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## **Introduction**

Design should be the main concern when designing living and learning spaces for students at Virginia Tech. The design of a space has a valuable impact on those experiencing it and certain design techniques can be used to create environments that foster student success and promote mental well-being. Design can be utilized in a multitude of platforms, from houses and stores to screensavers and logos; it's found in all areas of life because of its importance. Design has the ability to change the *purpose* of a space, it can transform a basic room into an engaging classroom or even a calming environment. I found that details like lighting, color, furniture, and acoustics all come together to interact with our senses and create our perception of our environment and that this is what gives a space its *purpose* or *feeling*. At Virginia Tech, where students face the heavy demands of academic pressure, social challenges, and personal growth, the design of their environments can make a significant difference. By prioritizing design principles that promote mental well-being, productivity, and focus, it's possible to create spaces that not only support academic success but also contribute to a healthy and balanced student experience. When students feel comfortable, inspired, and at ease in their environment, they are most likely to thrive.

## **Background**

Environmental psychology plays an important role in architectural design. It was established as an independent field of research under the category of Architectural Psychology in

the early 1960s. The study focuses on the relationship between humans and our environment, with its different concentrations from areas in ecology to urban planning. Environmental psychology looks at the psychological and behavioral responses to different settings and has a goal “to improve the interactions between humans and our natural and built environments.”

(Archontia Manolakelli) through the application of research and psychological theories.

Concepts such as accessible views of nature improving surgery recovery, the biophilia hypothesis claiming that people have a tendency to be attracted to natural design aspects, spatial selection impacting interpersonal relationships, cross-cultural exchanges, architecture, etc (Archontia Manolakelli) have been widely applied to design choices to enhance the experience of a space.

The origins of Feng shui can be traced back three to four thousand years in China. It was first introduced into the Chinese vocabulary during the Jin Dynasty (265-420 AD) in a book written by Guo Pu. The practice has been passed down through writing and continues to be prevalent in Asian cultures during the modern day. Feng shui is based on Qi (also called Chi), the “intangible natural energy” (Matthews) that is present in every living and nonliving object in the universe. Feng shui’s ancient use included building tombs, geomancy, telling fortunes, and deciding the orientation of homes. Feng shui can be used as an astrological guide for timing decisions similar to the western world's infatuation in the pseudoscience Astrology. But Feng shui holds much more validity than astrology, which can be observed through its modern applications. In Hong Kong, Feng shui experts are consulted by corporations for advice on building design and arrangement and product launch dates. In Taiwan there was a train station accident that resulted in the Taiwan transport minister consulting with Feng shui experts to completely realign that station's entrance. As seen, Feng shui plays an important role in Eastern countries' decision making and construction ideas.

Design has been a prominent part of human history, from architectural masterpieces like the Taj Mahal, Notre Dame Cathedral, and the Pyramids of Giza, to small choices like lighting fixtures, room layout, and colors. Even the smallest of details contribute to the whole experience of a place without our knowledge. That's what makes design so important. Virginia Tech itself is known for its architecture and design programs. Leading by example the campus is built from “hokie stone” a mineral found in the Appalachian mountains and mined from the town of Blacksburg (“All about Hokie Stone”). In the beginning of the 20th century, Virginia Tech did not want its reputation to be a vocational school, so the architects mimicked styles of the world renowned British Universities: Cambridge and Oxford. In the hopes that people would see the similarities and assume Virginia Tech held the level of prestige that those universities did. Using the architectural neo-gothic style and hokie stone they were able to create the campus that exists today (“All about Hokie Stone”).

### **Primary Research**

I conducted a survey with Virginia Tech students about campus location preferences and collected 30 responses (Appendix A). Questions included asking students about their favorite campus locations for the activities of studying, socializing, and relaxing and asking them to select options that described their optimal studying, socializing, and relaxing environments. The selection options offered a variety of noise levels, lighting color and brightness, privacy, disruption (outside noise), location, furniture, and sustenance. Reviewing the responses collected, I have observed a preference for the different activity environments. For studying, preferences were mild background noise, natural lighting from a window, inside, semi-private space, no disruptions, medium sized space, tables, wheeled desk chair, on campus, with food and drink. For socializing, students selected mild background noise, natural lighting, public space,

mild disruptions, medium or large sized space, no preference for outdoors or indoors, couch, no preference on or off campus, with food and drink. For relaxing, students preferred darkness, silence, natural low lighting from a window, private space, no disruptions, inside, small or medium sized space, couch or bed, no preference for on or off campus, with food or drink.

