicity and social class. A study conducted by Andrew Przybylski found that "the natural world connects people to their authentic selves" with one participant stating, "Right now, I feel like I can be myself" (Louv, 2011). Just a small implementation of nature within a dense urban setting proves to help with the human psyche.

These discoveries can be further understood by examining a recent study done by Helena Madureira and colleagues concluded in 2014. Herself and four others examined the benefits of urban green spaces in four different cities in Portugal and France. They surveyed 250 people in each city for a total of 1000 participants. The study examined how satisfied the participants were

with the green spaces and asked them what they perceived to be the most important benefits of the green spaces. The majority of participants found the social and cultural benefits more important than the environmental benefits. The most fascinating part of data proved from across all four cities that, " 'enhanced health and well-being' and 'contact with nature' emerge consensually as highly valued attributes" (Madureira et al. 2014). A similar study done by Peckham and his study team in 2013, examined two Canadian cities and turned out to support the same type of results. The participants of the study, "expressed a preference for the psychological and moral benefits provided by nearby access to nature, which affects urban citizen' physical and mental well-being" (Madureira et al. 2014). These studies show consistent results that when humans are very involved with an urban lifestyle but then take a break and spend time being in their green space within the city, they come out feeling much better than they did going in. The participants of both studies found them focusing on simply enjoying being in a natural setting which in turn resulted in the improved well-being of the participant.

Going outside of the city, another example of this is through living in an ecovillage. Andy Kirby did a study in an ecovillage in Ithaca, New York. His research discovered that five forms of connectedness were significant; connection with the wild landscape, the community, with the cultivated landscape (use of nature by humans), sense of personal integration, and a increased connection through time and intergenerational sustainability (Kirby, 2003). An ecovillage reinforces this connectedness of living with one another in a mostly natural setting and contributing to the environment. Overall, life in the ecovillage brought together family and social ties with interests, activities and work, in a way which brought upon the individuals a sense of personal satisfaction, mentally and physically, that they said they were not receiving in wider society we call the real world (Kirby, 2003). When one knows their true self they can understand others better as well, which is the reason social barriers have no place in natural settings. For nature is where we all have evolved from, we all have the biophilia connection; it just needs to be rediscovered in our own minds through our own experiences with nature.

Any natural setting can activate the connection deep within us. Biophilia is still inherent in our genes, which is found if we look at Native Cultures around the globe that have evolved with and have lived solely off the land. By doing so they learned its limitations as well as how to make it prosper to its fullest. This is all spawned from intelligence that has occurred within evolution of our genus *Homo*. We have this intelligence within us but we now have trouble

aligning that intelligence with the innate feelings of connection to nature that has emerged from millions of years of evolution. Learning about ourselves and our past as a species can be a step to reintegrating nature into our lives. Just as Piso said, "Understanding evolution is the first step toward sustainably aligning ecological and cultural systems" (Piso, 2010). This type of understanding requires education about the cultural interactions of people, with their environment and other cultures. However, in the increased urbanized lifestyle that the citizens of the United States live, with the immense amount of technological distractions, this intelligence seems to be repressed and a disconnection from nature is occurring (Hansen-Ketchum & Halpenny, 2010). Michal Gurian states, "Neurologically, human beings haven't caught up with today's over stimulating environment" (Louv, 2008). Mental fatigue from working long hours, more intensive and in-depth technological stimulation, and stress from deadlines and relationships can be fixed by simple inclusion of nature in their life (Hansen-Ketchum & Halpenny, 2010; Kuo &Taylor 2004). By simply adding some nature into a humans' life, restorative qualities for some of the issues above have been found, because natural environments provide many of the characteristics that amplify restorative experiences (Kaplan 1995; Han, 2003; Herzog & Strevey, 2008).

Research done by Kirk Brown and Tim Kasser describe the kinds of intrinsically related psychological effects that are influenced by supporting ecological well-being. By examining personal values, mindfulness of an individual, and a voluntary simplistic lifestyle, it was found that the humans in the study found greater positive psychological effects opposed to those living a consumerist lifestyle (Brown & Kasser, 2005). The stress and anxiety that is generated from the overworking, overstimulation and multifaceted way of our society to just consume more and more can be relieved by inclusion of nature in a human's life. As stated at the beginning, one does not have to go on a soul-searching yearlong adventure in the wilderness to find stress relief in nature. There are simple ways to include nature in ones life that comes in varying levels of interaction. According to Professor Jules Pretty there are three levels of interaction with nature; viewing nature in a painting or through a window, being in the presence of nature like reading a book in the park, and active participation such as hiking or gardening (Pretty, 2004). However, it all depends on if their attention is drawn to the environment involuntarily through the basic concept of fascination with nature. Now this can happen in many ways from looking out of a window (Pretty 2004; Tennessen & Cimprich 1995) to tromping through a swamp. However

there is very strong evidence that all three levels of interaction have exhibited mental health benefits (Kahn 1997; Pretty 2004). People who have different levels of affiliation with nature require different levels of inclusion with nature to create these restorative qualities. Attention Restoration Theory is the result of the statements above.

Direct attention is voluntary and difficult to maintain, but fascination happens without intention (Felsten, 2009; Louv, 2008). Direct attention in a college setting is difficult to maintain in schoolwork, in relationships with peers as well as simply being present walking around campus. Even slight degradations of attention can lead to stress and clouding of ones own mind in a setting like college. In order to apply the Attention Restoration Theory one needs a direct view of nature (Maller et al, 2009), which is often hard to come by on a college campus. Even with green quads and beautiful settings like the ones on the Allegheny College campus, there are almost always buildings in the way or distracting city sounds occurring all around. Direct exposure and immersion in nature results in the most effective restoration (Hartig et al, 1991), but this does not mean that the greenery on campus does not have a positive affect on attention restoration. It was found that students living in dorms who had views of mostly natural settings outside their windows preformed better on direct attention tests, were more relaxed, and less distracted than students whose views had limited nature or no view at all (Felsten, 2009). It has also been found that the inclusion of natural elements in the workplace has been related to lower levels of stress and higher levels of job satisfaction (Heerwagen, 2006, Maller et al, 2009). These kinds of research findings are valuable in understanding what goes on within a humans mind behind the scenes.

To understand better how to improve focus and productivity in study spaces there must be an understanding of environmental architecture. William McDonough, a revered expert on the relationship between environmental policy and ethics wrote an article entitled “Not Out of the Woods” for the scientific journal *Environmental Values,* which covered all the grounds of environmental architecture. In his article he stated that, “a thoroughly environmental architecture would not only be evaluated for its energy savings but for its ability to embrace the history and potential of humanly created environments on their own terms” (Light & Wallace, 2005). The meaning of this is to truly create ones environment. A structure, if renovated, should strive for environmental sustainability, while simultaneously creating an environment, which can be a positive influence for years to come without affecting the outside architecture. Light points out

an argument earlier in the article, "the enlightenment found through wilderness would allow us to return to our own human habitations having learned the lessons that nature has to teach; to rethink our own human civilization and create not a new City of God but instead a City of Nature" (Light & Wallace, 2005). This can be a difficult task to accomplish because many of our cities were build quite some time ago, but retrofitting a building is always an option.

On the Allegheny College campus this has happened in the past few years with the Carr Hall renovations. The front lobby has been transformed into a green atrium that grows plants year round, which are fed and watered through an aquaponics system. The interior classrooms of the building have solar tubing that reflects and focuses sunlight to create an energy efficient and innovative way to light the rooms. These changes have made noticeable differences in a small amount of time in respect to energy efficiency and bringing nature to the indoors. However, the question is, why are these kinds of environmental implementations important to study spaces and how do they affect productivity?

Studies have found that green spaces on college campuses help reduce stress and improve the quality of life of a student living on a college campus. Research done by Abu-Ghazzeh interviewed all types of people at a college located in Jordan, interviewing administration, faculty, and students about the types of places they preferred and visited most frequently on campus. The conclusion was that the most visited places were the outdoor spaces such as an area that had a favorite tree, various lawns and other landscaped areas (Abu-Ghazzeh, 1999). Another study done in the United Kingdom asked students about the green-spaces on their campus and eighty-two percent of the campus was aware of the term green space and eighty-one percent of the students interviewed said that they had a favorite green space on campus. However, the scientists who did this work had reason to believe that the students did not fully understand the green spaces because of their lack of awareness about the ecological importance of their areas (Speake et al. 2013).

