Spring 5-2017

Method Meditation: An Experimental Demonstration of Systemization in Architecture

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Abstract

Method Meditation is an architectural design method developed during my exploration of systemization in the design process. Systems have been used throughout architectural history in an attempt to create space that can affect an occupant exactly the way the architect intended. However, these attempts have had inconsistent outcomes. This inconsistency has been attributed to several factors, from the variety to individual experiences that skew an observer’s viewpoint, to the lack of provable, causal relationships between environment and behavior. Due to these obstacles, other designers have used systems not to create perfect results, but to push their designs to new extents, and to produce unprecedented outcomes.

To explore the relationship between systemization and design, I create my own method that would further incorporate the occupant in the design process, testing whether more thorough collaboration between the architect and occupant could produce a more desireable result. To do so, I examined the design preferences of thirty participants, twenty of whom are outside of the architectural field. The participants answered questions on two separate surveys that asked for preferences based on sixty two-dimensional illustrations. These illustrations are based in part on the work of Christopher Alexander, a proponent of systemization as a means of better design. The results of these surveys showed discrepancies between the choices of the participants within, and outside, of the architectural profession. Though the scope of this method is limited, its findings suggest the possible benefits of a closer relationship between the architect and occupants during the design process.
Executive Summary

The place of psychology in architecture has always been a contentious topic. Though the physical environment influences how occupants feel and behave, neither architects nor psychologists have been able to produce environments that can consistently create a desired effect.

To address this situation, many architects, such as Christopher Alexander, have utilized methods similar to those of psychologists, consisting of patterns, graphs, and statistics. Though many great buildings have been designed using systemization, others designed using the same systems have failed. This lack of consistency has been attributed to a lack of empirical evidence, current developmental methods, and even the personal biases of the architects themselves.

Meanwhile, other artists and architects have used systemization to push the boundaries of their own design. In these cases, the effect the rules of the system have on the result is clear. And though the results are often far from the "perfect" design Alexander is searching for, the intent of the artist also remains clear.

In this thesis, I have continued to test the legitimacy of systemization in architectural design by using a survey of potential users. My system is informed by previous experiments, yet also employs the critiques of these systems to inform the rules. It is theorized the byproduct of this unlikely system should be the "perfect" space for calmness and relaxation.

The system itself is designed based on the techniques and methods of Alexander. These are incorporated mainly in a series of components I have composed based on his fifteen fundamental principles of harmonious architecture. However, participants from outside the realm of architecture have provided the rules. They did so by choosing which of the designed components are best for calmness and relaxation via a series of surveys. I interpreted these
survey results, and have designed a series of relaxation pavilions based on what the participants chose.

I hypothesize these pavilions will not provide relaxation for all who enter it, nor "perfect" relaxation for anyone. However, these pavilions provide a forum to discuss order and systemization as a method to find "truth" in design. Moreover, it provides the juxtaposition of the autonomy of Alexander's methods and fifteen principles, and the contingency of having users make key design decisions. As a whole, the experiments reflect on the disciplinary expertise of architects and the role of the user input in the design process.
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Acknowledgements

Thank you those who participated in Surveys I & II

Chisolm Allenlundy
Austin Beickert
Hannah Carpenter
Thomas Carpenter
Andrew Collins
Allegra Damari
David Damari
Rita Damari
Olivia DelVecchio
Matthew Dinsmore
Courtney Gray
Renee Hess
Brett Konopaske
Matthew Marinelli
Chloe Moore
Avery Nackman
Erika Neilssen
Tiffany Pau
Jane Shin
Olivia Siller
Patricia Tolbert
Sierra Tooley
Amanda Werlein
Yiwei Wu
Chapter 1
Introduction

The place of psychology in architecture has always been a contentious topic. However, this is not because the effects of the physical environment on human emotion and behavior are doubted. Contrarily, it is obvious that the design of a space influences the people within and around it. The debate is to what extent a specific design affects the occupants, and whether a space can be designed to have a specific influence on both its occupants and observers. The desire to find ways to influence someone’s emotions with design is contentious itself, but understandable. Yet, neither architects nor psychologists have been able to produce environments that can consistently create a desired effect.

Designing spaces that influence everyone identically, or even similarly, is the ultimate goal of incorporating psychology into architecture. However, this is difficult to achieve, as each individual's perception of the same environment can be very different. In response to this difficulty, architects generally have relied on inferences based on previous work, and assumptions based on their own emotions and perceptions. Often, these inferences were spot-on, and helped make spaces that impacted the occupant as intended. However, in some cases, the assumptions did not match the reality, which contributed to architectural failures.

In response to this inconsistency, many architects have delved into psychological methodologies. Scientific systemization was used to help make discoveries within the
Architectural Modernism was one of the field's greatest attempts to bring this systemization to the forefront of design. With simple geometries and idealistic precepts fueling projects that were meant to improve the lives of people everywhere in the world, the profession was pushing into new territory. For architecture to create a universal effect that could be consistent yet powerful, architecture needed to follow its machine-inspired form into the realm of science. Understanding that the practice of inference and assumption could not inform a universal effect, architects began to look toward scientific methods, using psychological research and charting to find the optimum environment for everyone, anywhere. This methodology resulted in the likes of Le Corbusier's Plan Voisin, Yamasaki's Pruitt-Igoe, and Eskrine's Byron Housing Project, and became fairly popular in public projects during the 1950's and 60's (Marshall, 2015).

With the intent to build these “perfect” environments everywhere, the Modernists designed for people who were as cosmopolitan as the design. In these designs were references to the individual site’s natural resources, history, and topography. Yet, the way they designed for the users was generally the same, no matter the location. This, along with several other factors that the design system did not account for, resulted in the same inconsistency that was meant to be avoided. Though many, like Byron, are regarded as successes, many of these utopian projects were labeled as complete failures, as Pruitt-Igoe will be remembered. They not only failed to create better housing for all, but doomed many to sub-par living conditions with the presence of crime and poverty (Marshall, 2015). These failures seemed to jolt the architectural field awake from their scientific dream, as many reactionary architectural movements, from post-modernism to deconstructivism, pulled the field back to its more artistic background. Though these movements themselves have grown out of fashion, the idea of creating a more universal
architectural effect is nearly taboo, and to many, those Modernist projects are viewed as dystopias. This can be seen in Kubrick's A Clockwork Orange, in which the Thamesmead Housing Estate is represented as Alex's home, which represented a sociological hellscape (Kubrick, 1971).

Though the architectural domain was shamed away from this scientific thinking, psychology, being a science, took it upon itself to find the ideal spatial environment. A select few in the field, such as Mehrabian, Russell, and Moos, moved into Environmental Psychology in the 1970's. While Moos’s work focused on the social environment of a space, Mehrabian and Russell worked more in the physical environment. They sought to discover what created approach and avoidance behaviors in the occupants of a space, especially in the retail typology. Through both separate and joint studies, they determined that the important factors in determining approach behavior for a physical space are its ability to arouse, please, and dominate the occupant (Mehrabian, Russell, 1974). These studies found that there were certain elements that triggered these emotions in the occupant. These elements include variety, novelty, density, and irregularity (Billings, 1990). Though Mehrabian and Russell were able to pinpoint many correlational links between these factors and human behavior, they could not determine any casual relationships (Mehrabian, Russell, 1974). This led to many following in their footsteps, such as Lanius, Bakker, and de Boon. Lanius worked with Russell, yet was unconvinced by the impact of dominance as an aspect of approach. Much later, Bakker and de Boon reinstated the importance of dominance, and also made the connection of harmony and disharmony with arousal and pleasure (Bakker, Van Der Voordt, Vink, de Boon, 2014).

Though studies done by these environmental psychologists hinted at potential environmental connections to specific emotions and behaviors, only relatively weak correlational
relationships were found. Eventually, environmental psychology went out of fashion, as did Modernism, albeit much less dramatically. Since its pursuits were too broad to be studied with causal experiments, environmental psychology was taken out of the spotlight, and moved toward Industrial & Organizational and Human Factors Psychology to find how specific environmental factors affect people in specific conditions. However, there are many, such as Bakker and de Boon, that continue to hunt for causal relationships in Mehrabian and Russell’s initial findings.

Though these strict methodologies have mostly been left in the past, the desire to use control to advance design for all still exists. One of the most vocal proponents for systematized design is Christopher Alexander. Driven by the belief that harmony in architecture, a trait once omnipresent, had been lost after the industrial revolution, Alexander has worked to restore it through a series of methods. The first of these methods was displayed in *A Pattern Language*, and was written to be used by not only architects, but by non-architects trying to make the environment around them more harmonious. Alexander and his team developed the pattern language by studying architecture he deemed harmonious, developing “patterns” that described a reoccurring design problems, and then describing the core of the solution to the problem. He claimed that if these patterns were addressed by using solutions similar to his, anyone could design great architecture (Alexander, Ishikawa, Silverstein, 1977).

Of course, this was not entirely the case. Though some beautiful buildings did result, Alexander thought consistency of harmony was lacking, and thus set out to find an even broader set of principles to explain why some worked and some did not. The result of this work was the development of fifteen fundamental principles of harmonious architecture, which are listed in his book, *The Nature of Order*. These principles were supposedly the linking characteristics between
the patterns, and if adhered to, would make the design more consistently harmonious (Alexander, 2002).

Alexander's work has its critics. One of the most prominent was Kimberly Dovey. In his criticism, Dovey spoke of a set of several “isms” as enemies of the pattern language, because he believes they are working as a unified force against Alexander’s work. A few of these “isms” include empiricism, capitalism, relativism, and totalitarianism, and so on. Through these enemies, Dovey explains several problems that the “real world” presents to Alexander’s work, such as the current method of building development and construction, the desire for individualism, the dismissal of large social projects, and the work’s obvious conflict with the way architects design. His final enemy is pessimism, which he says is not the lack of desire for Alexander’s methods to work, but more a lack of belief that they could work within the current context (Dovey, 1990).

Though I have mentioned a few instances in which systems have been used to attempt to solve fundamental problems with design, others have used similar systems very differently. In postmodernism, as well as in art, systemization has been used not to find “truth” or “harmony,” but to push design to places it has not been before. Excellent examples of this are the houses of Peter Eisenman. The method that informs the house designs bare some similarities to that of the Modernists when designing much of their housing. The similarities begin with the house aesthetic. Like many Modernist designs, Eisenman’s houses are white and concrete. Also, the sharp-cornered geometries of many Modernist projects shine through here. So, the difference between Eisenman’s House projects and many Modernist projects lies not in the material or geometries, but in the rules he uses to employ these elements. A specific example of this is House IV. The house design begins as a pure geometry, fit for the taste of Adolf Loos. Next, he
begins to shift and turn the geometries, which again follows the techniques of many Modernist projects. However, Eisenman continues to make shifts and add geometries, until the final product is far more busy and complex than any of its Modernist counterparts (Source). By simply adding “too many” steps to the Modernist formula, Eisenman created something that pushed past it, into the realm of the Postmodern.

This phenomenon of systemized design is not exclusive to architecture. Many renowned artists, including Josef Albers, Vic Muniz, Jasper Johns, and many others, were famous for their rule-based art. In their works, the rules develop the final aesthetic. However, because each set of rules can create a completely different result, each of their sets of works is easy distinguishable from each other. Thus, even though the rules are technically dictating the outcome, the artist is still the most controlling figure, and can determine how much power the rules have over the final result.