### **Feng Shui as a Science**

The ancient Chinese art of Feng shui is a scientifically significant way to arrange a space to have a psychological and physiological impact and should be taken seriously. Despite its prominence in Asian culture there is still a wide spread superstition and lack of scientific examination around the practice. Even though there are many sciences taught that are based on concepts of energy like physics, Feng shui is continually forgotten and disregarded as a science. However, recent research has shown that Feng shui has scientific implications proving that it should be considered a science and taken into considerations. Researchers Jin and Juan used the fuzzy Delphi method, the usage of expert opinions in order to create an evaluation criteria, to test two separate virtual reality rooms: a room that was designed with Feng shui consideration (GR room) and a room that was designed violating Feng shui criteria (BR room). (Jin and Juan) Research participants then entered the virtual rooms and were measured on their Heart Rate Variability (HRV), as to reflect the state of the autonomic nervous system that is closely related to emotional state. This experiment yielded a statistically significant difference in heart rate variability for all participants in the two virtual rooms, “It can be seen that the average value of HRV of GR (47.50) is higher than the average value of HRV of BR (43.71).” (Jin and Juan), studies have shown that a low HRV is associated with mental illnesses that indicate “unsatisfactory physical health” (Jin and Juan). These findings challenge the long-standing skepticism about Feng Shui's scientific relevance and emphasize the need for a shift in how we

view environmental design. The physiological impact of spatial arrangement—traditionally dismissed as pseudoscience—should not be ignored, especially when emerging research like Jin and Juan’s demonstrates a clear, scientifically measurable effect on health. By integrating principles of Feng Shui into design practices, we could begin to develop aesthetically pleasing spaces that improve emotional well-being and physical health. It’s time for Feng Shui to be worldly recognized as a scientifically-informed practice that can play a crucial role in creating environments that foster human well-being. As such, both scientific inquiry and architectural practice must reconsider the potential of Feng Shui and prioritize its integration into the design of spaces, particularly in fields where health and productivity are of utmost concern.

### **Rapidness of Feng Shui**

Feng shui consideration can have an immediate impact on emotional state. I myself have experienced the difference in effects of a room designed with Feng shui and one without. In my home in Massachusetts I live in the smallest bedroom in my house. Growing up this was a burden to me, being the youngest child I received all the hand me down clothes, toys, and furniture even if I didn't like or want them. This meant that my small room was stuffed full of clutter that remained for years. This past summer I started to redo my room, buying new furniture, even creating a small scale version of my room to design. On paper it seemed perfect, there was enough space for walking by and the locations of the bed, desk, and dresser made sense. When this room was built together and I realized I had made some unknown mistake; it just didn't *feel* right. On sleepless nights, I would turn over in bed and see my reflection in the vanity mirror. In the dead of night, the sight of myself staring back was more unsettling than comforting. While the chaotic clutter was gone, the feelings of dissatisfaction remained. I knew it had something to do with the design of the room whether it was the small space or my

arrangement of the furniture. Desperate for a solution to my problem I went to Google and found an article about using Feng shui principles in a small room to maximize the energy flow. I followed the guidelines, making small but thoughtful changes: I repositioned the mirrors so they wouldn't reflect the bed, focused on using softer, natural lighting, and placed the head of my bed against a solid wall—considered one of the most important rules for grounding energy in a room. Instantly there was a shift in the nature of my room. It felt like a space I belonged to and matched my every mood. Reflecting on this experience reinforced my belief that Feng shui creates an environment that supports your mental and emotional well-being. When the flow of Qi is balanced, our minds and bodies respond accordingly. A room designed with Feng shui principles doesn't just look good on paper, it transforms how we experience the world around us. Whether it's a bedroom, classroom, or sitting space, making thoughtful, intentional choices about design can have a profound effect on how we feel, think, and even sleep. And for anyone skeptical about the power of Feng shui, I can only speak from experience: the impact is real, immediate, and unmistakable.

### **A Field on the Rise**

Neuroarchitecture is a useful field on the rise that will help us to design better spaces with the consideration of neuroscience principles. Neuroscience encompasses our nervous system including the brain, spinal cord, and peripheral nervous system (PNS). The PNS serves as the intercommunication center for our brain and the rest of our body. Neuroarchitecture is a rising field that records neural activity when exposed to environmental stimuli that then serves as the foundation for design (Higuera-Trujillo et al.). It allows researchers to assess the validity of architectural designs' effect on our cognitive-emotional response, effectively measuring the ability of a space to have an impact on our emotions. The article, "The Cognitive-Emotional