Nonetheless, research has shown that being involved with green spaces on campus does reduce stress and help with centering a student with their life on campus. A study done by Seitz and colleagues in 2014 used the various techniques of Attention Restoration Theory by Kaplan to prove this. By showing students pictures of various green spaces on their campus and using the SHOWeD method in focus groups to discuss the pictures, proved significant results. SHOWeD is an acronym for What do you **S**ee here? What is really **H**appening? How does this relate to **O**ur

lives? **W**hy does this problem or strength **e**xist? What can we **D**o about it? (Wang, 2006). These questions were meant to guide conversations between the focus groups about the deeper meaning of the photographs (Seitz et al. 2014). In comparison the man-made spaces were less effective to alleviating stress than the fully natural park-like settings. This was because the students' focus was on various graffiti present or the presence of cigarette butts. The explanation for this comes through Attention Restoration Theory. The students' fascination was produced from focusing on the unattractive things on the green space instead of the nature around them. However, in the green spaces which simply had a bench or two that was slightly more secluded provided a much higher level of stress reduction. These locations as stated by Seitz, "were experienced as remote and secret getaways to students, even though they were just several hundred feet away from major parts of campus" (Seitz et al. 2014). These places, although not completely natural with the presence of benches and in several cases swings sets, gave the students an opportunity to connect with nature and alleviate stress as defined by the terms of Attention Restoration Theory and its concept of compatibility. "The swing set and benches, which were not natural themselves, gave students an opportunity to observe and engage with the surrounding trees, bushes, flowers, animals, and insects (Seitz et al. 2014).

According to the abstract by Gary Felsten in his article for the Journal of Environmental Psychology, "studies have found direct exposure to nature, viewing nature though windows, and viewing images of nature are restorative" and that "students rated settings with views of dramatic nature murals, especially those with water, more restorative than settings with window views of real, but mundane nature with built structures present" (Felsten, 2008). Although these results do not show that looking out the window will help a student to be completely alleviated of stress after glancing out a window while working, it does make important points about the environmental architecture of a building. Using large epic style murals can aid in building restoration very effectively. The fact that looking out the window being less restorative does not discount its restorative facts either. They were still restorative in their own way. The fact is that, "students perceived views of real or simulated nature as important to the restorative potential of indoor campus settings" (Felsten, 2008). Ranking from moderate restoration to much restoration, the students surveyed provided feedback that showed that even window views with less green space and more buildings, views of flat fields with few leafless trees, and views of expansive green space and less buildings, were all influential in relieving stress.

In terms of the interior of the building, plants play an important part as well, in the restoration of work ethic and productivity. A 2007 study by Bringslimark and his team researched having plants in the workspace and how it influenced people in terms of perceived stress, sick leave, and productivity. Focusing on the productivity aspect, having plants around the interior of the building proved to be slightly beneficial. When many plants were present there was a positive association correlating number of plants in view and productivity. It was also found that, "productivity did not distinguish in terms of creativity and concentration demands of work tasks" (Bringslimark et al. 2007). In contrast, it was also found that plants in and around break rooms had greater effects of restoration than plants that were in and around workstations (Bringslimark et al. 2007). This is an important finding because although plants do help with restoration during work, they provide the most beneficial aspect is when no work is present. This makes sense because during work is when stress is generally produced, but when a person has time to relax, the presence of plants in the break room would heighten the effect of restoration.

The research done over the past twenty years shows a trend that nature and natural influences within college and workspace settings is positively influential on the human psyche. These positive results show that having plants, natural lighting, or views of nature in a workspace is beneficial. The research also shows that these types of environmental influences, in terms of restoration (where you would feel more energetic or focused when returning back to work) are more beneficial in settings where work is not present, like a break room, or out on campus where you would be enjoying a green space. My study analyzes the environmental influence in an academic setting through my five chosen study spaces; Carr Hall Atrium, Vukovich Hall Lobby, the second floor of the Campus Center, the Campus Center first floor, and the Library. I wanted to discern if the environmental influence of these study locations factor into the preference as why they are chosen as a place to study by the students? Or do the students choose certain locations based on where they feel they are the most productive?

## Methods

I began the research for this project to see how nature influenced people in general. As I pursed this topic, I discovered that natural influence in ones life showed connections to improving mood and productivity. I began discovering research that involved students on various college campuses and how the green spaces and views of nature from study locations and living spaces influenced them. This drove my study in a direction to understand how natural influence in study spaces affected preference and productivity. The way I moved through this project started with the continuation of research. Once I realized that I wanted to work with humans and the study spaces on campus I began the IRB process. I looked at five separate areas on campus used as study spaces. Once I was approved by IRB I moved onto my interviews. The scans were used to understand the environmental influence of a location and the interviews were used to understand the perception of environmental influence on preference of study space.

I conducted my site scans on five buildings to gain a sense of popularity and environmental influence of my study areas. The data was recorded over a time span of 12 days. These five areas included Carr Hall Atrium, Vukovich Hall Lobby, the second floor of the Campus Center including Grounds For Change Coffee Shoppe and the outside lobby, the Campus Center first floor including McKinley's Dining Hall and the outside lobby, and the Library (which was divided into the main floor and the glass rooms bordering the main floor along the east facing wall). My site scans consisted of going into one of my five locations and spending one to fifteen minutes observing the area. All the study spaces were recorded each time I conducted a site scan.

During the site scans, I first recorded the number of people by tallying. If there were two separate study spaces in the location, such as the library main floor and the glass rooms, I would tally these two spaces separately. The sum of the two separate tallies totaled the number of people in the overall study space for the one site scan. I recorded one area at a time titling the section with an abbreviation (ex. Grounds for Change being GFC). When recording I would use abbreviations about how the students were studying (ex. studying with headphones being w/hp). I then recorded how they were studying, noise in the area, and how the building was lighted and heated. When taking notes on how the students were studying, I recorded if the students were studying in groups and how many students were in that group. I then also tallied how many were

individually studying. When describing the groups or individuals I recorded whether or not they were using headphones, laptops, tablets or other electronic devices, if they were reading and if they were conversing with other students. I also looked for students who would be sitting by some sort of environmental influence such as plants or the windows. I would look for students who would look out of the windows or at the plants. The methodology used was to gain a sense of which spaces people used most often, as well as how they were used. I also included if there was a difference between the five chosen study spaces in terms of environmental influence.

The next step was interviewing students about their preference in study location. I conducted interviews with a maximum of 3 students of each gender from each class year. My interviews were semi-structured and used an open dialogue. My interviews always started with me asking my interviewees their two favorite study locations and then follow-up questions to determine why those two locations were his or her favorite. I then asked questions about the two study locations in which the interviewees stated they found themselves to be most productive while studying or completing classwork. These questions helped me get a sense of where and why students used the particular areas we talked about. If an area the interviewee mentioned was one of the five study spaces I conducted my sites scans in, I tended to drive the questions towards the environmental attributes of that study areas. I concluded my interviews by asking how the students took study breaks. I was looking to find what kinds of breaks were the most beneficial in influencing their productivity. The overall goal of my interviews was to get a sense about how the environmental influence in the study spaces I scanned was linked to productive studying.

## Results

The site scans would usually start at the Library, go to the Campus Center, then Vukovich Hall, and finally Carr Hall. Twice I did this pattern in reverse. There were a total of 35 recorded site scans, seven for each of the study spaces. After concluding my site scans the pattern throughout the data was apparent though the popularity of the study spaces chosen. Most students I found studied in the Library Main Floor and the Glass Rooms, then McKinley's and GFC. The next most populated areas were the Campus Center 1st floor then the Campus Center 2nd floor. The lobby area for both floors of the campus center also had notable presence but never as populated as GFC or McKinley's. The fourth and fifth most common areas were Carr Hall followed by Vukovich Hall. These two areas were only populated during the day. This pattern was anticipated based on my experience at Allegheny.