This amount of creator control over a rule-based result can bring the legitimacy of the entire system into question, as well as this form of systemization in general. If the designer can develop rules to create a slightly predictable result, can systemization be a vehicle for “perfect” design, as Alexander claims? From the analysis I have done for this project, it is not likely. For a system to be able to consistently create the perfect environment for everyone, it would need to be made up of the perfect amount of provably “correct” rules. Yet, due to the correlational nature of nearly all the research done on spatial relationships and their effect on human behavior and emotion, no rule developed for systemized design can yet be deemed as a correct rule. This correlation, and lack of a clear causal relationship, results mostly from the inability of researchers to isolate one specific design move from all the others that make up the whole. Thus, no single move can be credited for any specific effect on the occupant. The work of I/O and
Human Factor psychologists is slowly shedding light on some provable rules for very specific situations. However, even in these situations, the findings are only correct for the majority of the participants in the research. This is a valiant beginning, but nowhere near the overwhelming effect hoped for by many Modernists and Alexander.

Even though these rules are based only on correlational relationships, many architects have still used this as justification to use them to inform certain moves and techniques throughout their design. This is not necessarily irresponsible, as any relationship can be viewed as a reasonable starting point, and many of these relationships have precedents to give support. In many cases, the result was exactly as the designer intended. However, in other cases, the results are quite opposite. Just as it is currently challenging to identify what is causal for the positives, it is also challenging to identify specific shortcomings. These failures could be attributed to a missing rule, an extra rule, or any number of incorrect rules. These also could come from any number of outside forces that were improperly anticipated, or even unseen, by the designer of the system. This can be seen in the failures of many Modernist housing projects, as well as in the less-than-popular structures designed by Alexander. It could be assumed that adding, subtracting, or changing a rule within the system could make these failed projects successful. Yet, as mentioned before, there is not yet a way to know whether the changes that are made will be enough, or even be too effective. The only truth in a system-based design is that the resulting structure will be based on the given rules. However, no science can yet prove if the result of these rules will be the one that is desired.

If systemization cannot provide truth to design, should it be used at all? Based on the positive outcomes that systemization helped to produce in the art world, systemization is still arguably a useful tool. Though it is true that these examples have far less external influences and
constraints than architectural projects, systemization still allowed for these artists to push their work to a new level, by adding depth of reasoning for each design move. With rules in place, consistency in aesthetic and meaning throughout all parts of the project is more attainable.

Chapter II
Method

In my thesis project, I wanted to continue this exploration of systemization as a design tool. Thus, I have designed my own rule-based system to further demonstrate the shortcomings, and some potential benefits, of systemization. This will consist of a method informed in large part by the work of Christopher Alexander, both his writings and construction. To counterbalance this method, I will use the input of potential users of the space to create the rules. The end result of the experiment is a series of meditation pavilions, meant to help calm and distract the mind from stress. I have named this process Method Meditation, to both highlight the nature of the pavilions as meditation spaces designed via the method of survey, and to touch on the experimental and inquisitive approach this project takes when using methodology.

The method is built on surveys, which will allow the users to dictate the rules for the pavilion design. Within each survey is a series of components that I designed based on the fifteen principles of harmonious architecture, seen in Alexander’s *The Nature of Order*. Each survey asks the user a series of questions about these components, in order to better understand which
he feels should be incorporated or left out of the design, and how she thinks the different types of components could be combined. These users are a group of twenty voluntary participants that are not architecturally trained, and range in age from twenty-one to fifty-six (Mean = 28). Their answers informed which components and design techniques to use in the pavilions.

The goal of the first survey was to understand what design elements a potential occupant would like to see in a meditation space. To facilitate this, I designed sixty components, split into five categories which were derived from Alexander’s fifteen principles. These categories; Strong Centers, Local Symmetries, Contrast, Gradients, and Roughness; come directly from Alexander’s fifteen principles. Yet, these five have specific attributes that are similar to the other ten principles. Thus, I have designed each category to encompass the other principles most similar to them. For each of the five categories, I designed twelve components, which each demonstrated a common method of applying the principles of the category in the built environment. I illustrated these components in axonometric view, so that the participants could best view the entire component and better understand its spatiality. Using these sixty 2D illustrations, participants answered fifty questions: ten questions and twelve illustrations per category. For each of these categories, participants answered three questions based on the work of Alexander, and the questions he asked his participants when developing the fifteen principles (Alexander, 1996). Also, I formulated seven questions that asked the participants how they felt about each component, and if they believed any would induce calmness or peace of mind if experienced. I also asked about the physical characteristics of the components, such as levels of complexity, to identify whether this was an important determinant of popularity. As an introduction to the component questions, I included three questions to better understand the environments the participants associated with relaxation and calmness (Appendix A). With the
illustrations and questions compiled, I sent survey one to those who volunteered via email and online messaging. Participants then answered the questions, and sent me back their answers through similar means. After observing the generalized data, I was able to see which components drew the attention of the participants, as well as those that only induced apathy. Beyond this, I gathered a better sense of what the participants thought was necessary for a calming space, from environment to materiality. With this data, I was able to eliminate most of the components, and get a better understanding of the setting the pavilions would inhabit.

With this information, I had a better understanding of which elements were more desirable for the pavilions. However, I still did not know how the users would react to combinations of these components. In response, I designed survey two to read as a narrative. In this story, the participant would be trying to escape a stressful situation, and would be choosing a sequence of components to encounter on their way to serenity. The participants were the exact same sample that participated in survey one, as to maintain consistency in the opinions on the components. Survey two consisted of five questions: one question for each of the categories from survey one. I reorganized the order that the categories were presented, so that the questions could be read a story. This narrative presented each category as a development in the quest for peace of mind. Each of these developments led to a new object the participant would encounter in the journey, thus introducing a new set of components to choose from. Each category consisted of four or five components, which represented the most popular components from survey one. The participant was asked to indicate which of the components for the given category they would most like to encounter, given the situation in the narrative. For three of the five categories, the participant was asked to elaborate on a specific feature of the component, such as size and material (Appendix B). Survey two was distributed and returned in the same process as in survey
one. Through this process, I also gathered information about how each component would be encountered, and what material and color the participant imagined it would be. With this additional information from the second survey, I could make an informed translation of the answers from the participants into what elements a user would like to see in the mediation pavilion.

However, to fully understand the effect of the method and user participation in the design of the pavilions, I found it necessary to add a group of “control” pavilions. These pavilions were designed using the same method, but were answered by architecture students, not potential occupants. Thus, the participants in the control group consisted of ten architecture students at Syracuse University, between the ages of twenty-two and twenty-three. This group completed both surveys one and two using the exact same procedure as did the user group. This addition could make it easier to demonstrate differences in both intent and execution between potential occupants and design professionals. Understanding these differences could be useful in determining the success of the method. For instance, if there are few differences, it could imply that people both inside and out of the profession have similar motives and opinions on what makes a relaxing space. Moreover, it could imply that architects have a decent understanding of what occupants want in a space, at least in this case. Yet, if there are large discrepancies, it could suggest that more attention could be paid to the desires of the users. On the other hand, it could demonstrate that the users’ choices of individual pieces for a design are not effective in translating the desired function of the whole project.

With this in mind, I hypothesized that the result would be a mix of these two potentials. I imagined that the users would have priorities that would not be reflected in the designers’ component choices. Yet, I also imagine that the designers will be more effective at choosing
individual elements that will work better together for the final pavilion. More specifically, I hypothesized that potential occupants would choose components with nature and more classical architecture, as these are more familiar, and potentially more comforting. On the other hand, I thought the designers would be more willing to pick the simple components, as they would be more likely to see simplicity as calming. However, I also imagined the more a component reflects the category it belongs to, the more it would draw the designers’ interest. Whether this difference in attraction was strong enough to sway the results to different components should be seen in the data. Generally, with this method in place, I hypothesized that the pavilions designed with rules created by the users would be less aesthetically coherent when juxtaposed with the designer pavilions, and especially when compared to pavilions that had previously been designed by one architect or firm. However, I also thought that what the user pavilions would be lacking aesthetically, would be made up for in meaning. Though all the parts were not originally design to fit together, the user specifically chose each element because it serves a specific purpose in relaxing the occupant. However, though it may have meaning in every design move, I still stand that none of the pavilions designed with this method will create the perfect, universal meditation space, for the method is too all-encompassing to compensate for the specific feelings and experiences of each occupant.
SURVEY I

For each survey, I identified popular components in each category by viewing the percentage by which they were chosen. I then allocated value to the most, and second most, popular component for each question, giving second place half the value of the most popular. This process gave each of the questions equal value in the results (Appendix). In survey one, the non-expert user participants were attracted to components of all forms. However, nearly all curvaceous components received attention, whereas some of the most box-like components were met with apathy. There were also trends within the categories. Strong Centers, Local Symmetries, and Roughness had particular components that were consistently chosen for a specific question, and others that were chosen as multiple answers. Yet, in Contrast and Gradients, many of the questions were contested. This translated to a lack a clarity of which components were the most desired.

Along with the popularity of soft, curved components, the desire for nature and openness became evident through both the component choices, as well as the comments from the participants. Many components were chosen because of the participant’s ability to imagine it in or around an outdoor space. Some of the most popular items were pictured near to, or as part of, a water feature or river. Many participants also mentioned the desire for smaller interior spaces with open views to the larger exterior environment. However, this desire for openness did not
deter the desire for complexity, as the components chosen as more complex were generally more popular than those identified as simple. Other popular themes included ambient noise, tall ceilings, nature interaction, natural materials, and relative seclusion in the meditative space.

The architecture students had many agreements with the users, but also had key differences that were evident throughout the survey. The most obvious difference was demonstrated in the component choices. Unlike the potential occupants, the designers did not seem to gravitate toward a general shape of form. However, they did seem to prefer the items that were seen as simpler and more complex. This lead to many differences in the preferred components when compared to the occupants’ choices. The users did prefer the more complex side of the spectrum. However, most did not choose the most complex, as it seemed like either too visually busy, or too inhibiting of the outside view. Yet, the designers viewed the simple components as clear, and the complex components as more developed, or full of spatial opportunity.

Like the user participants, the designers also appreciated the serenity brought by nature. Though they did not chose the components that pictured natural objects, such as trees, as often as the users, the designers did mention the incorporation of nature in many of their comments.

Results for survey one can be viewed in Appendix C.

SURVEY II

In survey two, the non-expert user participants reinforced their desire for nature to play a large part in the pavilion. Elements with trees, rocks, and curves faired better than their remaining hard-lined counterparts. While this remained a point of consensus, other parts of this survey revealed new separation of opinion. While in survey one, Contrast proved to be the most
contested category, Strong Centers was the most contested here. This seemed to be the result of the most popular Strong Centers component in survey one falling flat in survey two. The result was a conflict between a viewable object, or a more interactive space, as the strongest center. Also, while the desire for a natural surrounding was made evident, the survey received conflicted responses for whether the main meditation space should be indoors or outdoors. This lack of continuity, both across the entire data set, as well as within many of the participant’s survey answers, somewhat demonstrates the focus on each individual object, but the general lack of concern for the direct flow between elements. Thus, my interpretation and translation was helpful to organize the thoughts of the user participants.