Design and Study of Architectural Space: A Scoping Review of Neuroarchitecture and Its Precursor Approaches” looks at the emerging areas and potential of neuroarchitecture by reviewing previous literature and research. The article identifies three base approaches to contextualize neuroarchitecture: “(1) geometry, (2) phenomenology of space and geographical experience, and (3) philosophy, environmental psychology, and evidence-based design.” (Higuera-Trujillo et al.). Some architectural aspects like geometry are not presently observed or experienced but felt cognitively. Designs such as the golden ratio and the nine square pattern, that have been observed throughout history starting in the classical Roman world, have been validated experimentally to be aesthetic to the human mind (Higuera-Trujillo et al.). Lighting is heavily emphasized in neuroarchitecture because of its cycle of perception. The ganglion cells in our eyes are the intake source of lighting and affect our circadian rhythm, our sleep cycle, which affects our mood and well being. Similarly, acoustics are crucial to how we experience space; excessive noise or poor sound quality can cause stress or hinder concentration, while carefully planned acoustics can foster a calming, productive atmosphere. Concepts from environmental psychology, like the Gestalt principles of perception, are already commonly applied in modern architecture to create visually appealing and functional designs. These scientific principles guide how humans perceive the relationships between objects in a space, helping to create environments that feel harmonious and balanced. By considering how neuroarchitecture elements like light, acoustics, and geometry affect the brain's responses, architects can design spaces that improve students' mental and emotional well-being, ultimately supporting better academic performance and overall quality of life. In this way, neuroarchitecture has the potential to reshape how we think and design spaces that house our daily experiences; and should be utilized to create scientifically beneficial environments.

## Student Spaces on Campus

When spaces are designed with students' preferences in mind they foster success. Throughout campus there are already designated study, socializing, and relaxing spots. Some are clearly labeled as such while others have been converted into their purpose by student specific use. When surveyed, 60% of respondents wrote that their favorite campus location to study was either the Torgerson Bridge or Newman Library (Appendix A). I went to these two spaces to observe their design features and atmosphere. When I first visited Torgerson Bridge, the mood was apparent from a distance. The most noticeable factor was the lighting and all dark wood interior. The lighting throughout Torgerson is very minimal and warm toned, there are lights that line the walls about two feet from the ceiling that instead of facing down illuminate upwards creating which is effective in creating a calming atmosphere instead of having the light shine directly down it is dispersed across the arched ceiling. The window lined walls feature individual nooks that create a quiet, private work space. The middle section of the library is filled with desks decorated with wooden chairs and warm lighted lamps. Torgerson is open 24 hours a day and easily accessible to students. The space also serves as a walkway for passerbyers to travel through. This space contained the popular qualities of natural and mild lighting, a view of the outside, silence, a semi-private space, and located on campus. As I exited Torgerson, I entered Newman Library. The different floors of Newman are what make it such a popular spot with students. There are certain “quiet” and “loud” floors that allow students to choose their preferred environment for productivity. The “quiet” floors are the 3rd and 5th floors, they have individual cubicles and group desks for students to sit at. The “loud” floors are the 2nd and 4th floors. They offer the students a space to be collaborative with many long tables, group desks that are sit or stand, and a variety of chairs. It also features small study group rooms that include white boards,



a desk, and chairs for students to use. Throughout Newman Library there are also mediation rooms where students can practice religion without having to leave their study space, charging ports and public computers for students to use. This space also contained the popular qualities of mild lighting, silence to mild background noise (depending on the floor you choose), semi-private and private spaces, view of outdoors, tables and desks, a variety of chair types, and located on campus (Appendix A). Both Torgerson and Newman Library exemplify how thoughtful design can enhance the student experience by providing spaces that cater to different needs for concentration, collaboration, and relaxation. These spaces are not only functional, but they also promote an atmosphere conducive to academic success and personal comfort. The combination of quiet, semi-private spaces, natural lighting, and access to necessary resources ensures that students have the ideal environment to thrive, whether they're working independently or with peers. By maintaining these features, these campus locations meet the needs of students, making them invaluable spots for studying and productivity.

### **Lack of Spaces for All**

The Virginia Tech campus is missing a large amount of relaxation spaces for all students. This problem disproportionately affects off-campus students, which needs to be addressed in order to foster a more supportive and well-rounded college experience. Respondents described their ideal relaxing environment as silent to mild background noise, low lights or darkness, a private space, inside, views of windows, and a couch or bed (Appendix A). Having accessible relaxing spaces is a necessity because they give students a break between classes to mentally reset. However, the current campus infrastructure fails to meet these needs for a large portion of the student body. In fact, roughly 66% of respondents identified their favorite place to relax as either a dorm room or bedroom (Appendix A). The 43 residence halls of Virginia Tech are only

able to accommodate 9,300 students (“Housing”). While the school maintains an undergraduate population of about 38,000 students (“Facts about Virginia Tech”), it's easily observed that 75% of students at Virginia Tech do not have access to an on-campus location to relax. This effectively forces students to either push through their stressful days or take the long commute and leave campus entirely to find a quiet, private spot to relax, but this idea is unrealistic.

College students spend a great deal of time on campus, 50% of surveyors reported spending three to six hours on campus daily, while 40% spent more than six hours (Appendix A). These long days on campus mean it's a necessity for Virginia Tech to create relaxation spots that are available to students who live off campus because they are still “living” a significant portion of their day on campus. The struggles of being a college student are well known, and spaces that allow students to forget about their responsibilities and take a deep breath even for a small moment are important to their mental well being, which in turn, impacts their academic performance. Everyone deserves a spot to decompress between classes without being inconvenienced by a commute back to their housing situation. Virginia Tech needs to focus on creating infrastructures that provide all students access to relaxation in an effort to support students in their academics, mental health, and ultimately their success as a whole.