The Library and Campus Center were always the most popular places to study. Additionally, they have more seating than the other three study areas, which attributes to the volume of students recorded. There were only a couple of times during the sites scans where either the library or the Campus Center was filled to a noticeable capacity. GFC quite often was very populated. Carr Hall, when students were present, usually only had one or two seats available.

A lack or absence of students can be attributed to the small sample of site scans and inconsistency of the time of day the site scans were taken. If more site scans were done, I believe peak study times for the study spaces could have been discovered which would have expanded the data. I also found more students in the five study spaces toward the end of my site scans, which I attributed to the small work load at the beginning of the semester compared to the work load later on in the semester. The site scans were recorded first by tallying the number of people in the study space. The total students studying with headphones compared to without headphones resulted in 124 out of the 321 students observed and recorded using headphones. The people using headphones were almost always individuals and observations showed that students using headphones were more consistently studying by themselves in areas with either a high level of activity and/or noise or almost no noise at all. The recordings for students looking out of the windows or plants in the room were minimal because of the short amount of time I spent in each study space.

**Table 1.** Total number of people in each study space.

| Library Total | Campus Center 1st Floor Total | Campus Center 2nd Floor Total | Vukovich Hall Total | Carr Hall Atrium Total |
|---|---|---|---|---|
| 176 | 66 | 64 | 2 | 13 |

After doing the site scans I began my interviews. I conducted most of my interviews in the Library because it was the most popular area to study. I conducted twelve interviews in the Library and the other three of my interviews in McKinley's because it was the second most popular location.

My interviews broke down for male; one freshman, three sophomores, two juniors, and two seniors. My interviews for females broke down; one freshman, one sophomore, two juniors, and three seniors. Throughout the interview process several trends arose as the interviews were completed. It was very easy for people to answer their top two places to study, but when it came to the top two places they felt they were most productive, they all stopped and pondered for a moment. Most of the students mentioned an additional area besides their two favorite places to study, five students choosing their room as their favorite place to study. Another interesting result is that majority of people chose the library as one of their favorite places to study. There were many consistent answers about going to the library to study. The main reason stated was that the library helped them feel like they should study because they were in an atmosphere where studying was the purpose. One of the most fascinating results I found was that that almost all of the upper classmen recognized and chose places to study with environmental influence. There were multiple answers from students saying things like, "I pick this spot because I like being in the sunlight" or "I like facing out the windows and seeing nature instead of constructed things" and also "I study best when there is falling water like in Carr Hall (Atrium) or rooms with fish tanks in Steffee". These types of answers were produced from seventy-three percent of the students interviewed. Students also reported that small doses of natural influence such as looking out a window or watching fish in a tank for a few minutes as compared to scanning the internet or playing a game on their phone for ten to twenty minutes was more helpful in resetting their brain and getting back to work.

From my results the majority of students chose spaces to study where they could interact with the environmental influence of that area. Although the students did not select their study

spaces exclusively based on the most environmental influence, they took advantage of the environmental influence that was there. Student responses showed that all fifteen found themselves studying in the library at some point. Eight students found places in the Campus Center where they preferred to study. Two students preferred Steffee Hall, one preferred Alden Hall and one student preferred Arter Hall. These last four students picked these various academic buildings because it was the building where their major is located. The following breaks down all fifteen of the students responses from the interviews in terms of relating to environmental influence and not relating to environmental influence. From this data it gives a perception of students' recognition of environmental influence in their study spaces as well as particular reasons why students choose a specific study spaces.

**Table 2.** Interview data. Mentions of important points.

| Environmental Influence | Windows | Animals | Productivity | Absence of Environmental Influence | Social Interactions |
|---|---|---|---|---|---|
| 9 | 9 | 2 | 5 | 4 | 8 |

*Responses relating to environmental influence*

The interviews proved to have multiple avenues of responses when talking about environmental influence. Students used it for many purposes such as taking breaks, for a favorite location, and even used for the simple warmth of sunlight. These types of responses come in many forms and used for simple enjoyment, a stress reliever, or a way to distract the brain from the homework at hand.

A junior, male Communication Arts major, said he prefers setting his work station up so he is facing the windows. He said that he likes working this way while he is writing. He would look up and out the windows at the trees there because it would help him think. Another student who is a senior, female History major, said she chose her comp cube because it had a nice view out of the library. Seven out of the fifteen participants said they preferred a study space near the windows while five out of those seven said they picked these spaces so they could look out of the windows while they were studying. These five participants who said they enjoyed looking out the windows also said that they felt they were more productive in a space where they could look out of the windows. This is one third of the study sample. A female senior who is a double

major, one in the Social Science division and the other in the Interdivisional Division, said they she looked for spaces by the windows based on availability. However a space by the windows became less important to her when winter came. She said that she liked to look out the windows, but in wintertime the landscape was dull and grey.

Besides looking out of windows, students also liked getting outside for a way of stress relief or a way to clear their brain. All three of the students who enjoyed walking around outside as a study break were seniors, two females and one male. All three of these students however also said that they only used to take breaks like this when the weather was nicer. One student, the senior, female, History major said she would go for walks in a nearby forest. She used these walks as a brain-break and said that during the times of peak stress she had a favorite tree she would go to and lay out underneath of it.

Both of the biology students I interviewed talked about water. The two students are both males, one is a senior and one is a junior. The senior said he liked to pick study spaces that were wide open and with the sound of water in the background. He said that he liked Carr Hall Atrium and the running water from the aquaponics system, but the availability was always so limited that he gave up on trying to find a seat. His favorite spot is in Steffee Hall, the biology building, in a classroom with one of the fish tanks. He liked this spot because of the wide-open nature of the classroom, the sound of running water, as well as being able to take a break and look at the fish. The junior male on the other hand liked the same kind of classroom in Steffee Hall which was wide open and had large desks to spread out his work, but found the fish tank distracting. However, he said that when he would be taking a break his favorite place to go would be the aquarium room where he would walk around and watch the fish and various other aquatic life that was in that room. He specifically said that after taking a five-minute break looking at the fish he felt as equally refreshed as when taking a twenty-five minute break scanning the Internet.

*Responses not relating to environmental influence*

A lot of the responses that did not relate to environmental influence tended to take a direction of personal benefit. Students who mentioned specifics about their study spaces talked about having a private space or one where they could socialize easily. They also talked about productivity of their space using certain spaces for smaller assignments and different ones for larger assignments. Another idea that many people conveyed was about convenience of a

location. The convenience could be accessibility to outlets, proximity to a dorm room, or how close it was to get food or coffee on campus. A common thread throughout almost all of the responses was about the time of day when people did work; which was usually in the nighttime after dinner. This was mainly because of obligations during the day with classes, sports, clubs, and jobs for pay.

For instance, a female freshman, Environmental Science major, said she likes to study during the nighttime because she is very busy during the day. A total of thirteen out of the fifteen participants said they usually studied at night. Eight out of the fifteen participants said they liked to study during the day, but four of these eight said that they couldn't find time during the day so they did schoolwork at night. Only three of the fifteen participants said they preferred to work in the morning before their classes.

In terms of convenience, thirteen students mentioned choosing a location because it was convenient for them in some way. Six students mentioned having the convenience of a printer close by, three students mentioned doing work while on shift during their work-study job on campus, three students mentioned being close to food and coffee. Three students preferred a space in a particular academic building because it had something specific for a class in that building, making it easier to do the assignment. Two senior females mentioned being close to outlets. The largest response for convenience however was to study in ones own living space. Nine participants said they liked to study in their room simply because it was easy and they had most of what they could need while working right there, but this did not relate to productivity. Out of the nine students who said they liked studying in their room, seven said they were more productive in another space. The only two who found their room to be the most productive were the two freshmen interviewed, one male and one female. The other seven said that they primarily used their dorm room or campus house for smaller assignments. This is because the smaller assignments did not take as much effort and therefore were easy to complete is a not so productive space.