This was not entirely necessary, however, for the architecture students. The sequential format of the second survey played to the learned strengths of the designers. Each response provided a relatively smooth, convincing progression, along with an argument to defend the participant’s choices. Unlike the non-architect participants, the designers did not flock toward the curved components. Rather, they seemed to choose the more symmetrical components, seeming to associate their simplicity with calmness and relaxation. Generally, the designers tended to agree on which components would be best for the job. Opinions were still different, but for each category, the choice for all participants seemed to be between the same two components. However, one category, Contrast, was more contentious for the designers. This seemed to be a result of its location in the survey. Being placed in the middle, the story being told by each participant’s story seemed to hinge on this category. The wide range of design possibilities seemed to lead to a wide range of contrast component choices. The results for survey two can be seen in Appendix D.
Chapter IV

Conclusion

After reviewing the data gathered by both surveys, I determined that my hypotheses were generally correct. However, it can also be seen that my hypotheses did not anticipate all the connections that developed within the data. Natural, curvaceous components proved to be the dominant elements for the user surveys, even though the classical elements did not receive the approval I thought they would. On the other hand, simple components were very popular in the designer surveys, as I anticipated. Yet, the most complex objects also developed a following from the designers, which I did not anticipate.

More generally, and also as anticipated, the user mediation pavilions were aesthetically incoherent, especially when compared to those designed with the data of the designers. However, though the designer pavilions looked more coherent, they did so while incorporating many of the components that the users deemed uninteresting, or even viewed negatively, in the surveys. Though it cannot be known for sure unless the pavilions were actually built, it could be assumed that this would have a negative effect on the main function of the pavilion. This disconnect reinforces the fact that the designers seemed more concerned about the flow from space to space within the pavilion, and aesthetic continuity, rather than important needs of the occupant, such as openness to the surrounding environment and nature. However, though the difference in priorities is apparent, I would not consider it damning to the functionality of the designer
pavilions, as the discrepancies were less influential than I expected. And though some priorities were overlooked, this exercise reinforced the role of the architect. Though the untrained participants were able to convey their priorities through the survey, my job of translating this information into a pavilion that best represented these desires was a difficult balancing act. Whereas with the architects, it was already very clear. This may seem self-explanatory, but methods like Alexander’s pattern language may have faltered in part by underestimating the role of the architect.

However, this demonstration showed that even though the architect still has obvious importance in contributing to the continuity and success of a project, the opinions of the users can be incorporated more so, without negatively affecting the design intent of the project. Moreover, this project demonstrates one way of doing so without the architect losing control of the project. If used effectively and correctly, this technique could lead to more impactful architecture, to be designed for more specific audiences.

Though Method Meditation showed that designing to the occupants’ desires may help a project in certain ways, it also demonstrated some shortcomings. For instance, the final pavilion designs would not be considered revolutionary. This may be a downfall of this particular method, as only twelve general options were given for each of five categories, which is very limiting from a design perspective. Moreover, many of the popular responses of the users tended to point toward design techniques that are more familiar, which could make it difficult to produce innovative design. For instance, the resulting designs may tend to be interesting combinations of popular architectural tropes. These may work to push architecture as a domain forward incrementally, but it would be misguided to hope for a design breakthrough whilst using this method.
To test these potentials, this survey experiment could be of use. Many different parts of the method could be modified to test different potential outcomes. These changes could include sampling different age groups, to look for differences in opinion and functionality depending on age. Surveying for a different program type, such as retail or recreation, could work to reveal whether similar discrepancies between architects and potential users exist in other built environments. Also, the addition of a site to locate the pavilions would add many other factors, such as size and a defined surrounding context, that could drastically alter what elements both users and designers feel are appropriate for the pavilion. Simply altering the focus of the questions could also lead to a completely different set of designs. The questions I used for Method Meditation focused mainly on the complexity of the shape, and spatial characteristics of the components, in order to identify the level of calmness and comfort. However, shifting the focus to lighting or acoustics could theoretically test for calmness as well, yet could yield a completely different result.

Changes could also be made to make the results of this experiment more accurate and effective. Such changes could include a larger sample size, so that the data for both the users and the designers could be more inclusive, and the could make the pavilions have the desired effect on a large number of people. The next attempt could include more surveys, as to help make the desire of the users and designers more clear and reinforced. The most important recommendation is to conduct the surveys in person. Though I asked the participants to ask questions about any unclear parts of the surveys, it was occasionally evident through the answers that some participants did not fully understand what I was asking for. If conducted in person, I feel the participants would be more inclined to ask questions about unclear parts of the survey. Also, the researcher would have the opportunity to explain not only the questions more effectively, but
also could better explain the reasoning behind each component. Moreover, a face-to-face interaction would present the opportunity to show the participant models of the components. Looking at the object in three dimensions could give the participant a better spatial understanding of the component, as thus could lead to more informed responses.

Though improvements could be made to the resulting pavilions, the reasoning for this thesis project extends beyond the final product. This survey did not result in the “perfect” meditation space. Even though it used pieces of methodologies that were supposed create harmonious space, that was never the goal here. This project was meant to be a method meditation; experimenting with different types of systems and methods used in architecture, art, psychology, and many other disciplines, to see what could be learned from the results. In this particular case, the survey was designed to learn how it could potentially shift the balance between the architect and the occupant in the design process. To do so, it pushed the balance toward the contingency of the users and their opinions, while making sure not to enter the realm of a populist project. The very fact that this line exists demonstrates that systemization is not a tool to only be used by the autonomous master-builder, as the Modernists used it, but can be used to develop all types of projects. However, with appropriate rules, the result can still reflect the intent of the architect. This demonstrates that, though methodization is not the key to the elusive link between architecture and psychology in the way that the Modernists and environmental psychologists had hoped for, it can be used to test architectural design, and push it to new, potentially exciting, places.
Alexander, Christopher.
https://www.youtube.com/watch?v=98LdFA-_zfA

Alexander, Christopher, Sara Ishikawa, and Murray Silverstein.

Bag, Jatish.

Bakker, Iris, Theo Van Der Voordt, Peter Vink, and Jan De Boon.

Blanciak, Francois.

Billings, Wendy L.

Canter, David V.

Dovey, Kimberly.

Galan-Diaz, Carlos, and Dorte Martens.

Gregoletto, Débora, and Antonio Tarcísio Da Luz Reis.

Marshall, Colin.

Mehrabian, Albert and James Russell

Moses, Nalina.

Salingaros, Nikos A.

Sharpe, Stephen, Hon. AIA.

Staats, Henk.

The Kubala Washatko Architects Inc.
Appendix A

INFORMED CONSENT

My name is Armand Damari, and I am an undergraduate thesis student at Syracuse University's School of Architecture.

I am interested in learning more about the systemization of the architectural design process, and client involvement in this process. You will be asked to complete a survey with questions asking your opinion on several illustrations representing architectural concepts. This will take approximately 15 minutes of your time.

I am inviting you to participate in a research study. Involvement in the study is voluntary. This means you can choose whether to participate and that you may withdraw from the study at any time without penalty.

Whenever one works with email or the internet, there is always the risk of compromising privacy, confidentiality, and/or anonymity. Your confidentiality will be maintained to the degree permitted by the technology being used. It is important for you to understand that no guarantees can be made regarding the interception of data sent via the internet by third parties.

If you have any questions, concerns or complaints about the research please contact me, Armand Damari, at adm22march@syr.edu.

I am 18 years of age or older, and I wish to participate in this research study.

By continuing I agree to participate in this research study.

SURVEY I

This survey is one of three that will eventually result in the designs of small architectural pavilions. These pavilions will act as spaces for mental healing and relaxation, and they will be designed in large part by you, your careful analysis of the following design components, and your honest responses to the following questions. The goal is not solely to better understand what elements could make up a healing, relaxing space, but to critique the optimization and systemization of architecture, and to observe the full incorporation of the client in the design process. Some of the wording may seem vague, but please try to answer each as well as you can.

This first survey will help me narrow down which components are better than others, and which to eliminate all together. As a result, this survey will be the longest of the three, but the results will be invaluable. There will be six short sections; the first will be general questions, and the remaining five sections will be made up of ten questions about corresponding drawings. Each of these five sections will contain twelve drawings to be analyzed and juxtaposed. Do not compare drawings from different sections, as they do not yet relate.

INTRODUCTION

1. What are characteristics of places in which you feel at ease?

2. Do you generally consider large or small spaces more calming?

3. What type of environment do you consider most calming? A cabin, church, stadium, etc.?
SECTIONS I-V: STRONG CENTERS, LOCAL SYMMETRIES, CONTRAST, GRADIENTS, & ROUGHNESS

Repeat the following questions for each of the variables listed above, when analyzing their twelve corresponding components.

1. Which component do you feel is most whole?
2. Which component do you feel best embodies life?
3. Which component do you feel is the best reflection of yourself?
4. Which components stand out to you? List them and briefly explain your attraction to them.
5. Which component would you like to be in the presence of, or occupy, for the most time? Briefly explain.
6. Which component would you consider the most simple?
7. Which component would you consider the most complex?
8. Which component do you see as the most graceful?
9. Which component makes you feel most calm?
10. In what setting do you imagine the most calming component? Briefly describe.
Appendix B

Non-expert User Survey

INFORMED CONSENT

My name is Armand Damari, and I am an undergraduate thesis student at Syracuse University's School of Architecture.

I am interested in learning more about the systematization of the architectural design process, and client involvement in this process. You will be asked to complete a survey with questions asking your opinion on several illustrations representing architectural concepts. This will take approximately 15 minutes of your time.

I am inviting you to participate in a research study. Involvement in the study is voluntary. This means you can choose whether to participate and that you may withdraw from the study at any time without penalty.

Whenever you work with email or the Internet, there is always the risk of compromising privacy, confidentiality, and/or anonymity. Your confidentiality will be maintained to the degree permitted by the technology being used. It is important for you to understand that no guarantees can be made regarding the interception of data sent via the Internet by third parties.

If you have any questions, concerns or complaints about the research please contact me, Armand Damari, at afdamari@syr.edu.

I am 18 years of age or older, and I wish to participate in this research study.

By continuing I agree to participate in this research study.

SURVEY II

This survey is one of three that will eventually result in the designs of small architectural pavilions. These pavilions will act as spaces for mental healing and relaxation, and they will be designed in large part by you, your careful analysis of the following design components, and your honest responses to the following questions. The goal is not solely to better understand what elements could make up a healing, relaxing space, but to critique the optimization and systematization of architecture, and to observe the full incorporation of the client in the design process. Some of the wording may seem vague, but please try to answer each as well as you can.

This survey will help me understand which components are better suited in certain situations than others, and which components of different sections work well together. To better address these goals, this survey is formatted as a narrative. There will be five short sections in the narrative, and you will be asked to identify which illustration you think best matches the situation at the end of each. Each of these five sections will contain four to five drawings to be analyzed and juxtaposed. Do not compare drawings from different sections, but do, however, take into account what items you have selected in previous sections. Take your time to imagine your own perfect space that matches the narrative in each section, and then analyze the given components to find the one that best represents what you imagined.

INTRODUCTION

Remember while doing this survey that, though there are general forms provided that give a general feel to each transition, this is a fairly free-form narrative. If you have any alterations in mind that you think could further your comfort in these situations, such as size, distance, and material changes, please add a note in your answer.
SECTION I: GRADIENTS

You have just exited a stressful situation and are searching for a place to settle your mind and relax. As you are progressing, you notice there is a transition that looks as though it could lead to the calming space you desire. Which of these best represents the elements of the transition?