### **Dorm Life**

As for on campus students, not all living spaces are created equal. Of the 43 residence halls there are six different categories that separate them based on their amenities. I live in Slusher wing, which is ranked as “Category A: Non air-conditioned, traditional style” (“Room and Dining Rates”) which has the least amount of amenities compared to the other categories that have air conditioning, suite style rooms, individual rooms, semi-private, or private bathrooms (“Room and Dining Rates”). Slusher wing consists of a second, third, and fourth

floor. I live on the second floor which is ground level where the laundry room and singular water refill station are located. On August 20th, I stepped into Slusher for the first time and when I walked to my room I saw a cockroach on the floor, a live cockroach crawling around. I assumed it had gotten inside the building from open doors since people were moving in, but I soon found two more that were both dead. Then I figured all the dorms must have them too, so I tried to ignore the possibility of a roach infestation and continued to unpack all my things in my room. The hardest part of moving in was arranging the furniture in my room. Our rooms have heating units along two walls that prevent the bed from being pushed flushed up against the wall. There's a one foot gap between my bed and the wall that I lose pillows and blankets to in the night. For the girls side of Slusher wing, the beds only have three options for lofting: as high as possible, middle height, or as low as possible (on the floor). I opted for the middle since I didn't like the idea of constantly climbing up and down my bed. But this reduced the space in my room, a lofted bed can fit the desk and dresser set underneath it with easy access to them. I now had to think of a way to be able to use my desk and dresser with a low bed. After countless attempts and waning patience I chose a spot for my bed that allowed me to sit at my desk. Although it's not my favorite layout, it was the best I could do with the space I was given. Later in the year I visited Hoge Hall, another category A dorm building, except it was a lot nicer than Slusher and didn't have any cockroaches. The rooms were bigger, like a lot bigger. Their beds had multiple lofting settings and they had different lighting fixtures than Slusher. This didn't make any sense to me. These dorms cost the same and are categorized the same, yet they have different designs making one obviously better than the other. When I got back to Slusher I found out that the Slusher guys' dorms have multiple loft settings too. This is because their side had flooded and was renovated so not only do they have better beds, but they have new floors and desks, and an armoire while

the girls' dorms have built in closets that take up space along the wall. One of the original features Slusher was built with in the 1970s. This provided an explanation for the reason why my friends and I always hung out in one of the guys' rooms instead of ours; they were bigger and had nicer design characteristics than ours. Even within the building there was unfairness in design and realizing this only made me more upset. These seemingly minor design factors in living spaces can influence not only how a room is used, but also the overall mood and comfort level of the people living in it. Differences in color and material as well as the possibility of multiple choices when it comes to arranging a space have the ability to evaluate a space from the place where you sleep to your home that you enjoy spending time in. The design of space is more than what just meets the eye, it can shape a student's overall experience at college. When space is optimized for comfort, functionality, and flexibility, students are more likely to feel settled and engaged. Conversely, when space is poorly designed or inequitable, it can lead to frustration and irritation.

### **What about individual preferences?**

Design preferences are too complicated to generalize for all students on campus; the experience of being in a space is completely subjective and dependent on the individual. Preference for design type has no significance in neuroarchitecture since it is based on human physiological and neurological principles that have been scientifically proven to be effective. For instance, natural lighting, spatial layout, and even the choice of materials in a space can have a significant impact on how students feel and perform. These elements are not only based on subjective opinions but on years of research showing their physiological and psychological benefits. Individual design preferences are not able to take precedence over biological design preferences. By focusing on design principles that cater to the human body's natural responses,

Virginia Tech can create spaces that work for the majority, even if they don't always meet every individual's specific preference. That's why it should be the number one focus of Virginia Tech, because it will affect everyone. Offering a variety of diverse spaces that are human-centered with a main focus on design that's based on neuroarchitecture principles will ensure that students are able to find the spaces that directly accommodate their needs.