The final common response was about private and social spaces. All fifteen students responded that they liked to study in a place that was private. These spaces varied in accessibility to social aspects. Twelve of the fifteen students said they liked to study on the quiet floors of the library. Eight of the twelve said that when they took breaks from the quiet floor they would walk to the main floor of the library to socialize with other students. Eight students had private spaces

other than the quiet floors of the library. Of these eight, four students had private spaces in the Campus Center where sociability is easy. The other four out of the eight had private spaces in various academic buildings. I am not considering a dorm room or house a private space in this case but rather as a separate entity regarded as a living space because of the other distractions that are present in the dorm or house setting.

Overall, from the site scans and interviews conducted the library was the top choice for a study space. This is because of the convenience, availability to find a spot and balance between private and social areas. The environmental influence of the library supplemented all of these factors making it a reliable and productive study space for all students.

## Discussion and Analysis

According to the results, the preference and productivity of a study area is affected by the environmental influence. The answers given by the students interviewed showed that the majority of students gravitated toward areas that had a source of environmental influence, most generally sunlight or windows to look out of. There were only a few students who outright said that having an environmental influence mattered. The majority of students did mention that having some type of environmental influence provided a source of satisfaction or helped them in their studies. The research conducted backs up other research previously cite, that environmental influence present on a college campus helps reduce stress, which in turn improves productivity and concentration (Abu-Ghazzeh, 1999; Felsten, 2008; Herzog & Strevey, 2008; Kaplan, 1995). This corroborates in particular with my research, that environmental influence in a study area can affect the preference and likelihood of productivity from a student (Bringslimark et al. 2007; Felsten, 2008).

Although the preference of study area did not directly rely on the environmental influence of the building, many students mentioned that having the option of environmental influence was important. One junior male stated that when he studies he likes facing out the windows because he likes to see natural things as opposed to constructed things. Another junior said he really enjoyed taking breaks in the aquatics room of the biology building to look at the fish and other aquatic animals. Besides the direct environmental preferences, a few trends arose from the research. It was consistent with almost all the students that they usually ended up studying at night after dinner. This tended to be because the daytime was filled with other obligations such as classes, work and sports. Once all of those were out of the way, the nighttime was the only chance they had to study or do homework. The most students recorded during the site scans were in the Library and the Campus Center, which correlated the responses during the interviews choosing the Library and the Campus Center as one of their most common places to study.

To fully understand the reasoning behind the conclusions of the research there must be an understanding about the buildings researched during the site scans. In terms of environmental influence, the buildings were ranked from highest level of influence to lowest. The buildings were ranked as the following, Carr Hall Atrium, Library first floor, Campus Center second floor,

Vukovich Hall, Campus Center first floor. Some students I talked to when asked about Carr Hall Atrium said they like the plants, water sounds and natural light in the area. When I asked them if they would like it as a study space a few said they would but, the limited space to work as well as the unreliability to find a spot pushed that option out of the scenario.

Another study space that is rarely used is Vukovich Hall. Although they have a few tables and two stories of floor to ceiling windows in the front lobby where I did my research, I found almost no students in all of my site scans. Vukovich Hall is the Communication Arts building, so I sought out a Communication Arts major. After talking to a senior, male, he told me that throughout his four years at Allegheny he has rarely seen students studying in Vukovich Hall. He also shared with me that all the doors to the classrooms are usually locked past a certain time early in the evening. This could contribute to the limited amount of students who choose to study there.

The second place on campus most used as a study space was in the Campus Center. What I found after my interviews, was that students actually preferred to work on the third floor of the Campus Center, which I did not study during my site scans. I went to this location after my interviews and did a site scan of the locations on the third floor where students said they preferred to study. There was a considerable amount of environmental influence on this floor. One stuck out in particular. It was a circle of two couches and three chairs around a low center coffee table. It was right next to a long window that ran the length of that space and then some. Two potted trees cornered the study space. This space was the spot most preferred for three of the four students who chose to study on the third floor of the campus center. As Felsten wrote in his 2008 article, students performed better on tests and were more relaxed with views of nature in their living spaces (Felsten, 2008). This finding also correlates to the study done by Bringslimark when regarding plants being situated in a workspace and how it related to productivity (Bringslimark et al. 2007).

The library proved to be the most popular location. All fifteen students interviewed preferred to use the library as one of their primary study spaces. The interviewees shared a variety of remarks concerning the atmosphere and natural lighting that the library provides. To begin, many students chose locations that were near to or faced out of the windows. A senior, female, History major chose her comp cube for the main reason that it had a nice view out of the third floor windows. Another student, a male, senior, Environmental Science major preferred to

sit at the large tables on the basement floor near the windows or in one of the glass rooms. He particularly chose these locations because he liked the natural lighting from the windows and large desks. An interesting point, is that he only goes to these locations when he has larger assignments to complete because he feels the most productive in spaces like these with a spacious workspace, natural lighting, and a good view out of a window. A junior, female, English major said she likes the first floor by the south facing windows because she likes to feel the sunlight on her while she studies. She also said she prefers to look outside at the plants in their natural environment as opposed to the potted plants in the library, because she likes the movement of the plant outside. She also stated that she likes having the indoor greenery present in her study space. This simple inclusion of nature in students' life is beneficial to their studying and well-being, which is exactly what Han was referring to in his 2003 article. Although this is the baseline of interaction with nature, a quick glance out of the window can relieve some stress from the assignment at hand (Kaplan, 1995; Pretty, 2004; Herzog & Strevey, 2008). Having the attributes of natural elements of potted plants or a window view of nature also is related to higher levels of job satisfaction which is most likely why these three students liked to sit by the windows, in natural light, or in a space with indoor greenery (Heerwagen, 2006; Maller et al, 2009).

One of the most fascinating findings was revealed to me by a female, senior, who is a double major in the Social Science and International Divisions. She told me that during the fall and springtime she seeks out spots by the windows in the library because of similar reasons as the three other students mentioned. However, during the winter this did not matter to her much at all because of "how grey it is outside". These types of views when perceived by a student may seem mundane or dull and would have a lesser effect on that particular person (Felsten, 2008; Tennessen & Cimprich 1995). As stated, this depends on the person. Personally, early in the winter I would find a view of a snowy field a pleasurable experience. Then later in the winter I might view the same scene as aggravating because I am exhausted from the cold and wetness of the snow. One way to combat a typical mundane view would to incorporate murals of natural landscapes for their consistency and possible restorative qualities (Felsten, 2008). In the conclusions of his 2008 article he considers that these types of murals could provide a good study break for fatigued students. Even being in the presence of, or softly pondering a mural of a natural landscape could be a way to relieve stress and set a student back on track to return to

their work (Hansen-Ketchum & Halpenny, 2010; Kahn, 1997; Kuo & Taylor 2004; Pretty, 2004).

The preference for the two biology students was in the biology building, Steffee Hall. Both of them preferred open classrooms with lots of room to work. The junior, male preferred a space with no other sounds besides white noise or his music. The senior, male preferred a room with a fish tank in it to listen to the falling water. In terms of study breaks, both of them would like to watch the fish or other natural life in the fish tanks. The junior male would actually go the aquarium room and walk from tank to tank looking at the different forms of aqueous life. His really enjoys feeding the fish or turtles and watching them fight for the food.

Another finding that I was not particularly searching for, but discovered during my research, was students' use of the outdoors during a study break. This came in varying levels from stepping outside for a cigarette or a breath of fresh air, to walking to a nearby forest or green space for a lengthy break. A senior, male, Environmental Science major said when the weather is nice he would take a break from his study space by going for a walk on campus. He would either walk to his house from the library or take a lap through campus. The female, senior, History major said she like walking in the fall when she had a lot on her plate. She would go to a nearby forest for a while and lay underneath a particular tree. She said that this action would make her feel completely refreshed and ready to work again once she got back to her study space (Abu-Ghazzeh, 1999). These two students experienced different levels of interaction with nature but produced the same results of feeling less stressed and being more productive upon returning to their work. By enjoying the green spaces on campus or exploring ones off campus provided a sense of restoration for these students (Han, 2003; Hartig et all, 1991; Maller et al, 2009; Seitz et al. 2014; Speak et al, 2013). Through the avenues of environmental influence, using nature to provide a diversion from studying seems to be the most effective in helping a student with their productivity (Felsten, 2009). Although walking outside provided for a great study break, the weather in Northwestern Pennsylvania limits the outdoor option for part of the year, so looking out the window to enjoy the outdoors becomes a more practical choice.