SECTION II: LOCAL SYMMETRIES

After proceeding through the transition, you have entered a new space, which seems to be leading you to a farther destination. As you progress, the space is helping you forget your agitation. What does this space look like?

SECTION III: CONTRAST

Eventually, you reach the end of this space. You now see a drastic change between the space that is now behind you, and what is ahead. This change is welcome, and fully separates you from the hectic world you left. Which of these best represents the change in scenery? In the component you choose, which part are you exiting, and which are you entering?
SECTION IV: STRONG CENTERS

After entering this new scenery, you enter the final space. The organization of the elements in this space help to relax you. Which component most closely represents this space? How big is the space?

SECTION V: ROUGHNESS

When observing the relaxing space and its elements, you notice that they have a texture. This texture interests you, and thus works to remove you from the stress you were avoiding. Which best represents the texture that is on the elements? What is it made of?
Appendix C

Survey I Results

Non-Expert User Data
Designer Data
Appendix D

Survey II Results

Non-Expert User Data
Designer Data
ABSTRACT

The place of psychology in architecture has always been a contentious topic. Though the physical environment influences how occupants feel and behave, neither architects nor psychologists have been able to produce environments that can consistently create a desired effect. To address this situation, many architects, such as Christopher Alexander, have utilized methods similar to those of psychologists, consisting of patterns, graphs, and statistics. Though many great buildings have been designed using this systemization, others designed using the same systems have failed. This lack of consistency has been attributed to a lack of empirical evidence, current developmental methods, and even the personal biases of the architects themselves. Meanwhile, other artists and architects have used systemization to push the boundaries of their own design. In these cases, the effect the rules of the system have on the result is clear. And though the results are often far from the “perfect” design Alexander is searching for, the intent of the artist also remains clear. In this thesis, I have continued to test the legitimacy of systemization in architectural design by using a rigorous survey of potential users. My system is informed by previous experiments, yet also employs the critiques of these systems to inform the rules. It’s theorized the byproduct of this unlikely system should be the “perfect” space for calmness and relaxation.

The system itself is designed based on the techniques and methods of Alexander. These are incorporated mainly in a series of components I have composed based on his fifteen fundamental principles of harmonious architecture. However, participants from outside the realm of architecture have provided the rules. They did so by choosing which of the designed components are best for calmness and relaxation via a series of surveys. I interpreted these survey results, and have designed a series of relaxation pavilions based on what the participants chose.

I hypothesize these pavilions will not provide relaxation for all who enter them, nor “perfect” relaxation for anyone. However, these pavilions provide a forum to discuss order and systemization as a method to find “truth” in design. As a whole, the experiments reflect on the disciplinary expertise of architects and the role of user input in the design process.
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PSYCHOLOGY & ARCHITECTURE

Paimio Sanatorium / Aalto
The relationship between architecture and psychology is obvious, yet vague. It is important, yet ignored. It has been studied and incorporated in design for more than a century, and yet its effective incorporation has yet to be understood and implemented.

Though the relationship is difficult to pinpoint, the theoretical implications of a functional and better understood connection between the two professions are immense. Specific designs for the built environment could provide opportunities for study for psychologists, and psychological feedback could help inform architects to design spaces that could more consistently engender the desired emotion in the occupant of the space.

However, of course, creating this relationship has encountered many setbacks, from inclusive results and a lack of correlation, to actually causing the opposite of the desired effect. Though, even with these historical problems, many continue to try to better understand the elusive connection to unlock the potential of both disciplines.

Yet, as throughout history, all propositions are limited, non-causal, flawed, and ultimately leave the mystery unsolved.
Paimio Sanatorium / Aalto

Comprehensive Cancer Center / Morphosis

T3 Parking Structure / Danze
Though a precise understanding between psychology and architecture has yet to be determined, there have been many architectural projects that have successfully been able to engender the emotion and produce the effect that the architect originally set out to achieve.

The Paimio Sanatorium / Aalto

By creating a plan with long thin pieces, Aalto made it easy for sunlight to flow throughout the entire plan of the Paimio Sanatorium. Moreover, this created the ability to have sunning balconies throughout the entire building, which provided more light and fresh air to the patients. These design moves proved not only to make the spaces more pleasant for the occupants, but are commonly said to have actively helped cure patients. As tuberculosis became more curable, and thus more rare, the Paimio Sanatorium occupancy began to dwindle. Due to its success for tuberculosis patients, instead of being torn down, the sanatorium was converted into a general hospital and continued to provide a healing space for patients.

Comprehensive Cancer Center at Cedars-Sinai / Morphosis

Many hospitals still are made up of spaces that are unpleasant and factory-esque in function. For a patient, this can be undignifying, or even counter-productive. Morphosis attempted to prevent this sensation with their design for the Comprehensive Cancer Center at Cedars-Sinai Medical Center. Instead of attempting to distract patients from their disease, the design is supposed to provide the patients with what they need to gain the confidence that they can indeed be cured.

T3 Parking Structure / Danze

In the T3 Parking Structure, Danze set out to make a typology known for its insensitive and simple design something that could be beneficial to its occupants. By adding certain phenomenological elements shown to improve an environment’s experience such as adding more natural light and greenery, Danze designed a parking structure that is more welcoming than was ever expected from the typology.
Thamesmead Housing Estate

Pruitt-Igoe / Yamasaki

Red Road Flats / Bunton
Yet, for every successful project, there is also one that had completely different intentions than the ultimate result.

Thamesmead Housing Estate

The Thamesmead Housing Estate was meant to be a comfortable housing complex designed in the late 1950’s, and used techniques, such as an artificial river to make a more calming and inviting space. However, many viewed it differently. It is now famous as the setting of A Clockwork Orange, and was used by Kubrick to act as a sociological hell'scape.

Pruitt Igoe / Yamasaki

Several compounding factors contributed to the failure and demolition of Pruitt-Igoe. However, had environmental psychology been both more developed at the time and used in the design, many of the eventual problems with the development could’ve been addressed, potentially changing its fate. When viewing images of the furnished interior, it becomes obvious that the people inhabiting Pruitt-Igoe had different ideas of what style they wanted for their home. The ornamented furnishings clash with the modern style of the room. This is a reflection of the alien nature of the development in St. Louis at the time. Studies have since shown that urban environments create heightened alertness (arousal). The heightened arousal, in combination with the perceived unpleasantness of the space to the occupants, lead ultimately to avoidance behavior. Moreover, Yamasaki designed more semi-public and public spaces to foster neighborly relations between residents. However, due to the already increased avoidance tendencies, occupants never established these interactions, which ultimately lead to increased crime.

Red Road Flats / Bunton

The Red Road Flats suffered a similar fate to that of Pruitt-Igoe. Being a housing development of the 1960’s, it was designed specifically to be comfortable, desirable housing. But the opposite resulted, and due to crime troubles, unpopularity, and ultimate vacancy of the project, it was eventually torn down.

This discrepancy has not gone unnoticed, yet the methods of addressing it by both the psychological and architectural fields have yet to provided a solution. For reference, I will review some of these attempts.
PSYCHOLOGY & MODERNISM
Architectural Modernism was one of the field’s greatest attempts to address the absence of science, and especially psychology within a field that potentially has a large impact on humanity. With simple geometries and idealistic precepts fueling projects that were meant to improve the lives of people everywhere in the world, the profession was pushing into new territory. For architecture to create a universal effect that could be consistent yet powerful, architecture needed to follow its machine-inspired form into the realm of science.
SCHEMA
Schema are the learned set of thoughts and items that are associated with a term, or in this case, a typology. If a space is perfectly in keeping with one’s schema, it is seen as mundane. Yet, if something is astray, it changes one’s comfort level, ranging from engendering interest to creating discomfort.

KURT LEWIN
B = f(p,e)
Behavior = function of (person & environment)

WAY-FINDING
Visual Access  Architectural Differentiation  Signage  Floor Plan Configuration

The ease of way-finding within a space has great effect over one’s comfort. It can thus be used to either bring clarity and calmness to the occupant, or can engender confusion and anxiety if made unclear.

INDUSTRIAL & ORGANIZATIONAL PSYCHOLOGY
The scientific study of human behavior in the workplace and applies psychological theories and principles to organizations and individuals in their workplace.

HUMAN FACTORS PSYCHOLOGY
An interdisciplinary field which discovers and applies information about human behavior, abilities, limitations, and other characteristics to the design and evaluation of products, systems, jobs, tools, and environments for enhancing productive, safe, and comfortable human use.
Understanding that the practice of inference and assumption could not inform a universal effect, architects began to look toward scientific methods, using psychological research and charting to find the optimum environment for everyone, anywhere.

This method utilized some psychological principles at the time. For example, it matched the formulaic approach of Kurt Lewin, who created the equation $B=F(P,E)$, which attempted to explain the relationship between humans and their environment mathematically. It also matched many of the newer professions in psychology, such as industrial & organizational, and human factors psychology, in its goals to design using research of humans and their interactions with their environment, both socially and physically. One of the more focused studies to come out of these methods was on way-finding, and the effects on the occupant depending on the ease and clarity of navigation throughout a space. These seem to have influenced the thinking of Modernists to a certain degree.

However, with the inclusion of new psychological techniques, others were lost. One of the glaring omissions was that of schema. Due to the desire of a new aesthetic to match that of the new industrial age, architects let go of the notion that people have a certain set of expectations for any typology of space. Modernists seemed to give little care to the previous schema for housing, and many typologies in general, and instead turned to the “functional” aesthetic.

This methodology resulted in the likes of Le Corbusier’s Plan Voisin, Yamasaki’s Pruitt-Igoe, and Eskrine’s Byron Housing Project, and became fairly popular in public projects during the 1950’s and 60’s.
A typology of Schema are the learned set of thoughts and items that are associated with a term, or in this case, a typology.

If a space is perfectly in keeping with one's schema, it is seen as mundane. Yet, if something is astray, it changes one's comfort level, ranging from engendering interest to anxiety if made unclear.

Way-finding within a space has great effect over one’s comfort. It can thus be said that the ease of way-finding within a space has a great role in influencing one’s comfort.

The goal of each project is to design their space to have the optimum effect on the occupant to suit the given project. However, due to the lack of consistency currently testing are:

- Spatial Clarity: How easily an occupant can orient themselves within the space.
- Familiarity: How closely the project relates to the occupant’s schema of the typology.
- Architectural Differentiation: Degree of complexity of a space, and potentially how visually engaging it is.
- Naturality: Degree of involvement and use of the surrounding natural environment.

Techniques to find balance and consistency in the ideas of effectual architecture may not be reaching its full potential. To address this downfall, I am observing spatial ideas and testing architectural and psychological techniques to find balance and consistency in the ideas of effectual architecture.

A person’s physical environment has been proven to influence their emotions and behaviors, so it seems fair that architects often seek techniques to find balance and consistency in the ideas of effectual architecture.

Armand F. Damari | Joseph Godlewski | Thesis Exercise 2
To demonstrate my understanding of the Modernist methodology of designing, I have selected four variables that can be supposed as contributors to certain amounts of comfort and clarity for an occupant within a designed space. These were selected based on both psychological and architectural precedent study.