## **Conclusion**

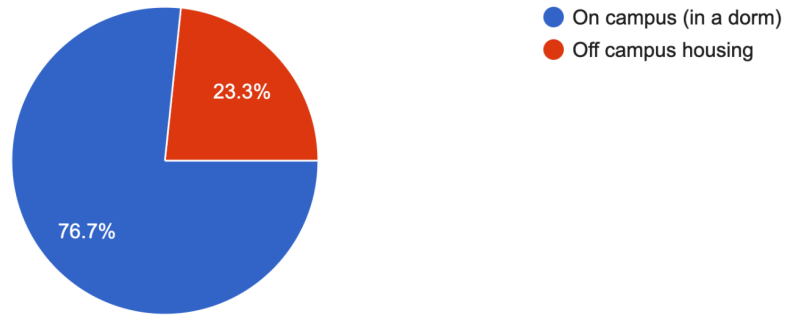
The design of a space has the capacity to impact its occupants on a physiological and psychological level. The practice of Feng shui, often dismissed as pseudoscience, holds significant scientific relevance in the realm of design, particularly when considering its impact on human well-being. The principles of Feng shui, when integrated thoughtfully into modern design, offer an approach to creating environments that promote balance, productivity, and comfort. The emerging field of neuroarchitecture, which combines neuroscience with architectural design, reinforces the importance of the impact a spatial environment has on its inhabitants by looking at physiological responses. By utilizing principles from both Feng shui and neuroarchitecture, we can create spaces that enhance cognitive and emotional well-being. This is important for universities, where the design of classrooms, study areas, and relaxation spaces directly impacts student performance and mental health. As demonstrated by the thoughtful design of spaces here at Virginia Tech like Torgerson Bridge and Newman Library, a well-designed environment fosters productivity, comfort, and a sense of belonging. However, there is still much work to be done in creating equitable and supportive spaces for all students. The lack of accessible relaxation spaces on campuses, particularly for off-campus students, highlights a critical gap in design that affects students' ability to decompress and succeed. Ultimately, integrating the principles of Feng Shui and neuroarchitecture into design practices is

not merely a matter of aesthetics but a scientifically supported approach to enhancing human well-being. By taking a more intentional, science-based approach to campus design, Virginia Tech can provide spaces that are not only functional but truly supportive, helping students to thrive both inside and outside the classroom.

### Appendix A

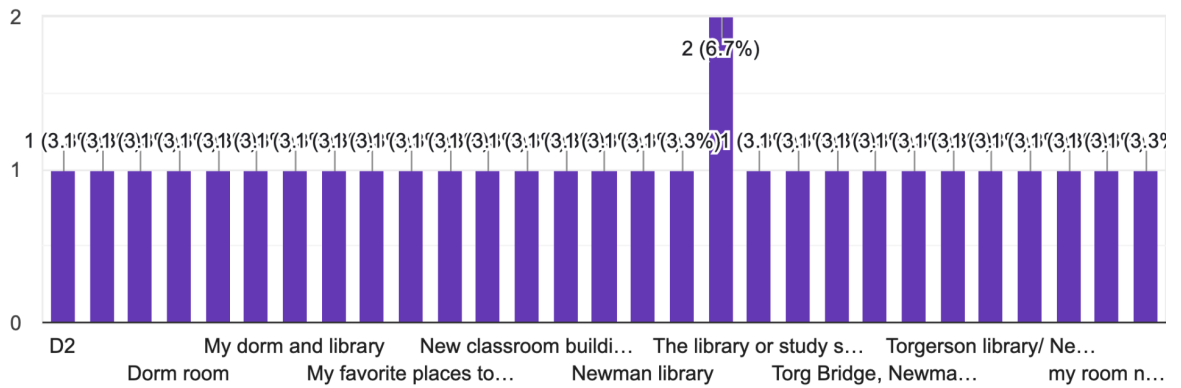
Where do you live?

30 responses



What is/are your favorite campus location(s) to study?

30 responses



What is/are your favorite campus location(s) to socialize?

30 responses

My favorite place to socialize is my dorm.

In the classrooms

dining halls or even in the dorm

Food courts or off campus

DX

My suite

Turner

Dinning halls or meeting up in dorms

dining halls



The volleyball court

Squires

classrooms, I don't like to go out of my way to socialize

WareLab

Downtown/Drillfield

Owens

dorms

Student Athlete Dining Hall

The dining halls. Specifically West End by the comfy booths where a bunch of my friends can all fit at one table.

Outside of D2

classrooms, dining halls, study spaces in dorms

War Memorial gym, D2

War Memorial Gym, Study Lounge in Dorm

perry place

My favorite place to socialize is in the dining hall or squires.