One student I interviewed, a male, sophomore, Economics major stated that he enjoys good weather but also finds it distracting. He said he found it harder to study during the daytime when there was good weather because he would be wishing that he were outside walking around or hiking. When asked, other students pondered to whether or not good weather affected their

studying negatively. Some agreed that they would rather be outside than working, but also stated that the good weather might motivate them to get their work done so they could enjoy the outdoors.

A final, interesting finding was the difference between upperclassmen and underclassmen. Underclassmen are defined as freshman and sophomores; upperclassmen are defined as juniors and seniors. All nine upperclassmen interviewed mentioned environmental influence as a factor in their studying. Seven of the nine said they chose areas near the windows or a place where they could look out of the windows to study because it helped their productivity and was generally a more enjoyable place to study. Of these seven, five said they used looking outside as a way to take a brain-break from working. The other two simply liked having the windows there for natural light. Of the nine upper classmen, four of them used natural influence for larger study breaks, the two biology students to look at the animals, and the two seniors who enjoyed going for walks outside. Of the nine upperclassmen, five liked to take study breaks to socialize. When looking at the six underclassmen, all of them found they were more productive when they were working in a private area. Four of the six said when they would take study breaks they would rather go on the Internet or play on their phone than socialize or go outside. Three of the six said they liked working in their dorm rooms, alone, with the blinds closed. One of the underclassmen said he preferred electric light more than natural light. Only one of the underclassmen said they liked to step outside for a study break, although this was just to smoke a cigarette. Altogether, it seems that upperclassmen seem to use the environmental influence of study spaces and the campus more than the underclassmen. This could be related to the workload and stress level of students farther on in their college careers who realized they needed a break to be more effective. It could also be related to the upperclassmen being more familiar with the beautiful Allegheny campus and having favorite outdoor spots.

After interpreting all of the data collected and relation to previous research, there are a few ways I could have improved this project. By extending my data collection through both the site scans and interviews I would have gained a larger understanding of all the study spaces on campus. It also would have given a better understanding of how students perceive environmental influence on the campus and in study spaces. There was no research that I discovered about observing natural life, like animals, fish, or amphibians in a controlled situation like fish tanks or how it relates to stress, restoration or study locations. A further study could examine this type of

observation. Another way to further this research would examine how wintertime or other bad weather could affect the preference of study spaces or productivity. The most important finding is the one about availability in Carr Hall that correlates with Light and Wallace in their analysis of environmental architecture and retrofitting buildings. If more buildings on the Allegheny College campus, particularly ones that have the capacity for a larger study space, were environmentally retrofitted, more students might choose to study in this location because of the integrated wilderness (Light & Wallace, 2005). More research is needed to see if students would choose this location over any other location.

## Conclusion

Viewing nature, observing natural life, and exploring the outdoors all were attributed to increasing study productivity. These types of environmental influence in study spaces were also attributed to preference of study space. Although having these types of environmental influence did not make or break the ultimate choice of a particular study space, they were greatly recognized by the students. Altogether it seems that environmental influence of a study space does affect preference and productivity in the majority of students. A larger sample size would have contributed a broader understanding of various study locations on campus. Conducting my interviews in more locations than just McKinley's and the Library would also have helped broaden my results. Also, if I could have done site scans on more buildings over a longer time period I feel it would have uncovered more study spaces that are commonly used by students and how or if environmental influence affects those locations. I could have also broadened my site scans to include more study areas that have little to no environmental influence what so ever, such as a basement room with no windows. A final change that could be made would be if this study were done during the end of spring or throughout first semester while the weather is nicer. I feel these would yield different results because the students would be enjoying nature and green spaces on campus much more often then they are now.

Students on the Allegheny College campus use the green spaces for stress relief, and use the environmental influence present within study spaces to improve their productivity. The students interviewed were found choosing places with environmental influence within the library, in their dorm rooms or houses, and elsewhere on campus as preferred study spaces. After having completed this study I feel that if environmental influence on campus is ignored it is done by the minority of students. From this study, the environment is recognized and appreciated. Most of the upperclassmen and women use the natural influences that the campus has to offer. I would suggest further research on this topic to guide the campus toward retrofitting more buildings to integrate environmental architecture. This would possibly reduce overall stress, increase productivity, and increase the number of students who prefer to study on campus. If all of this is true, the Allegheny College campus could become a happier, more interconnected, and higher-developed intellectual community.

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## Appendix A. Site Scan Data

**Library #1… 1-14-15… 7:05-7:12pm**

**Main Floor:**

12, Glass Rooms, 14. 3 arrived while scanning.

All students dispersed, only one student is sitting facing out of the south windows.

Main Floor: 3 groups. One group of 3, two groups of 2, 5 individuals; two w/ headphones in. 26 Students.

**Glass Rooms:**

4 groups. One group of 5, 3 groups of 2, 2 individuals w/ headphones in.

Moderate Temperature of 70-72 degrees F. All fluorescent lights. Individuals are sitting in a quieter area, groups talking in low voices. Quiet white noise from printers. Glass rooms slightly warmer with noise from street and A.C. apparent.

One plant in far corner, some brick pillars, 2 planters with rows of shrub towards south end of main floor.

**CC Main Floor #1… 1-14-15… 7:16-7:30pm**

**McKinley's:**

8 in booths near windows, 2 in back corner booths, 1 in booth near lobby. 2 groups: One group of 6, one group of 2. 3 individuals with headphones in.

Moderate Cool- 65-70 degrees F. noisy from talking and laughing. Mostly incandescent lights.

1 wood plank in booths by lobby. Tables and chairs made out of fake wood.

**Main Lobby:**

4 people. One group of 3 people. 1 individual, all with headphones in.

Much quieter in lobby, just as warm.

No natural influence besides sky lights.

**CC 2nd floor #1… 1-14-15… 7:30-7:40pm**

**GFC:**

1 student without any electronics. 65-70 degrees F. noise from coolers and machines, wood chairs, benches, side tables, coffee smell. Dim lighting.

**2nd Floor Lobby:**

5 students on high tables fairly spread out, all individuals, one sitting with two friends, 2 with laptops no headphones.70-72 degrees F. Noise from lobby below and people walking by the high tables. 4 plants bordering the corners of 2nd floor.

**Vukovich #1… 1-14-15… 7:45-7:48pm**

No students in this building. Quiet A.C. white noise 70 degrees F. Wood chairs and benches, broad sweeping windows.

**Carr Hall #1… 1-14-15… 7:51-7:53pm**

No students in this location. Quiet white noise from AC water trickling sound from aquaponics system. Fairly warm 72 degrees F. Extreme greenery talking up front windows and 1 wall. Wooden chairs and rocking chair.

**Library #2… 1-18-15… 5:20-5:25pm**

**Main Floor:**

9 students, three groups of 2, three individuals, 3 in computer lab all sitting separately. Quiet, printer noise appx 70 degrees F Bright. Everyone is silent.

**Glass Rooms:**

16 students, one group 4, one group 3, three groups of 2, three individuals. No one has headphones in, some are chatting.

**CC Main Floor #2… 1-18-15… 5:30-5:41pm**

**McKinleys:**

10 students, two groups of 3, four individuals, one being tutored. Sitting in back corner booths and 2 individuals in front booths and 1 in back booths near EE. Cool 68 degrees, not too noisy.

**Lobby:**

Three individuals 2 with headphones in. much quieter than McKinleys, slightly warmer.

**CC 2nd Floor #2… 1-18-15… 5:41-5:43pm**

One student near music wing on laptop. Same temp as lobby downstairs, GFC closed.