To mimic Modernist thinking, I studied these four variables compared to each other via a series of matrices that would work to find the result of combining the factors. I used this study to identify certain outcomes that could potentially imply certain emotions and behaviors in the occupant. This is similar to the methodology used to design some modernist housing projects. However, in this test, no response is implied with any of the specific variables.
A person’s physical environment has been proven to influence their emotions and behaviors, so it seems fair that architects often seek techniques to find balance and consistency in the ideas of effectual architecture.

Based on research and precedent study, the techniques I am using to either bring clarity and calmness to the occupant, or can engender confusion and anxiety if made unclear. The ease of way-finding within a space has great effect over one’s comfort. It can thus be understood the

1. A desire to remain physically (approach) or to leave (avoid) the environment
2. A desire to explore (approach) the environment as opposed to a tendency to remain inanimate in (avoid)
3. A desire to communicate with (approach) others in the environment versus a tendency to avoid
4. Enhancement (approach) of performance and satisfaction of task performances or hindrance (avoidance)

Each of my precedents was different, though the building was meant to be a comfortable housing complex, many viewed it differently. It is now famous as the setting of A Clockwork Orange, and was used by Kubrick to act as a sociological hellscape.

Way-finding

Comprehensive Cancer Center / Morphosis
T3 Parking Structure / Danze
Paimio Sanatorium / Aalto
Cite de Corps Humain / Steven Holl

The Thamesmead Housing Estate as a case, a typology.
Schema are the learned set of thoughts and items that are associated with a term, or in this case, a typology.

Mehrabian and Russell were doing extensive and domain-changing work in environmental psychology in the 1970s. Their work focused on understanding how our physical environment influences our emotions and behaviors. They developed the concept of a stimulus-response model, which suggests that our responses to the environment are mediated by our schemas.

Visual Access Architectural Differentiation Signage Floor Plan Configuration

Spatial Clarity

Naturality

Familiarity

Architectural Differentiation

How easily an occupant can orient themselves within a space is crucial to the success of an architectural project. Spatial Clarity refers to the degree of involvement and natural environment. It is evident, and I am using it as a major component in my study. Based on research and precedent study, the techniques I am currently testing are:

- Spatial Clarity
- Naturality
- Familiarity
- Architectural Differentiation

Finding balance in Effectual Architecture

A person’s physical environment has been proven to influence their emotions and behaviors, so it seems fair that architects often seek to design their space to have the optimum effect on the occupant to suit the given project. However, due to the lack of consistency between an architect’s effectual intent and the actual effect on the occupant of a space, architecture is not only less successful, but also may not be reaching its full potential. To address this downfall, I am observing spatial ideas and testing architectural and psychological generalities of effectual architecture.
Based on research and precedent study, the techniques I am currently testing are:

- Spatial Clarity
- Architectural Differentiation
- Familiarity
- Naturality

Finding balance and consistency in the ideas of effectual architecture.

How easily an occupant can orient themselves in a space has a significant effect on their comfort. A space that is well designed will allow for efficient navigation and promote a sense of control and familiarity. The content of a space can also contribute to comfort, with elements such as visual access, architectural differentiation, signage, and floor plan configuration all playing a role in creating an engaging and soothing environment.

Architectural differentiation helps to create a sense of distinct areas within a space, allowing occupants to distinguish between different functions and activities. This can be particularly important in large or complex environments where clear demarcations can prevent disorientation.

Visual access is crucial for way-finding and can be achieved through various means, from the layout of circulation paths to the use of large windows and open spaces. Effective sign systems and floor plans also contribute to orientation and can be designed to enhance the user’s experience.

The degree of complexity in a space can affect comfort, with a balance between simplicity and complexity being key. Overly complex spaces can be disorienting, while too simple a space can lack visual interest. The use of natural materials and elements can also improve comfort, providing a connection to the natural environment.

In conclusion, the goal of each project is to design a space that is not only aesthetically pleasing but also functionally effective, with a focus on creating a space that is engaging, comfortable, and conducive to the task at hand.
Though many of the Modernist projects that arose from this way of thinking, like Byron, are regarded as successes, many of these utopian projects were labeled as complete failures, as Pruitt-Igoe will be remembered, because they not only failed to create better housing for all, but doomed many to sub-par living conditions with the presence of crime and poverty.

These failures seemed to jolt the architectural field awake from their scientific dream, as many reactionary architectural movements, from post-modernism to deconstructivism, pulled the domain back to its more artistic background. To many, those modernist projects are viewed as dystopian. This can be seen in Kubrick’s A Clockwork Orange, in which the Thamesmead Housing Estate is represented as Alex’s home, because it was supposed to represent a sociological hellscape.
The Mehrabian-Russell Model

Environmental Stimuli \[\rightarrow\] Emotional States \[\rightarrow\] Behavioral Responses

Figure 2

**Approach and Avoidance Responses**

*in a Retail Environment*

<table>
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<th>Behavioral Dimension</th>
<th>Approach Behavior</th>
<th>Avoidance Behavior</th>
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<tbody>
<tr>
<td>Physical</td>
<td>Patronize store</td>
<td>Avoid store</td>
</tr>
<tr>
<td>Exploratory</td>
<td>Browse through merchandise</td>
<td>Look at minimum number of items</td>
</tr>
<tr>
<td>Communication</td>
<td>Interact with sales personnel</td>
<td>Avoid interaction with personnel</td>
</tr>
<tr>
<td>Performance &amp; Satisfaction</td>
<td>Repeat shopping in store frequently</td>
<td>Do not return to store</td>
</tr>
</tbody>
</table>
Though the architectural domain was shamed away from this scientific thinking, psychology, being a science, took it upon itself to find to ideal spatial environment. Many psychologists still believed that the physical environment is a large determiner of human behavior due to outside stimuli. This thus made architecture a great place to look for the answers to what extent the environment actually causes an effect. With graphs, manuals, and studies at the ready, a select few in the field, such as Mehrabian, Russell, and Moos, moved into Environmental Psychology in the 1970’s.

Mehrabian and Russell’s research held its basis mostly in the retail typology. In these spaces, they were trying to discover the environmental differences between spaces that induced a approach behavior, implying that occupants would stay longer and come again, and avoidance behavior, approach’s opposite.
THE ENVIRONMENT
Sense modality variables (e.g., color and temperature)
Information rate (Characterizing the spatial and temporal relationships among the stimulus components of an environment)

Characteristic emotions associated with PERSONALITY

PRIMARY EMOTIONAL RESPONSES
Pleasure
Arousal
Dominance

BEHAVIORAL RESPONSES
Approach-avoidance (which includes physical approach, exploration, affiliation, performance, or other verbal and non-verbal communications of preference)

(Mehrabian and Russell 1974, p. 8)

COMBINED EFFECTS OF PLEASURE AND AROUSAL ON APPROACH-AVOIDANCE BEHAVIOR
With approach environments as the aim, Mehrabian and Russell observed certain properties of test environments and distributed surveys to participants to see which aspects had the greatest effect on their approach/avoidance behavior. The key emotional responses they determined would be the best to measure were pleasure, arousal, and dominance.

Through further study, and subsequent studies by other psychologists, pleasure and especially arousal were showing to be the most effective to manipulate. They demonstrated an interesting sweet spot for approach behavior with arousal, in that if arousal was too high or too low, it created avoidance behavior. They took this further by studying this observation in places designed to be pleasant and unpleasant. However, most studies following these findings have shown that this is merely correlation, and a relatively weak one at that. However, the research is still used in the retail typology.
This graph shows some of the adjectives the participants used to identify whether a space was unpleasant or pleasant, and how much arousal the participant experienced.

Russell & Lanius

This sphere was developed in a subsequent study that found dominance to indeed be influential. Thus, a third dimension was added to illustrate its importance and be used to map it.

Bakker & de Boon
Mehrabian & Russell

Mehrabian and Russell were doing extensive and domain-changing work in environmental psychology in the early 1970's, when the field was becoming popular. They determined that environmental stimuli cause either approach or avoidance behavior. This behavior were split into four dimensions:

1. A desire to remain physically (approach) or to leave (avoid) the environment
2. A desire to explore (approach) the environment as opposed to a tendency to remain inanimate in (avoid) the environment
3. A desire to communicate with (approach) others in the environment versus a tendency to avoid interacting with others
4. Enhancement (approach) of performance and satisfaction of task performances or hindrance (avoidance) of task performances

Rudolf Moos

Spaces Have Personality

The Human Environment

Relationship

System Maintenance

Personal Growth

Involvement

Clarity

Independence

Cohesiveness

Control

Competition

Support

Innovation

Autonomy

Developed For:

Hospital Wards

Therapeutic Groups

Classrooms

Correctional Facilities

Sheltered Workshops

Residential Care

Work Settings

Group Environment Scale (GES)

Classroom Environment Scale (CES)

Family Environment Scale (FES)

Community Oriented Programs Environment Scale (COPES)

Work Environment Scale (WES)

Asks Participant For:

Real

Ideal

Expected

In Each Environment

Staff Involvement

Control

Autonomy

Supervisor Support

Physical Comfort

Clarity

Work Pressure

Peer Cohesion

Innovation
Moos also attempted to systematize unique environments to be optimal for the specific typology that they were meant for. The ultimate product of his work was a series of scales that are to be used to help an owner or employee shape their space, physically and socially, to make it as productive as possible. These scales are also still used, but mainly for the social elements.

Ultimately, both contributors mentioned were aiming to identify how to make a space harmonious, and found that harmony lies in the middle, away from all extremes of emotion. This is demonstrated in the graphs of a subsequent study in the same vain as Mehrabian and Russell’s studies. These psychologists found that if the design strays too far from the center, it will cause disharmony, and thus lead to avoidance.

Though the studies done by environmental psychologists hinted at potential causes to specific emotions and behaviors, only relatively weak correlational relationships were found. Eventually, environmental psychology went out of fashion, as did Modernism, albeit much less dramatically. Since its pursuits were too broad to be studied with causal experiments, environmental psych was taken out of the spotlight, for Industrial & Organizational and Human Factors Psychology to take the lead in finding how specific environmental factors affect people in specific conditions.
PSYCHOLOGY & DECONSTRUCTIVISM
In response to the failure of searching for the universal space, architects shifted powerfully in the opposite direction. This became most evident in Deconstructivism, during which architects focused not on making pleasant spaces, but making spaces that shocked its occupants with its abstract, fragmented aesthetic. This sort of shock architecture has been effective, yet both positively and negatively.
Wexner Center / Eisenman

UFA-Cinema Center / Himmelblau

Royal Ontario Museum / Liebskind
To turn modernist thinking on its head, deconstructivists pushed architecture far from concerns about harmony and comfort, and instead used design as a way to force realizations and revelations. Architecture no longer was subtle, but was instead in the face of the occupants, advertising abstract thoughts and intends to the point that they were hard to miss. In this mode of thinking, the extremes, not the center, were the focus.