Perry place

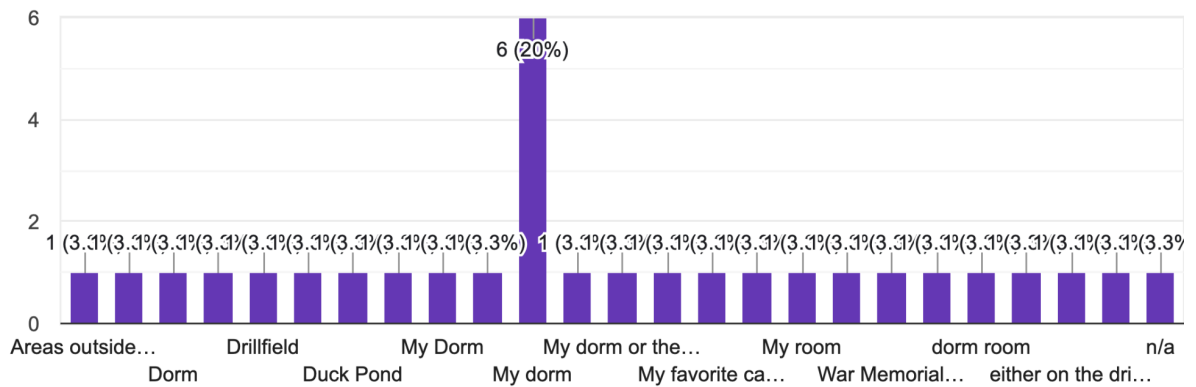
Centros/ Downtown/ Dorms

West end

- Downtown and DX and the Market
- Dining halls
- In the dorm

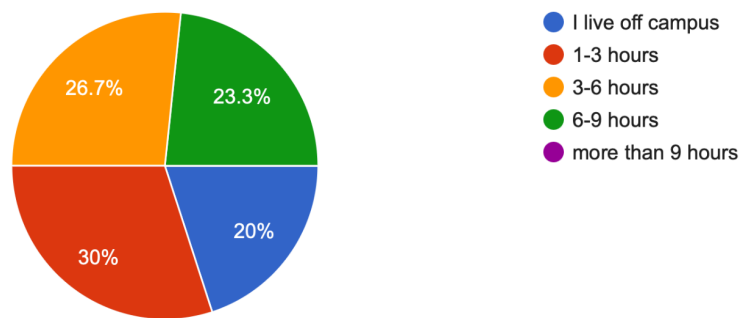
What is/are your favorite campus location(s) to relax?

30 responses



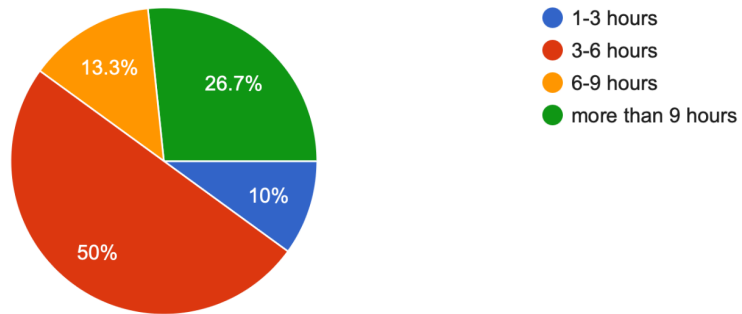
How many hours a day, on average, do you spend in your dorm? (not including sleep)

30 responses



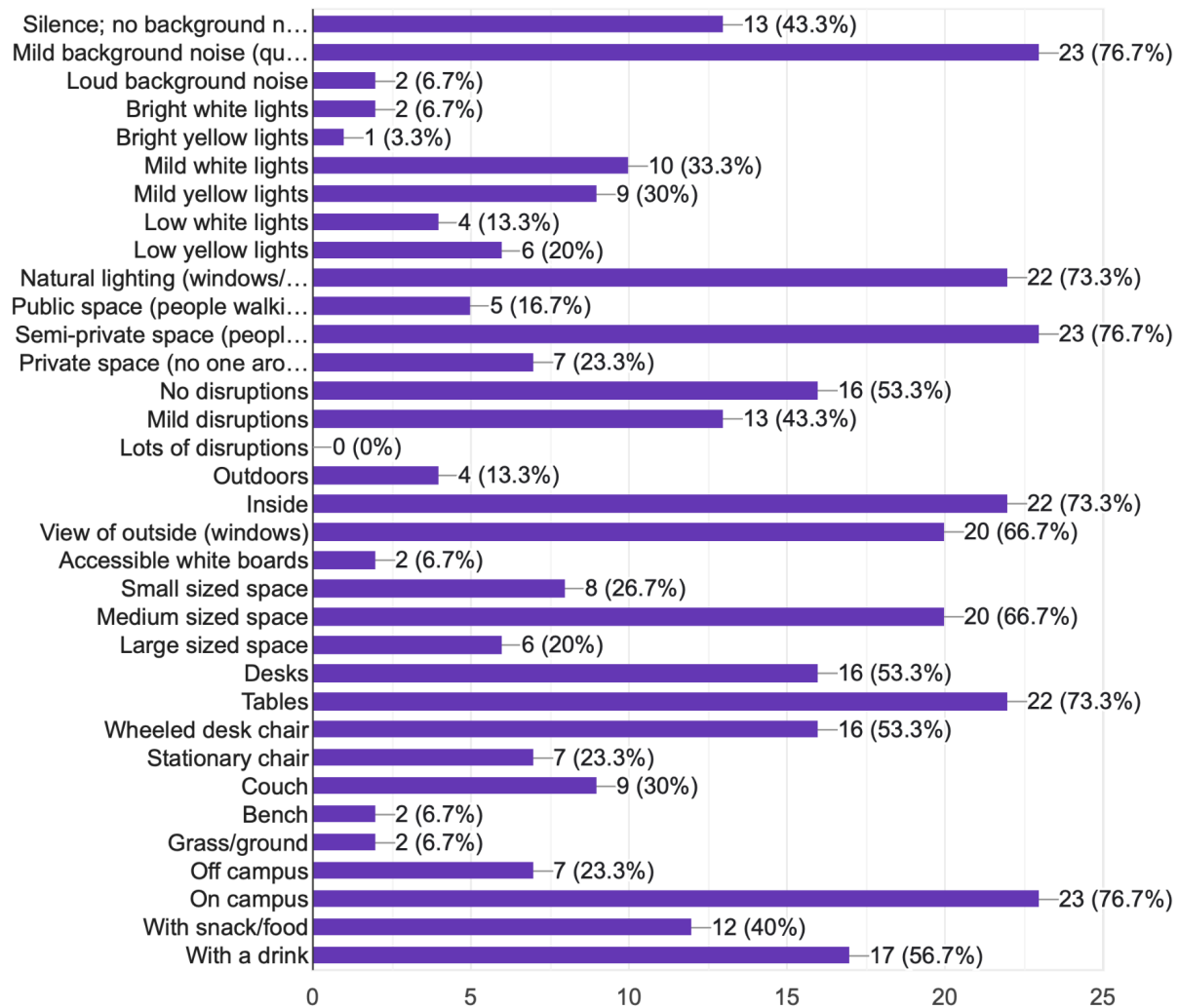
How many hours a day, on average, do you spend on campus? (not in dorm building)