**Vukovich #2… 1-18-15… 5:48-5:50pm**

No students in this location fairly warm 68-72 degrees and extremely quiet.

**Carr Hall #2... 1-18-15… 5:55-6:00pm**

No students in this location, warm 72-75 degrees, noise from ventilation and aquaponics but otherwise very quiet. Stone features in planter beds and ferns north wall.

**Library #3…1-20-15… 6:56-7:01pm**

**Main Floor:**

16 students, one group of 2, rest individuals, 4 with headphones in. Mostly spread out. More conversation than past scans and temperature the same.

**Glass Rooms:**

13 students, one group of 3, two groups of 2, rest individuals (6) 4 with headphones. One student has the light off.

**CC Main Floor #3… 1-20-15… 7:04-7:08pm**

**McKinleys:**

12 students total. 7 booths near lobby, 3 in booths in back corner, 1 sitting in main dining area. Most students with headphones in, nosier and colder than past scans.

**Main Lobby:**

No students studying, ASG meeting in progress.

**CC 2nd Floor #3… 1-20-15… 7:20-7:26pm**

**GFC:**

Four students, one group of 2, two individuals, 1 with headphones in. chilly, fairly noisy from conversation. Only student who really looks like she is studying is girl with headphones in.

**Lobby:**

2 individuals. Quiet and warm.

**Vukovich #3… 1-20-15… 7:27-7:32pm**

No students in this location. Still very warm and quiet. A rock sculpture and a metal sculpture placed into an old stump not noticed before.

**Carr Hall #3… 1-20-15… 7:32pm-7:35pm**

No students as well as warmer, feels emptier. Why no students at this time?

**Library #4… 1-21-15… 4:26-4:34pm**

**Main Floor:**

Twenty-one students. Very spread out, only one student sitting near windows on main floor. All groups in the glass rooms. 4 w/ hp all individuals. 1 pain in back corner near offices, 1 near entrance 1 pair on school computer rest individuals 2 on laptops (14 total). Quiet on main floor, no noise from rooms, and noise from paper flipping and typing. Talking not very loud, just from employees. Dim natural light, mostly overpowered by amount of overhead lights.

**Glass Rooms:**

1 with hp, 1 on phone, 1 with nothing, 1 pair studying together (5 total).

**CC Main Floor #4… 1-21-15… 4:15-4:22pm**

**McKinleys:**

All in kinz. 10 total. 7 in booths near lobby, 2 in booths in back corner, 1 sitting near windows. In front booths, 1 triplet one w/ hp. 2 individuals, 1 triplet were all chatting, only one with work out, 1 pair both on laptops and hp. Back booths, all individuals 2 w/ hp. One near windows on laptop. Fairly empty, slightly cool, noise from AC unit.

**Lobby:**

**CC 2nd Floor #4… 1-21-15… 4:08-4:14pm**

**GFC:**

2 near outside facing windows, 2 interior desks, 2 near inside facing windows, two on couches. 1 pair chatting, all other individual, 2 w/hp 9 people total. Noise from people chatting, no one seems to be bothered by it. Slightly chilly in this room. 3 ferns, one vine plat, one small tree in NW corner

**Lobby:**

One near west windows, on around center circle 2 individuals, one w/hp and on laptop, constantly glancing out the window. Slightly warmer than GFC and much quieter.

**Vukovich #4… 1-21-15… 4:06-4:07pm**

No students, still very warm 74F, quiet as usual.

**Carr Hall #4… 1-21-15… 3:58-4:01pm**

1 group near the window. Only one is doing work, others are conversing. Warm about 72F only noise from the chatter and occasional students walking by. 3 students total.

**Library #5… 1-22-15… 5:59-6:07pm**

**Main Floor:**

Mostly spread out, a couple groups. 1 pair studying, 4 individuals w/hp. Very quiet and very empty compared to other nights. Warm 70-72F 5 students total.

**Glass Rooms:**

2 pairs, both had 1 w/hp in and all 4 on laptops. 2 individuals, both on laptops 1 w/hp. 6 students total.

**CC Main Floor #5… 1-22-15… 5:48-5:57pm**

**McKinleys:**

8 near windows, 1 near lobby, 2 in back corner. Near windows, 1 triplet, 1 pair, 2 individuals w/hp. Noisy from conversation, active, and cool. 11 students total

**Lobby:**

One on far back table w/ books and hp. Active noise from people walking warmer than mckinz. 1 student in this location.

**CC 2nd Floor #5… 1-22-15… 5:43-5:47pm**

**GFC:**

4 near windows, 3 at high table, 11 near back corner booths. 1 on laptop near windows, 3 in booth in back corner, one on laptop but all chatting with others. Lots of conversation, person washing silverware, decently warm aprox 72. But not much studying. 18 students total.

**Lobby:**

Spread out around circle, 2 left as I arrived. 1 w/ his books facing east facing windows. Cooler as usual but not by much. 3 students total.

**Vukovich #5… 1-22-15… 5:39-5:42pm**

No students again. Very warm apx.74F

**Carr Hall #5… 1-22-15… 5:34-5:36pm**

Group of three at the table closet to the window all chatting about perhaps a group project. Pretty warm aprox 72F, AC noise and conversation. Plants look healthier today. 3 students total in this location.

**Library #6… 1-23-15… 11:42-11:46am**

**Main Floor:**

Spread out, generally closer to front door, 1 student in alcove to left after walking in. 2 group of 3 chatting. 2 on computers, 2 on laptops, 1 w/hp reading, rest no hp or computers. 9 students total. Fairly quiet, noise from paint roller and chatter near entrance.

**Glass Rooms:**

2 individuals on laptops. 2 total.

**CC Main Floor #6… 1-23-15… 11:50-11:59am**

**McKinleys:**

1 in back corner booths w/hp and laptop. 2 individuals near lobby booths both w/hp one on laptop. 1 in booth near conference room reading. Less noisy than lobby but more active. Also cooler than lobby. 4 students total

**Lobby:**

2 against south wall both individuals on laptops and hp. Very noisy. Lots of young kids and a poster sale going on and decently warm

**CC 2nd Floor #6… 1-23-15… 12:00-12:04pm**

**GFC:**

Generally spread out most sitting close to windows. 2 pairs, one pair both on laptops, the other 1 laptop other reading a book. 2 individuals. 1 w/hp near lobby facing windows. 1 individual in center on laptop and hp. Less noisy than lobby. 7 students in this location

**Lobby:**

Both sitting facing away from windows. 2 individuals, 1 w/hp other on kindle.

**Vukovich #6… 1-23-15… 12:07-12:08pm**

Upstairs facing towards windows wearing hp. Very quiet and 73F

**Carr Hall #6… 1-23-15… 3:58-4:01pm**

Two in lobby, one in corner near offices. 2 are chatting, individual in back corner on laptop w/hp. Moderately quiet, some people walking around and chatting, some noise from classroom. 3 students in this location.

**Library #7… 1-26-15… 3:00-3:10pm**

**Main Floor:**

Fairly spread out. Most at divided tables, 14 on laptops, equal # w/hp. All individuals except for 1 group of three.. 71-73F and quiet. Noise coming from typing and page flipping. Some conversation audible from front desk and main lobby group. Quiet talking noise coming from computer lab class. 24 students in this location

**Glass Rooms:**

Class going on in computer lap. 3 rooms with individuals, 1 group of 4, 1 pair. 3 individuals on laptop, 1w/hp. Pair both w/hp using white boards. 1 individual using white boards w/ light off. Group of 4, 3 on laptops, one reading. Group meeting of sorts going on in another room (did not

record these people because it seemed like some kind of official type meeting with staff). 11 students in this location.

**CC Main Floor #7… 1-26-15… 2:48-2:52pm**

**McKinleys:**

Spread out, most studying in back corner booths. 6 individuals on laptops, 3 w/hp. 2 reading books. Other students left before I could record them. Fairly cool 67-70F, low conversation and noise from AC unit. Natural light does not reach past 2nd row of tables. 8 students in this location.