This had its own psychological resonance, as the blunt forms were, in a way, more effective in demonstrating the architects intent. Though the design itself was would’ve been considered disharmonious by Mehrabian & Russell, the concepts and intent of the architect was more clear. This more easily graspable and visually striking method resonated with clients and occupants, and the movement is still producing buildings.
Spatial Clarity

Architectural Differentiation

Familiarity

Naturality
Peter Eisenman’s critique of the modernist way of thought is evident in his built work, and his methods of developing it. In his house projects, Eisenman would take a regular shape and put it though a seemingly regular process of incremental moves. However, the end result was always anything but regular. In this way, he borrowed modernist components and design methodologies, and by pushing them to extreme ends, created something completely irregular and “disharmonious,” such as in House IV. However, the modernists elements he distorted can still be seen in the designs, such as the smooth, white surfaces and the generally orthogonal relationship between the elements. These similarities make the distortion all the more evident, and make his intent clear.
CHRISTOPHER
ALEXANDER
Christopher Alexander is known for his work in studying the harmony in architecture. He demonstrated this in both his books, most famously A Pattern Language, and in his built work. Both the book and the work push the importance of human participation in the architectural design, as he cared deeply about the comfort and harmony of the occupant.
This passion came out in 1982, when he got in an argument with Peter Eisenman about the role of harmony in architecture. Alexander eventually yelled at Eisenman for his assertion that it was an architects job not only to create harmony, but to also create disharmonious spaces so that the harmonious spaces could be more emphasized. This thought process fit well with that of deconstructivism, and Alexander took this mindset as a personal offense, saying that Eisenman and the like were “fucking up the world.” After this, Eisenman became more popular, and Alexander all but drifted into obscurity in the architectural domain.

However, his book *A Pattern Language* became incredibly popular in the computer sciences, and influenced software design. In this book, Alexander and his team cataloged a large amount of elements they suspected lead to the designing of “living” space. It was organized in a way that made it easy for anyone reading to apply these elements in their own design.
However, Alexander saw many of the buildings that resulted from following the patterns, and still felt something was missing from the formula to make living architecture. Thus, to supplement *A Pattern Language*, Alexander developed his fifteen fundamental principles in his next book, *The Nature of Order*. Each principle supports one another to create a coherent form, and are meant to make the building more clear and meaningful for the occupant. In Alexander’s eyes, coherence is healing, as is meant to affect the occupant subconsciously.

His argument goes forward to claim that these natural, fifteen principles have been completely absent for the past century, in favor of drawing attention to form by violating them. However, he, Nikos Salingaros, and others argue that this desire for attention is having an adverse effect on humanity.

However, Alexander himself has been quite criticized, leading to his lack of popularity in the architecture field. Kimberly Dovey wrote of Alexander and his theories’ general lack of concern for the real world in “The pattern language and its enemies.” In this critique he mentions the pattern language’s shortcomings on several different topics and levels by addressing all of its “enemies,” from empiricism and capitalism, to postmodernism and puritanism. Dovey ends by showing pessimism as the final enemy, claiming that he himself is not acting as the pessimist, as he sees the opportunity for its implementation. However, he does contest that the pattern language, and ideology in itself, it too flawed to survive the ideological enemies that are up against it.
THE 15 FUNDAMENTAL PRINCIPLES

1. Levels of Scale
Levels of scale exist along with a scaling hierarchy. Repeating components of the same size and similar shape define one scale. Levels of scale have to be spaced closely enough in size (magnification) for coherence, but not too close to blur the distinction between nearby scales. Thus, a jump in scale by a factor of 15 is disorienting, whereas a factor of 1.5 is too close to distinguish one scale from another. A mathematical rule generates a distribution of scales via the logarithmic constant e ≈ 2.7 and the Fibonacci sequence: see “Applications of the Golden Mean to Architecture” (Salingaros, 2012). The whole point of adaptive design is to satisfy needs on the human scales, which range from 2 m down to less than 1 mm. The rule only says that you must accommodate all these scales.

2. Strong Centers
Strong centers are formed when a substantial region of space is tied together coherently. It is useful to distinguish two types of centers — “defined”, and “implied” — that overlap and interact. A “defined” center has something in the middle to focus attention. An “implied” center has a boundary that focuses attention on its empty interior. Visual focus is a precondition for the use of spaces. Each center combines surrounding centers and boundaries to focus on some region. Centers support each other on every scale: this is a recursive hierarchical property.

3. Thick Boundaries
A thick boundary is an “implied” center. According to the scaling hierarchy, a thick boundary arises as the next scale smaller than what is being bound. For this reason, thin boundaries are ineffective, because they skip over one or more terms in the scaling hierarchy, so the boundary is not connected by scaling to what it bounds. An “implied” center is defined only through its own thick boundary. Therefore, thick boundaries play a focusing role as well as a bounding role.

4. Alternating Repetition
Alternating repetition helps in the informational definition of repeating components. Simplistic repetition is collapsible information, because what repeats is trivially coded (for example, take an empty or plain module X and repeat it 100 times): see “Why Monotonous Repetition is Unsatisfying” (Salingaros, 2011). Contrast, acting together with repetition, reinforces each component through alternation. This alternation helps to better define essential translational symmetry.
5. Positive Space
Positive space refers to Gestalt psychology, and links geometry with the basis of human perception. Convexity plays a major role in defining an object or a space, whether this is an area or a volume. We feel comfortable or uncomfortable in the spaces we inhabit for a combination of mathematical and psychological reasons. We strongly feel a threat from objects sticking out. We need to apply the positive space concept to both figure and background. Not only the building’s interior space but also urban space must be positive: see “Urban space and its information field” (Salingaros, 1999).

6. Good Shape
Good shape arises when symmetries reduce the information overload. Perceivable objects produce a represented shape from many separate 2-D views, which the brain can computationally manipulate in 3-D. “Good” means “easily graspable”, satisfying the brain's innate need to compact information. Shapes that are not easily represented strain mental computation, hence they induce anxiety.

7. Local Symmetries
Local symmetries are symmetries within the scaling hierarchy. Symmetries must act on every distinct scale. “Symmetry” does not mean overall symmetry on the largest scale, as is usually understood. In organized complex structures, we have multiple sub-symmetries acting within larger symmetries. All the symmetries should be nested hierarchically.

8. Deep Interlock & Ambiguity
Deep interlock and ambiguity are other strong ways of connecting. Forms interpenetrate to link together. An analogy comes from fractals, where crinkled lines tend to fill portions of space, and surfaces grow with accretions. Two regions can interpenetrate at a semi-permeable interface, which enables a transition from one region to another. There is ambiguity as to which side of the interface one belongs while inside the transition region, and this is a good feature. Abrupt transitions such as a clean straight line, however, do not bind objects coming up to each other.
9. Contrast
Contrast is necessary to establish distinct subunits and to distinguish between adjoining units. Contrast is also needed to provide figure-ground symmetry of opposites. Strongly contrasted regions can also be strongly connected. For example, the space under an arcade contrasts with open street space. False transparency reduces contrast, and reduced contrast weakens the design. An example of weak (ineffective) contrast is inside versus outside space separated by a glass curtain wall.

10. Gradients
Gradients represent controlled transitions. They provide a method of getting away from uniformity, because that is a non-adaptive state. Subdivision also does this, however sometimes we should not divide a form into discrete pieces, but instead need to change it gradually. Examples include the urban transect: city transitioning to countryside, and in interior spaces: public transitioning to private realms.

11. Roughness
A fractal structure goes all the way down in scales — nothing is smooth: see “Scaling and Fractals” (Mehaffy & Salingaros, 2012). Ornament can be interpreted as controlled “roughness” in a smooth geometry. The relaxation of strict geometry to allow imperfections makes it more tolerant. So-called “imperfections” differentiate repeated units to make them similar but not identical — for example, hand-painted tiles. There is deliberate roughness in repetition that avoids monotony. Approximate symmetry breaking prevents informational collapse. Adaptation to local conditions creates roughness, since it breaks regularity and perfect symmetry.

12. Echoes
There are two types of echoes in design. First, translational symmetry: similar forms found on the same scale but at a distance. Second, scaling symmetry: similar forms existing magnified at different scales. Mathematical fractals are exactly self-similar. But all natural fractals obey only approximate, or statistical self-similarity — not exactly the same when magnified, but only “echoes”.
13. The Void
The void can be identified with plain structure at the largest scale of a fractal. The largest open component of a fractal survives as the void. It is not possible to fill in all of a fractal with detail. In “implied” centers, a complex boundary focuses on the open middle — the void. Therefore, an empty portion in necessary to balance regions of intense detail.

14. Simplicity & Inner Calm
This is a more subtle quality. Balance is achieved by an overall coherence and lack of clutter. Symmetries are all cooperating to support each other, with nothing extraneous or distracting. Coherent design appears effortless (but is in fact very difficult to achieve). We see this simplicity in nature, though it is never actually “simple” in the sense of being minimalist. “Simple” in nature means extremely complex but highly coherent. A system appears “simple” to us because it is so perfect.

15. Not-Separateness
Not-separateness comes after achieving coherence. Coherence is an emergent property — not present in the individual components. In a larger coherent whole, no piece can be taken away. Decomposition is neither obvious, nor possible. When every component is cooperating to give a coherent whole, nothing looks separate, and nothing draws attention to itself. This is the goal of adaptive design: a seamless blending of an enormous number of complex components. This is the opposite of willful separateness. Not-separateness goes beyond internal coherence, because the whole connects as much as possible to its environment.

Excerpts by Nikos Salingaros
Sketches by The Kubala Washatko Architects
FRANCOIS BLANCIAK
Another architect not convinced by the domain’s current state is Francois Blanciak, though his proposed solution if very different from that of Alexander. This could be expected, as Blanciak worked under both Gehry and Eisenman, both of which who have very different design priorities from Alexander.

Though the underlying ideals of Blanciak are different from Alexander’s, he is also disillusioned by how buildings are currently designed and developed. And as Alexander produced a series of patterns to demonstrate his intention, Blanciak produced a series of forms in his book *Siteless*. 
Like Alexander and his pattern language, Blanciak has developed a series of forms that he has observed from the world around him, and organized them as potential building blocks for buildings. Though simpler, and less profound than Alexander’s striving to find the key to “living” architecture, Blanciak’s methods work toward making an architecture that uses a set code that not only makes it easier to design, but also can release it from the comparably bland forms that are being constantly repeated by the field.

After developing the forms, Blanciak demonstrated the feasibility of his work by designing projects with the forms, similarly to how Alexander, and others who read A Pattern Language, designed projects using the patterns.
METHOD
MEDITATION
Even though these rules are based only on correlational relationships, many architects have still used this as justification to use them to inform certain moves and techniques throughout their design. This is not necessarily irresponsible, as any relationship can be viewed as a reasonable starting point, and many of these relationships have precedents to give support. In many cases, the result was exactly as the designer intended. However, in other cases, the results are quite opposite. Just as it is currently challenging to identify what is causal for the positives, it is also challenging to identify specific shortcomings. These failures could be attributed to a missing rule, an extra rule, or any number of incorrect rules. These also could come from any number of outside forces that were improperly anticipated, or even unseen, by the designer of the system. This can be seen in the failures of many Modernist housing projects, as well as in the less-than-popular structures designed by Alexander. It could be assumed that adding, subtracting, or changing a rule within the system could make these failed projects successful. Yet, as mentioned before, there is not yet a way to know whether the changes that are made will be enough, or even be too effective. The only truth in a system-based design is that the resulting structure will be based on the given rules. However, no science can yet prove if the result of these rules will be the one that is desired.