30 responses



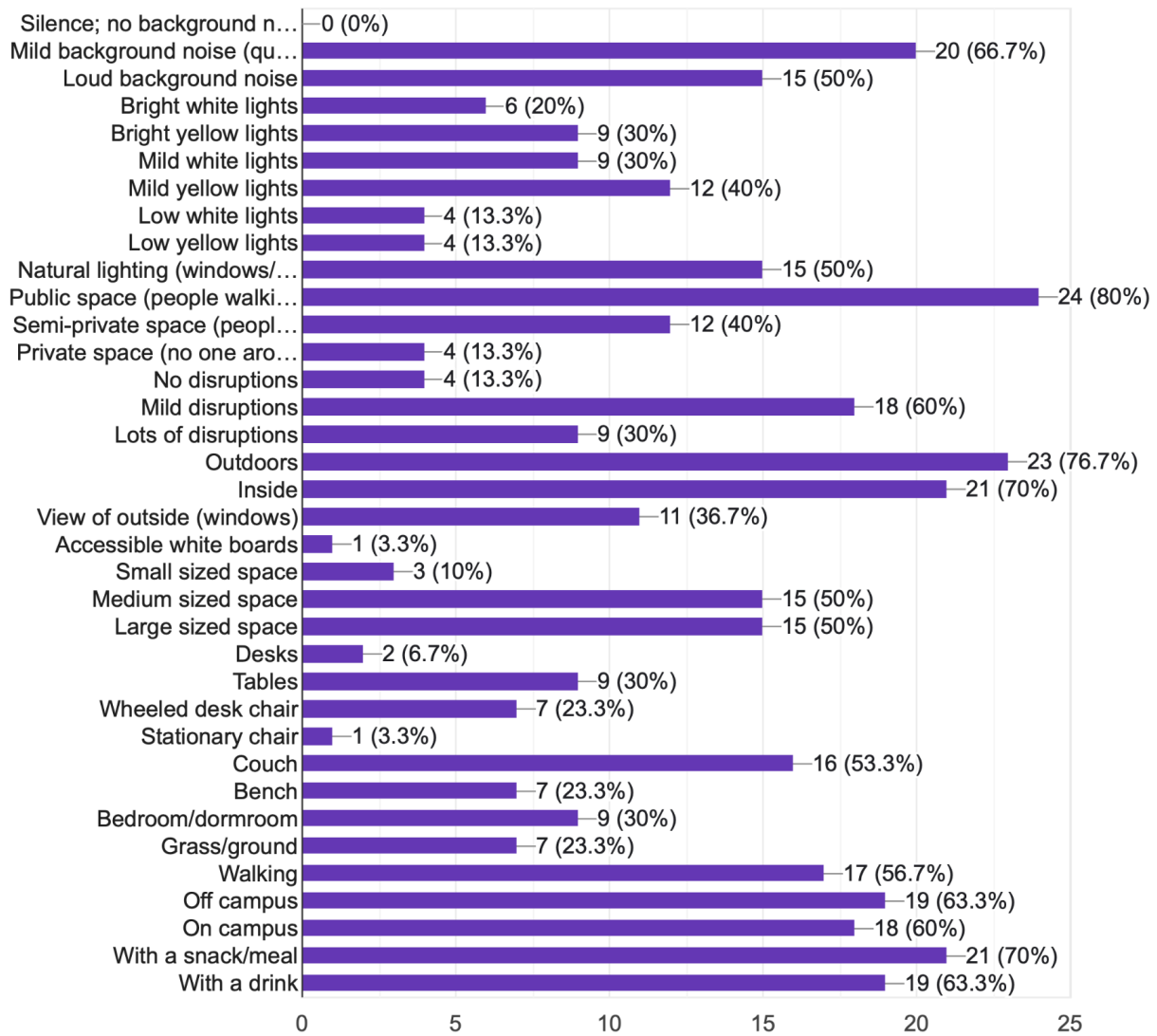
Select the options for your optimal study environment:

30 responses



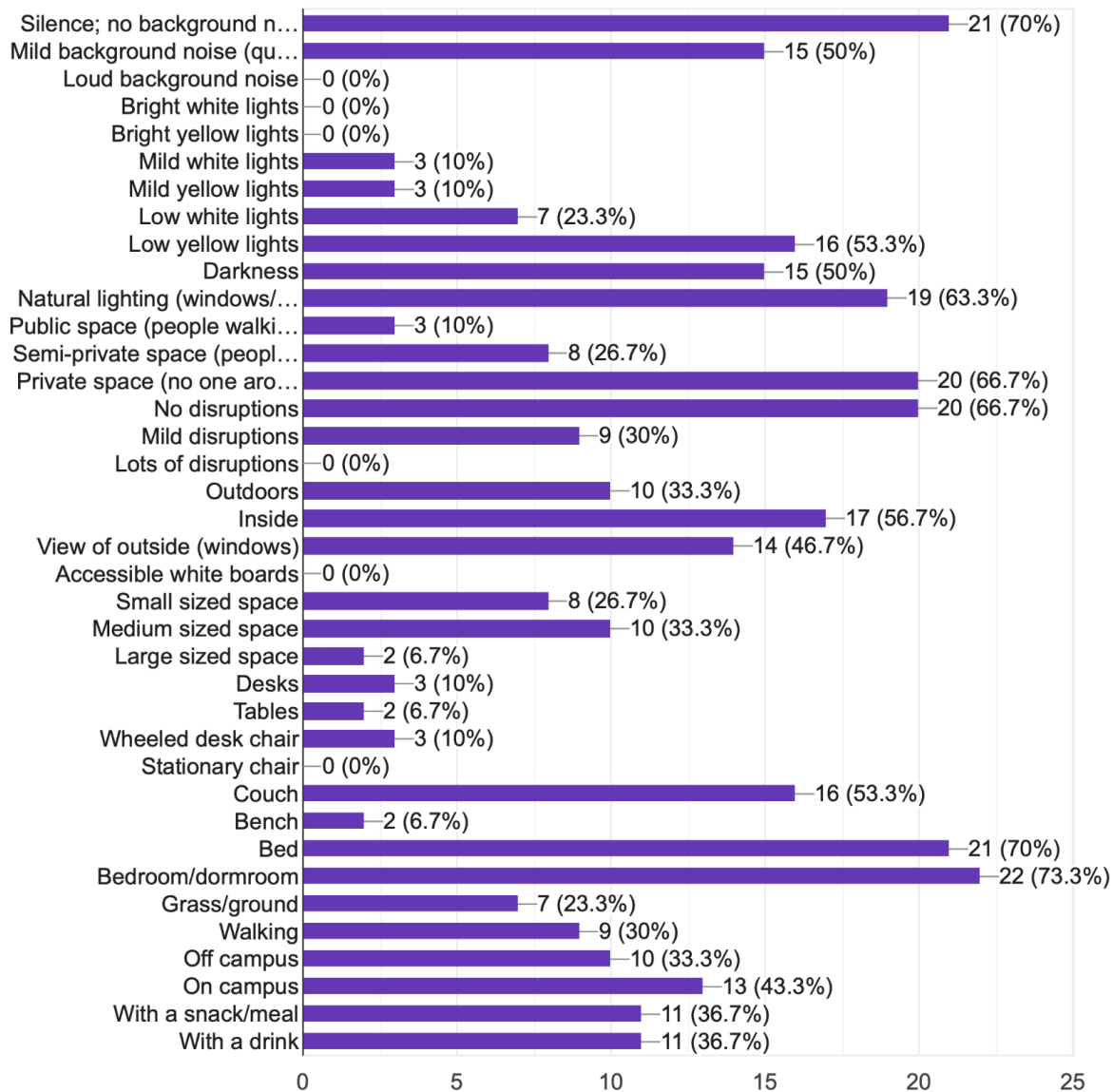
Select the options for your optimal socializing environment:

30 responses



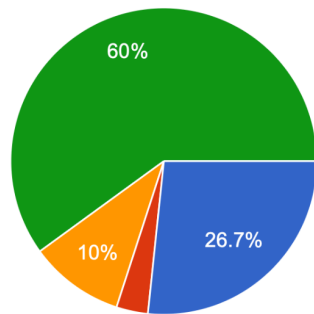
Select the options for your optimal relaxing environment:

30 responses



Do you believe in the effectiveness of Feng Shui?

30 responses



- Yes
- No
- Maybe
- I don't know what Feng Shui is....

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