**Lobby:**

Students spread out, only one studying, most are eating or chatting. On laptop.

**CC 2nd Floor #7… 1-26-15… 2:40-2:47pm**

**GFC:**

Inner booths, couch area, separated in booth/ couch by windows and some on the interior. 6 on laptops, 3w/hp in 1 pair inner booths and group of 4 all not talking, rest individuals. Loud, lots of conversation, girl on her phone, moderate temp.

**Lobby:**

On couch near art department entrance on her laptop top w/hp. Fair-moderate in warmth, quiet, conversation from below.

**Vukovich #7… 1-26-15… 2:34-2:38pm**

One on main floor on a bench near windows on her tablet w/hp. Quiet can hear talking coming from a room in the building, 74F student occasionally walks by.

**Carr Hall #7… 1-26-15… 2:27-2:32pm**

All spread out, no talking or hp. One on tablet, one on phone and laptop, one in back corner on laptop, one reading packet. 3 individuals in lobby are as follows, one at each table and one on couch. Cooler than normal, 70F occasional person walking through, water seems louder than normal. 4 students in this location.

## Appendix B: Interview Transcription

1. Sophomore, Male, Computer Science / Econ double major.

- Top two places enjoy studying: Library Main Floor and Alden Computer Labs
- Library: Away from house so I can focus on my work but there are other students around so I can take study breaks.
- Alden Computer Labs: Has all the computer software needed to do coding but opposite, very isolated. Still away from house so can still focus.
- Preference of space: Prefers the isolation unless working on a group project. If he is working on something different than his friend than he would want to work alone.
- No headphones, music distracts me too much.
- At library constantly looking around to see if people come in.
- Likes tables in the center of the room the best of all seating.
- At Alden he is just looking at the computer, no looking out of the windows
- Even if the weather was nicer, I prefer staying inside to talk to someone as a break. He may go outside with his friends when they are smoking but unlikely.

2. Sophomore, Male, Undecided

- In Dorm Room or in the Library
- Glass Rooms most
- Quieter and easier to focus
- Feels more private
- Takes glances now and then out into library
- Likes looking out into the library more than outside
- Blinds usually closed when working in room
- Prefers electric light as opposed to natural lighting
- His reason is habit for studying that way.
- Never has studied in Carr Hall.
- When he takes breaks he walks around the library to stretch out or goes outside for a smoke break.

3. Junior, Male, Communication Arts, Economics minor

- His room is #1
- If to study on campus he would go to the library
- Likes to study in the basement or on the 3rd floor.
- Harder to focus when there is a lot of activity and noise like on main floor
- Usually studies early in the morning 8am, early afternoon 2-4, or late at night.
- When it is too distracting he wears headphones but usually he does not wear headphones.
- On the quiet floors he goes to the south windows and faces outward
- He likes facing out of the window because he likes to see natural things as opposed to constructed things.
- When he is writing he looks out at the trees it helps him think.
- Only bathroom and drink breaks.
- In room it is different. He does not face out the window but he is more easily distracted and it takes longer for him to do his work.
- He prefers to face outside because he is more productive.

4. Male, Economics Major, Math Minor, Sophomore

- Top two places to study are CC Lobby because it has most sunlight from skylights, Glass rooms because he can see outside and it is also quiet.
- Studies most often in 3rd floor CC in a backroom because it is very private and not a lot of distractions. Very few people walk through that room. Can lose track of time because of small windows. 2nd place is table in between white boards on main floor library. Likes it because he can write on the white boards and get his idea up in big words for him to see.
- Studies most typically around 3pm or 4pm until midnight or 1. Most productive around 7pm or 8pm.
- Most productive at this time because it is cold and dark outside which is less appealing. He finds himself focusing better when he is not distracted by good weather.
- Once the good weather comes so rarely here when good weather does arise it is more difficult to focus because it is a treat. But when good weather is commonplace it is still easy for him to focus.

- Doesn't really know if commonplace good weather would make it easier for him to study or harder. It seems that once the sun goes down he is at his most productive.
- Finds himself happier and more filled with energy when there is good weather.
- Wants to make a budget and a plan to create a room with a sun lamp to help improve mood and energy for college students at Allegheny.

5. Junior, Double Com Arts and History Major, No minor

- Favorite places on south wall of library main floor and in GFC
- Studies most often in GFC
- Likes to study in GFC because of the set up physical. She likes the low talk and conversation, convenience of coffee, it is continent for her because of where she lives and also she likes that it is in the CC.
- Prefers the booths near the windows because she likes to look out the windows when she's thinking or distracted by her own thoughts. Looking out the window feels better to her than getting distracted by Facebook, etc. She feels slightly refreshed when she looks outside.
- She usually sits at the tables with the barricades. She likes the activity in the library; she feels that there is a productive energy in library. When she sits she likes to face the room as opposed to a wall or window because she feels more comfortable.
- She studies most often after dinner at night. Doesn't really know why. Just very used to study at night from high school very involved during the day so night has more time. She works well under pressure and feels that if she starts an assignment closer to the due date she does better on those assignments
- When she takes breaks she either talks to her friends in GFC or go to Mckinz, breaks on Facebook or mindless Internet things. In the library she finds herself on the Internet more than interacting with people because she doesn't want to distract them.
- She feels that she is an outdoorsy person. When weather is better it doesn't really affect how her study habits happen.
- Says she works better in natural lighting. Florescent lighting is oppressive and dim to natural lighting feels like she feeds off it sort of.

6. Male, Senior, Biology, Economics minor

- Steffee in an empty classroom anywhere is favorite place. #2 is Carr classroom
- Emptiness in the classrooms, more constructive environment, not tempted to socialize, convenience of a printer, his lab and comp work are all right there. Headphones are not consistent, sometimes he listens but sometimes he doesn't.
- Carr rooms, similar with socializing and convenience.
- People watcher. Finds that in the library or CC that he is just looking around not focusing on his work. Found very few people that study the way he does.
- Usually sits in the middle area of the classroom, no particular preference. Sometimes works at the teacher's podium.
- Says he likes to hear falling water, really likes Carr lobby or fish tanks in Steffee. Hearing the water does not have significant impact, simply enjoyable.
- If studying at the library he likes having his computer screen face out towards people so if people walk by they see him doing work.
- When taking breaks he usually cuisines around the Internet and reads enjoyable articles. Maybe go for a walk.
- Most productive during the nighttime. Sits down at 7 and from 8-10 he is the most productive. Cannot study during the daytime.

7. Female, Senior, Environmental Science, Psych minor

- Top two places to study are Arter because upstairs there is never anyone, 2nd place is couch in dorm.
- Prefers seclusion while studying. Because she is not distracted instead of talking to people and she likes it to be quiet.
- Although quiet she plays music in academic buildings and in her room she does not play any music.
- Most productive study spaces are the Library during her work hours and in her room depending on her mood.
- When working at library she study's during the day but when she does work outside of her job she works during the nighttime after dinner.
- At night she is usually free from other commitments so that's when she studies.

- When in Arter she sits right by the door facing the wall because it is the most comfortable.
- Couch is facing the windows in dorm.
- When taking breaks she scans the computer plays games on her phone or just sits there.
- When in room she looks out the window quiet often, there is a row of trees and she enjoys looking at them
- Usually blinds are down in Arter.
- Desks in Library used to face the wall but now faces the windows and she says she is more productive this semester.

8. Male, Senior, Environmental Science, Econ minor

- Top two places to study are in the Library or at his on campus house.
- Library he usually sits by himself in the glass rooms or upstairs or downstairs facing the south windows during bigger assignments. He likes the natural light and feels he gets better work done there. Smaller assignments he likes being on main floor to find other people in his class to bounce ideas off them. Likes to socialize while working.
- On campus house he is at table in kitchen because it is a big open space. More comfortable in this space, more closed off likes to do small assignments. Likes it for convenience.
- Two most productive spaces are the Library because he went there for the purpose of studying. Campus Center is another place on 2nd floor lobby on high tables. Likes it for similar reasons as the library, access to other people and that he still has his own space.
- Set up in kitchen is kind of dark, not much natural light feels like that affects his productivity. More for quick things not for serious work.
- When taking breaks at the library he walks around the library or leaves to a house close by where he knows people.
- Similar for the campus center he gets up and goes to get food or to talk to people. Likes to get away from his space.