If systemization cannot provide truth to design, should it be used at all? Based on the positive outcomes that systemization helped to produce in the art world, systemization is still arguably a useful tool. Though it is true that these examples have far less external influences and constraints than architectural projects, systemization still allowed for these artists to push their work to a new level, by adding depth of reasoning for each design move. With rules in place, consistency in aesthetic and meaning throughout all parts of the project is more attainable.
1. **LEVELS OF SCALE**: Gradient
2. **STRONG CENTERS**: Levels of Scale, Thick Boundaries
3. **THICK BOUNDARIES**: Levels of Scale, Strong Centers, Contrast
4. **ALTERNATING REPEITION**: Levels of Scale
5. **POSITIVE SPACE**: N/A
6. **GOOD SHAPE**: Levels of Scale, Strong Center
7. **LOCAL SYMMETRIES**: Levels of Scale, Strong Center, Alternating Repetition
8. **DEEP INTERLOCK & AMBIGUITY**: Levels of Scale, Alternating Repetition, Good Shape, Local Symmetries
9. **CONTRAST**: Thick Boundaries, Alternating Repetition
10. **GRADIENTS**: Levels of Scale, Thick Boundaries, Deep Interlock/Ambiguity, Contrast
11. **ROUGHNESS**: Levels of Scale, Deep Interlock/Ambiguity, Alt. Repetition
12. **ECHOES**: Levels of Scale, Alt. Repetition, Contrast
13. **THE VOID**: Levels of Scale, Strong Centers, Contrast, Roughness, Inner Calm
14. **SIMPLICITY & INNER CALM**: Levels of Scale, Good Shape, Not-Separateness
15. **NOT-SEPARATENESS**: All
In my thesis project, I wanted to continue this exploration of systemization as a design tool. Thus, I have designed my own rule-based system to further demonstrate the shortcomings, and some potential benefits, of systemization. This will consist of a method informed in large part by the work of Christopher Alexander, both his writings and construction. To counterbalance this method, I will use the input of potential users of the space to create the rules. The end result of the experiment is a series of meditation pavilions, meant to help calm and distract the mind from stress. I have named this process Method Meditation, to both highlight the nature of the pavilions as meditation spaces designed via the method of survey, and to touch on the experimental and inquisitive approach this project takes when using methodology.

The method is built on surveys, which will allow the users to dictate the rules for the pavilion design. Within each survey is a series of components that I designed based on the fifteen principles of harmonious architecture, seen in Alexander’s The Nature of Order. Each survey asks the user a series of questions about these components, in order to better understand which he feels should be incorporated or left out of the design, and how she thinks the different types of components could be combined. These users are a group of twenty voluntary participants that are not architecturally trained, and range in age from twenty-one to fifty-six (Mean = 28). Their answers informed which components and design techniques to use in the pavilions.
STRONG CENTERS
GRADIENTS
CONTRAST
ROUGHNESS
The goal of the first survey was to understand what design elements a potential occupant would like to see in a meditation space. To facilitate this, I designed sixty components, split into five categories which were derived from Alexander’s fifteen principles. These categories; Strong Centers, Local Symmetries, Contrast, Gradients, and Roughness; come directly from Alexander’s fifteen principles. Yet, these five have specific attributes that are similar to the other ten principles. Thus, I have designed each category to encompass the other principles most similar to them. For each of the five categories, I designed twelve components, which each demonstrated a common method of applying the principles of the category in the built environment. I illustrated these components in axonometric view, so that the participants could best view the entire component and better understand its spatiality. Using these sixty 2D illustrations, participants answered fifty questions: ten questions and twelve illustrations per category. For each of these categories, participants answered three questions based on the work of Alexander, and the questions he asked his participants when developing the fifteen principles. Also, I formulated seven questions that asked the participants how they felt about each component, and if they believed any would induce calmness or peace of mind if experienced. I also asked about the physical characteristics of the components, such as levels of complexity, to identify whether this was an important determinant of popularity. As an introduction to the component questions, I included three questions to better understand the environments the participants associated with relaxation and calmness. With the illustrations and questions compiled, I sent survey one to those who volunteered via email and online messaging. Participants then answered the questions, and sent me back their answers through similar means. After observing the generalized data, I was able to see which components drew the attention of the participants, as well as those that only induced apathy. Beyond this, I gathered a better sense of what the participants thought was necessary for a calming space, from environment to materiality. With this data, I was able to eliminate most of the components, and get a better understanding of the setting the pavilions would inhabit.

With this information, I had a better understanding of which elements were more desirable for the pavilions. However, I still did not know how the users would react to combinations of these components. In response, I designed survey two to read as a narrative. In this story, the participant would be trying to escape a stressful situation, and would be choosing a sequence of components to encounter on their way to serenity. The participants were the exact same sample that participated in survey one, as to maintain consistency in the opinions on the components. Survey two consisted of five questions: one question for each of the categories from survey one. I reorganized the order that the categories were presented, so that the questions could be read a story.
This narrative presented each category as a development in the quest for peace of mind. Each of these developments led to a new object the participant would encounter in the journey, thus introducing a new set of components to choose from. Each category consisted of four or five components, which represented the most popular components from survey one. The participant was asked to indicate which of the components for the given category they would most like to encounter, given the situation in the narrative. For three of the five categories, the participant was asked to elaborate on a specific feature of the component, such as size and material. Survey two was distributed and returned in the same process as in survey one. Through this process, I also gathered information about how each component would be encountered, and what material and color the participant imagined it would be. With this additional information from the second survey, I could make an informed translation of the answers from the participants into what elements a user would like to see in the mediation pavilion.

With this in mind, I hypothesized that the result would be a mix of these two potentials. I imagined that the users would have priorities that would not be reflected in the designers’ component choices. Yet, I also imagine that the designers will be more effective at choosing individual elements that will work better together for the final pavilion. More specifically, I hypothesized that potential occupants would choose components with nature and more classical architecture, as these are more familiar, and potentially more comforting. On the other hand, I thought the designers would be more willing to pick the simple components, as they would be more likely to see simplicity as calming. However, I also imagined the more a component reflects the category it belongs to, the more it would draw the designers’ interest. Whether this difference in attraction was strong enough to sway the results to different components should be seen in the data. Generally, with this method in place, I hypothesized that the pavilions designed with rules created by the users would be less aesthetically coherent when juxtaposed with the designer pavilions, and especially when compared to pavilions that had previously been designed by one architect or firm. However, I also thought that what the user pavilions would be lacking aesthetically, would be made up for in meaning. Though all the parts were not originally design to fit together, the user specifically chose each element because it serves a specific purpose in relaxing the occupant. However, though it may have meaning in every design move, I still stand that none of the pavilions designed with this method will create the perfect, universal meditation space, for the method is too all-encompassing to compensate for the specific feelings and experiences of each occupant.
This survey is one of three that will eventually result in the designs of small architectural pavilions. These pavilions will act as spaces for mental healing and relaxation, and they will be designed in large part by you, your careful analysis of the following design components, and your honest responses to the following questions. The goal is not solely to better understand what elements could make up a healing, relaxing space, but to critique the optimization and systemization of architecture, and to observe the full incorporation of the client in the design process. Some of the wording may seem vague, but please try to answer each as well as you can.

This first survey will help me narrow down which components are better than others, and which to eliminate all together. As a result, this survey will be the longest of the three, but the results will be invaluable. There will be six short sections: the first will be general questions, and the remaining five sections will be made up of ten questions about corresponding drawings. Each of these five sections will contain twelve drawings to be analyzed and juxtaposed. Do not compare drawings from different sections, as they do not yet relate.

**INTRODUCTION**

1. What are characteristics of places in which you feel at ease?

2. Do you generally consider large or small spaces more calming?

3. What type of environment do you consider most calming? A cabin, church, stadium, etc.?
Repeat the following questions for each of the variables listed above, when analyzing their twelve corresponding components.

1. Which component do you feel is most whole?
2. Which component do you feel best embodies life?
3. Which component do you feel is the best reflection of yourself?
4. Which components stand out to you? List them and briefly explain your attraction to them.
5. Which component would you like to be in the presence of, or occupy, for the most time? Briefly explain.
6. Which component would you consider the most simple?
7. Which component would you consider the most complex?
8. Which component do you see as the most graceful?
9. Which component makes you feel most calm?
10. In what setting do you imagine the most calming component? Briefly describe.
INITIAL HYPOTHETICAL COMBINATIONS
SURVEY I DATA & REVALATIONS - USERS

STRONG CENTERS

LOCAL SYMMETRIES

CONTRAST

GRADIENTS
1. What are characteristics of places in which you feel at ease?

"Creating softness in the room helps to create warmth."

"Flowing water source, distinct white noise, natural materials, and high ceilings."

"Minimal amounts of blank space; plenty of visual stimulation."

"Minimal visual noise (ex. busy patterns represent a high degree of visual noise), a source of water (can be moving or still), open space, greeneries/plants, air is easy to breathe, soft/plushy furniture or blankets, warm lighting, calming smells (think fresh, light, etc.)."

"Open space, natural colors and feel. Non-jagged design."

"I like cute, hidden away places that have busy architecture and lots of dividing pieces, because I don’t wanna look at someone 24/7."

"Openness is a must."

2. Do you generally consider large or small spaces more calming?

"Warmth is hard to create in larger space, as is community."

"It’s more about the number of people in the space than the size of the room."

"Smaller spaces are typically more calming than larger spaces for indoor environments, but larger spaces are more calming than smaller spaces for outdoor environments."

3. What type of environment do you consider most calming? A cabin, church, stadium, etc. . . ?

"I consider campuses with classic architecture calming, along with cathedrals and aviaries."

"Something elevated but secluded. A treehouse?"

"A temple, preferably Buddhist, in the woods or mountains."

"Seems worn in and loved."

"It looks like entropy taking over."

"Interesting juxtaposition between the sizes of the two structures. I would like to explore them."

"It gives me somewhere to sit as well as the freedom to explore."

"The majestic feeling it gives creates a larger than life atmosphere, which makes me reflective."

"Structural, but not trapping."

"You could be in an idealized area no matter what the weather."

"It feels like a completed home."

"I appreciate it being indoors, but open to the outside."

"I feel like the lighting would inspire serenity or energy."

"It reminds me of somewhere in the woods near a gently running stream. Somewhere I can sit and read a book."

"There is something calming about shrunk concentric circles (I don’t think I would get the same feeling from squares or triangles)."

"[Could be in a] park or peaceful place in the middle of a city."

"Interesting juxtaposition between the sizes of the two structures. I would like to explore them."

"It gives me somewhere to sit as well as the freedom to explore."

"Creating softness in the room helps to create warmth."

"It’s more about the number of people in the space than the size of the room."

"Smaller spaces are typically more calming than larger spaces for indoor environments, but larger spaces are more calming than smaller spaces for outdoor environments."

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"It feels like a completed home."
MEDITATION SPACE SURVEY I DATA - USERS

STRONG CENTERS

1 2 3

4 5 6

7 8 9

10 11 12

LOCAL SYMMETRIES

1 2 3

4 5 6

7 8 9

10 11 12

GRADIENTS

1 2 3

4 5 6

7 8 9

10 11 12

CONTRAST

1 2 3

4 5 6

7 8 9

10 11 12

Common Themes

- Comfort, Gracefulness, Calmness, & General Interest

Meditation Space Survey Data - Users

Something elevated but secluded. A treehouse? - Chisolm Allenlundy

It gives me somewhere to sit as well as the freedom to explore. - Andrew Collins

I consider campuses with classic architecture calming, along with cathedrals and aviaries. - Courtney Gray

I feel like the lighting would inspire serenity or energy. - Courtney Gray

You could be in an idealized area no matter what the weather. - David Damari

You could be in an idealized area no matter what the weather. - Chisolm Allenlundy

Structural, but not trapping. - Olivia DelVecchio

It gives me somewhere to sit as well as the freedom to explore. - Andrew Collins

Minimal visual noise (ex. busy patterns represent a high degree of visual noise), a source of water

I appreciate it being indoors, but open to the outside. - Jane Shin

Winter is hard to create in larger space, as is community. - Hannah Carpenter

I would like to explore them. - Courtney Gray

It reminds me of somewhere in the woods near a gently running stream. - Andrew Collins

You could be in an idealized area no matter what the weather. - David Damari

The majestic feeling it gives creates a larger than life atmosphere, somewhere I can sit and read a book. - Andrew Collins

You could be in an idealized area no matter what the weather. - Chisolm Allenlundy

The majestic feeling it gives creates a larger than life atmosphere, which makes me reflective. - Chloe Moore

I appreciate it being indoors, but open to the outside. - Jane Shin

I feel like the lighting would inspire serenity or energy. - Courtney Gray

You could be in an idealized area no matter what the weather. - David Damari

It gives me somewhere to sit as well as the freedom to explore. - Andrew Collins
1. What are characteristics of places in which you feel at ease?

2. Do you generally consider large or small spaces more calming?

- Openness
- Tall ceilings
- Ambient noise
- Water incorporation
- Nature interaction
- Natural material
- Soft shapes
- Relative seclusion
- Large outdoor space
- Small indoor space

"Openness is a must." - Renee Hess

"Minimal amounts of blank space; plenty of visual stimulation." - Chisolm Allenlundy

"Flowing water source, distinct white noise, natural materials, and high ceilings." - Erika Neilssen

"Creating softness in the room helps to create warmth." - Hannah Carpenter

"Minimal visual noise (ex. busy patterns represent a high degree of visual noise), a source of water (can be moving or still), open space, greenery/plants, air is easy to breathe, soft/plushy furniture." - Chisolm Allenlundy

"Natural material, nature interaction, ambient noise." - Chisolm Allenlundy

"The majestic feeling it gives creates a larger than life atmosphere, it reminds me of somewhere in the woods near a gently running stream."

"You could be in an idealized area no matter what the weather." - David Damari

"Creating so/f_tness in the room helps to create warmth." - Hannah Carpenter

"You have to have something elevated but secluded. A treehouse?"

"Something elevated but secluded." - Chisolm Allenlundy

"Structural, but not trapping." - Olivia DelVecchio

"I appreciate it being indoors, but open to the outside." - Jane Shin

"It feels like a completed home." - Chisolm Allenlundy

"Minimal visual noise (ex. busy patterns represent a high degree of visual noise), a source of water (can be moving or still), open space, greenery/plants, air is easy to breathe, so/f_t/plushy furniture." - Chisolm Allenlundy

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"Minimal visual noise (ex. busy patterns represent a high degree of visual noise), a source of water (can be moving or still), open space, greenery/plants, air is easy to breathe, so/f_t/plushy furniture." - Chisolm Allenlundy

"Something elevated but secluded." - Chisolm Allenlundy

"Interesting juxtaposition between the sizes of the two structures. I think I would get the same feeling from squares or triangles." - Chloe Moore

"I think I would like to explore them." - Courtney Gray

"I consider campuses with classic architecture calming, along with cathedrals and aviaries." - Andrew Collins

"It feels like a completed home." - Chisolm Allenlundy

"Open space, natural colors and feel. Non-jagged design." - Austin Beickert

"Something elevated but secluded. A treehouse?" - Chisolm Allenlundy

"I don't think I would get the same feeling from squares or triangles." - Chisolm Allenlundy

"I would like to explore them." - Courtney Gray

"It's more about the number of people in the space than the size of the room." - Allegra Damari

"It looks like entropy taking over." - David Damari

"I like cute, hidden away places that have busy architecture and lots of dividing pieces, open space, natural colors and feel. Non-jagged design." - Austin Beickert

"I appreciate it being indoors, but open to the outside." - Jane Shin

"It feels like a completed home." - Chisolm Allenlundy

"It feels like a completed home." - Chisolm Allenlundy

"Interesting juxtaposition between the sizes of the two structures." - Chloe Moore
SURVEY I USER PAVILION

POST-SURVEY I PAVILION

SECTION | 1"=1/4"
SURVEY I DATA & REVALATIONS - DESIGNERS

STRONG CENTERS

LOCAL SYMMETRIES

CONTRAST

GRADIENTS
1. What are characteristics of places in which you feel at ease?

"Places that make me feel at ease tend to be light and soft."

"Exterior space, or isolated, warm spaces with natural light and color palette."

"Open floor plans, no angles or narrowness, and spaces with lots of natural light/large windows."

"Openness of light and air quality with qualities of interest for viewing and contemplating."

2. Do you generally consider large or small spaces more calming?

"Large, but small could work provided the furniture or structure doesn’t make me feel cramped."

"Small spaces, because they are more intimate."

"Somewhere in between. A large space with multiple smaller breakout spaces or spatial divisions is ideal."

3. What type of environment do you consider most calming? A cabin, church, stadium, etc. . . ?

"Coffee shops, or small restaurants without too much noise."

"Cabin, piazza, museum."

"WATER, forest, and mountains. In the built environment, bridges, treehouses, libraries that aren’t too crowded."

"A organized room."

"Stands out because of the condition of carving from a mass to create form."

"Interesting form that could be at building scale or cornice scale."

"Interesting form that could be at building scale or cornice scale."

"I think there is something nice about how you can still read the original form despite the voids down the center which can be used to create different appealing elements."

"How the gaining of the cuts, and the texture of the edge it creates."

"At the scale of a floor surface, would feel nice on bare feet."

"I like how a field of objects creates a dynamic surface."

"Its strong and weighted reading. It feels fortified."

"It looks satisfying, maybe because it’s so symmetrical. Also love the implied center."

"It looks like a module, which can be any scale from house to city. It indicates imagination and possibility."

"The randomness is interesting. It’s centered but random. I like it as an object."

"Haphazard loops that look crazy but actually have order."
**Common Themes**

- Natural, dynamic lighting
- Versatility
- Balance
- Water incorporation
- Nature interaction
- Natural material
- Relative seclusion
- Large outdoor space
- Small indoor space
INFORMED CONSENT

My name is Armand Damari, and I am an undergraduate thesis student at Syracuse University's School of Architecture.

I am interested in learning more about the systemization of the architectural design process, and client involvement in this process. You will be asked to complete a survey with questions asking your opinion on several illustrations representing architectural concepts. This will take approximately 15 minutes of your time.

I am inviting you to participate in a research study. Involvement in the study is voluntary. This means you can choose whether to participate and that you may withdraw from the study at any time without penalty.

Whenever one works with email or the internet; there is always the risk of compromising privacy, confidentiality, and/or anonymity. Your confidentiality will be maintained to the degree permitted by the technology being used. It is important for you to understand that no guarantees can be made regarding the interception of data sent via the internet by third parties.

If you have any questions, concerns or complaints about the research please contact me, Armand Damari, at afdamari@syr.edu.

I am 18 years of age or older, and I wish to participate in this research study.

By continuing I agree to participate in this research study.

SURVEY II

This survey is one of three that will eventually result in the designs of small architectural pavilions. These pavilions will act as spaces for mental healing and relaxation, and they will be designed in large part by you, your careful analysis of the following design components, and your honest responses to the following questions. The goal is not solely to better understand what elements could make up a healing, relaxing space, but to critique the optimization and systemization of architecture, and to observe the full incorporation of the client in the design process. Some of the wording may seem vague, but please try to answer each as well as you can.

This survey will help me understand which components are better suited in certain situations than others, and which components of different sections work well together. To better address these goals, this survey is formatted as a narrative. There will be five short sections in the narrative, and you will be asked to identify which illustration you think best matches the situation at the end of each. Each of these five sections will contain four to five drawings to be analyzed and juxtaposed. Do not compare drawings from different sections, but do, however, take into account what items you have selected in previous sections. Take your time to imagine your own perfect space that matches the narrative in each section, and then analyze the given components to find the one that best represents what you imagined.

INTRODUCTION

Remember while doing this survey that, though there are general forms provided that give a general feel to each transition, this is a fairly free-form narrative. If you have any alterations in mind that you think could further your comfort in these situations, such as size, distance, and material changes, please add a note in your answer.
**SECTION I: GRADIENTS**

You have just exited a stressful situation and are searching for a place to settle your mind and relax. As you are progressing, you notice there is a transition that looks as though it could lead to the calming space you desire. Which of these best represents the elements of the transition?

1. ![Image 1](image1)
2. ![Image 2](image2)
3. ![Image 3](image3)
4. ![Image 4](image4)
SECTION II: LOCAL SYMMETRIES

After proceeding through the transition, you have entered a new space, which seems to be leading you to a farther destination. As you progress, the space is helping you forget your agitation. What does this space look like?

1

2

3

4
SECTION III: CONTRAST

Eventually, you reach the end of this space. You now see a drastic change between the space that is now behind you, and what is ahead. This change is welcome, and fully separates you from the hectic world you left. Which of these best represents the change in scenery? In the component you choose, which part are you exiting, and which are you entering?

1

2

3

4

5
After entering this new scenery, you enter the final space. The organization of the elements in this space help to relax you. Which component most closely represents this space? How big is the space?
SECTION V: ROUGHNESS

When observing the relaxing space and its elements, you notice that they have a texture. This texture interests you, and thus works to remove you from the stress you were avoiding. Which best represents the texture that is on the elements? What is it made of?
SURVEY II - DESIGNERS

SECTION I: GRADIENTS

You have just exited a stressful situation and are searching for a place to settle your mind and relax. As you are progressing, you notice there is a transition that looks as though it could lead to the calming space you desire. Which of these best represents the elements of the transition?

1 2 3 4

1

2

3

4
SECTION II: LOCAL SYMMETRIES

After proceeding through the transition, you have entered a new space, which seems to be leading you to a farther destination. As you progress, the space is helping you forget your agitation. What does this space look like?
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Eventually, you reach the end of this space. You now see a drastic change between the space that is now behind you, and what is ahead. This change is welcome, and fully separates you from the hectic world you left. Which of these best represents the change in scenery? In the component you choose, which part are you exiting, and which are you entering?

After entering this new scenery, you enter the final space. The organization of the elements in this space help to relax you. Which component most closely represents this space? How big is the space?

When observing the relaxing space and its elements, you notice that they have a texture. This texture interests you, and thus works to remove you from the stress you were avoiding. Which best represents the texture that is on the elements? What is it made of?

Survey II

Section I: Gradients

Section II: Local Symmetries

Section III: Contrast

Section IV: Strong Centers

Section V: Roughness

Participant Sketches
USER

PAVILIONS
DESIGNER

PAVILIONS
Designer Pavilions

Axon | 1' = 1/8"
Section | 1' = 1/8"

Axon | 1' = 1/8"
Section | 1' = 1/8"
BIBLIOGRAPHY