9. Female, Senior, English major, History minor

- Two most favorite places are her comp cube and 2nd floor Arter.
- She likes her comp cube and because it was quiet and she had a very nice view out of the 3rd floor south facing windows. Usually does not use her headphones. Likes white noise better.

- She likes the room to spread out in Arter, gives a studious feel. She likes to be along the sides of the long table in the seminar room. Pretty much right in the middle of the table. Both of these places have easy access to outlets.
- Two most productive places are her room in Arter, and her other favorite place is using a public computer in the Library for writing papers. She likes the public computers because it is a time crunch for other people need to use the computers as well. Less tempted to scan the Internet.
- When taking breaks in Arter she likes to listen to podcasts for 20-30 minutes. Feels pretty productive while listening. In the library she likes walking around a little bit. She liked to go for walks outside in the fall for about 20 minutes.
- After talking the walk she felt refreshed because she had no distraction. At peak stress level she would go to a favorite tree and relax underneath it.
- Not so much a social break taker.

10. Male, Freshman, Comm Arts Major, Undecided minor.

- Two favorite study locations on campus are in his room because his roommate is out and likes the alone space. Second is the library.
- General work he does in his room. He likes it quiet. Most of the time he wears headphones in his room. His desk is oriented facing the wall in the middle of the room.
- Library he usually goes to the glass room if not he likes it on the first floor. Not a fan of going upstairs or downstairs. Usually likes wearing headphones on the first floor as well. Likes the first floor better than the others because it is comfortable for him. He went the first time and stuck.
- Library and room are most productive as well he likes the quiet.
- Library he usually goes to smoke a cigarette but occasionally he would talk or browse the Internet.
- In his room he usually goes to other friends rooms or goes to smoke a cig.
- Being outside gives him a second to be away from his work and think about what work he did and what he has to do.
- Door closed and locked when studying in room does not like distractions of people walking by. Studies with his blinds closed more often than open.
- Usually study's in the evening after he eats dinner 6-7pm. Because he has the most time to sit down and get work done.

11. Female, Senior, Global Health Studies and Econ Major.

- 2 most favorite places to study on campus are Library upstairs in the green couch area because it was quiet but still can here conversation from downstairs, not as distracting as downstairs. 2nd favorite is on the public computers in library because she is close to coffee and she feels less stressed being around people.
- Sometimes studies for econ in Quigley because there is a computer and near a lab and near professors for convenience and mostly during the day.
- 2 most productive areas to study are the first two places because she is always trying to get as much work done as possible. She likes to have breaks with social life. Finds more productive upstairs as compared to main floor. Her productivity is working for x amount of time then take a break. Never studies at home
- A break is to switch mental gears for her. Can switch from one assignment to another, walks around to talk to people or goes to get coffee.
- She says wearing headphones is inconsistent. There was a lot of construction going on early in the semester, which she blocked out with headphones.
- She usually studies at night most often, pending workload sometimes in the afternoon. She studies in the night because it is the most time where she does not have the most commitments.
- She picks these areas depending on space. When the weather is nicer out she likes sitting by the windows because she would like to view the nature, not so much now because it is so grey. Fewer outlets by the windows.

12. Female, Sophomore, Neuro and International Studies double,

- 2 favorite places to study on campus are the Library and Campus Center.
- In Library she usually is in the glass rooms but if she has a lot of work to do she goes upstairs. Likes the glass rooms of the huge white boards and to work collaboratively but still private. Goes upstairs when a lot of work she goes upstairs because much less likely to be interrupted. Sometimes wears headphones tuning people out.
- Campus Center she studies on the 3rd floor in the back corner near the printer or one of the two rooms up there. Likes the seclusion as well as getting food at Mckinz, convenience of printer and location on campus.

- 2 most productive places are in her room when she is in a time crunch, CC more than library. Most productive here because of time crunch mostly but also state of mind, how she is feeling in the moment and how focused she is.
- When taking breaks she does yoga, goes and walk around, goes to get a snack, watch short videos online. Doesn't do social media or other sites because she gets sucked in. if really nice she will go outside but usually only leaves when she is going somewhere else on campus.
- On the 3rd floor she will go to computer if she needs it or a cube in the main alleyway. She doesn't really know why not, finds herself getting distracted walking outside.
- Usually finds she studying in the evening after dinner or early morning. The day is usually filled with classes and other commitments.

13. Female, Freshman, Comm Arts, Psych minor poss.

- 2 favorite study areas any room area in the library or 3rd floor on the campus center.
- She prefers the rooms as opposed to the common areas because she likes having her own space and gets distracted by other people on main floor. Favorite rooms are the interior rooms over glass room because it is more closed off and small. Feels less distracted.
- 3rd floor CC likes the couches near the interior stairs or the rooms that are there if they are open. Prefers these because they are usually open and quieter. Less distracting.
- Top two most productive areas are in the Library or in her room are the most productive.
- More productive in her room if she is alone because it is her own space but does not like how small the desk is. She would like the desk facing the wall but the desk is facing the windows. Usually closed or a little cracked. Never all the way open or locked.
- Taking a break she would usually play with her phone or do something random on the Internet. Happens less in her room but consistent in CC and Library.
- Wearing headphones depends on the work. Doing a paper she will not wear headphones but while copying things from a book she would wear headphones. More likely to wear headphones here or in room but not CC.
- Usually has blinds closed, does not look outside that often.
- Studies around 6pm when she has free time but usually does her work during her job hours at the library. Never in the morning almost always in the evening. If no work not in lib past 9.

14. Female, Junior, English, Psych Minor

- Two favorite places to study on campus are the Library and the 2nd floor campus center.
- Main floor she usually studies by the south facing windows. Picks this spot because she likes to being by people and being by the sunlight.
- 2nd floor campus center she usually is on tall tables. She likes this spot because it is kind of secluded she likes the convenience of McKins.
- Two places she is most productive is the Library she is most productive or in her room she is productive.
- Productive in her room because everything is right there, no distractions. Studies at her desk right near her window. Usually have blinds open but curtains are usually partially closed.
- Usually wears headphones when out but just plays music out when in her room. Keeps headphones on in CC and Library to drown out white noise.
- When taking breaks she usually gets up and walks around, not often does she scan the internet. She likes to get up out of her space and move around. In CC she does the same. In room she simply does something else in her room. Occasionally look out the window but focus is usually elsewhere. Library she finds herself looking out the windows often. She likes looking out at nature and feels refreshing and drains her brain from stress. Prefers looking outside than at plants likes the movement. Says she enjoys having the greenery present.
- Usually finds herself studying afternoon or after dinner, most time after classes to sit down and do work.

15. Male, Junior, Biology, Spanish and Philosophy minor

- Top two places to study on campus is the Library and Campus Center and Steffie.
- Likes library because of the social component, likes saying he's doing work but being around people. Productive but social. Likes the quiet floors to actually crack down on work. Usually picks places near or facing out the windows as opposed the interior cubes. Likes the windows better because it is nice to have a view.
- Campus Center usually goes to a room on 3rd floor. Likes it because of the convenience. Close to room food and socializing. Likes the quiet.
- Top two most productive spaces are quiet spaces in Library and in Steffie. Being in these areas are less distracting and continent so it is easier to focus on work. When studying in these

quiet spaces he recently have not been wearing headphones and found to be more productive than wearing headphones.

- To take a break he goes to the aquatics room and views the animals. He likes watching them he thinks their fascinating. Usually just hops from one tank to the other, just basic being in their presence is relaxing. Other breaks are on the internet but he usually strays away because he can get lost for a long time. Says he feels equally refreshed watching 25 minutes of Worldstar as opposed to 5 minutes of fish watching.
- Usually finds himself studying at night after he eats dinner. Finds he is much more productive in the morning and has been doing this recently.