PERSPECTIVES

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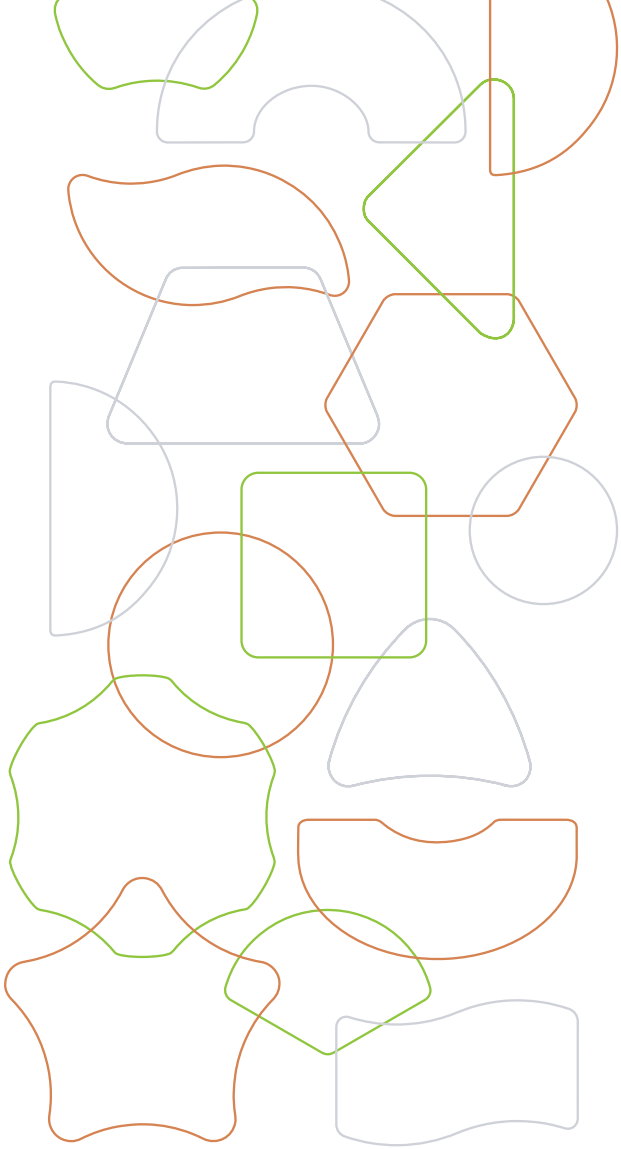
Environments for Learning

Shape & Pattern-Perspective 2

White Paper /
"Campfire": The Connection to Learning

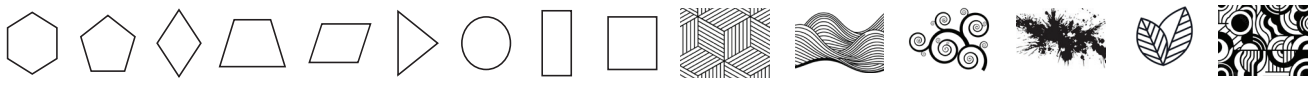


1. INTRODUCTION

In the first paper in this series, I began to unpack the research behind shape and pattern. For a short review, there is a special part of our brain that recognizes familiar patterns in random shapes. It's a psychology term called "pareidolia."[1]

Mattson[2] argues, "...The fundamental function of the brains of all animals is to encode and integrate information acquired from the environment through sensory inputs, and then generate adaptive behavioral responses [my underline]. Sensory information is first rapidly encoded as patterns inherent in the inputs, with visual and auditory patterns being most extensively studied in mammals. We rely on pattern recognition today in medicine, in data analytics, etc." Again, it's why we also often look at cloud formations for fun and try and find patterns within. In fact, "the human brain still outperforms algorithms."[2]

In the section of "'Learning Places Application by Design,' I shared the following: Patterns 'cue' behaviors. A listing of shapes and each's psychological connection with the potential applications for learning places was shared. Remember? That's our 'pareidolia'"[3] in action.



In this series, I'm going to connect some of these shapes with Environment-Behavioral Psychology [E-BP], and evidence behind certain shapes specifically. And then, dig deeper into Thornburg's[4] 'Campfire' metaphor.

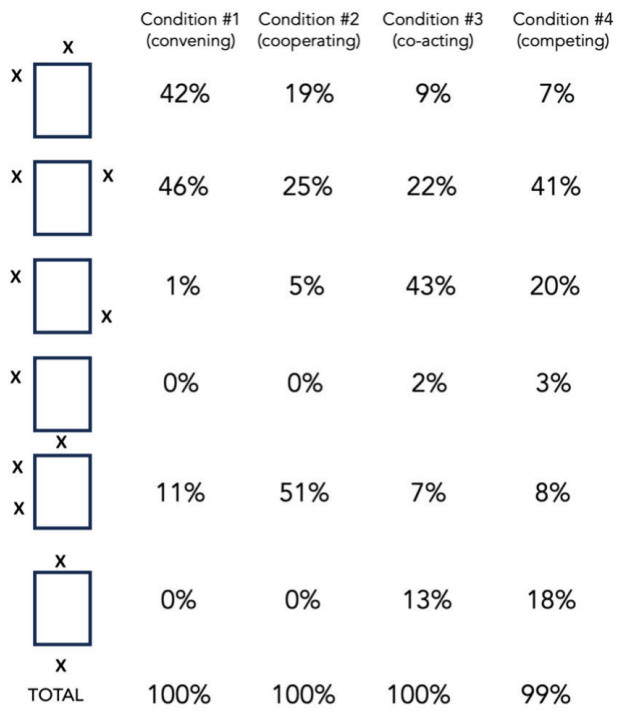
2. E-BP

Environment-behavior research studies how the design of our built environment impacts human performance – wherever we reside. Since we spend an inordinate amount in buildings {EX: children spend approximately 1,200 hours in school]. E-BP is a critical research strategy, and the focus of my PhD.

One of my favorite E-BP researchers is one of the pioneers of this research protocol, Robert Sommer. I'm particularly drawn to his classic work in Personal Space: The behavioral basis of design[5]. He examined thoroughly the behavior of the human in spatial situations. Among the research areas explored were small group ecology, territoriality, and the related concept of privacy.

He was particularly interested in the social interaction behavior;' social behavior, was one of his foci. His work is related to several specific areas of settings designed for learning, which for our purposes include – 1) the learning environment, 2) college dormitories, and 3) the library. As an E-BP researcher and designer, it is this link between environmental programming developed as a common area of interest, that one hopes draws the researcher and the designer into meaningful conversations about any given project.
We'll open here with what Sommer referred to as 'small group ecology,' , [6,p.62] and the study of students arranging themselves in particular arrangements with each other based on the needs of the tasks at hand. Next, is a synopsis of that study.

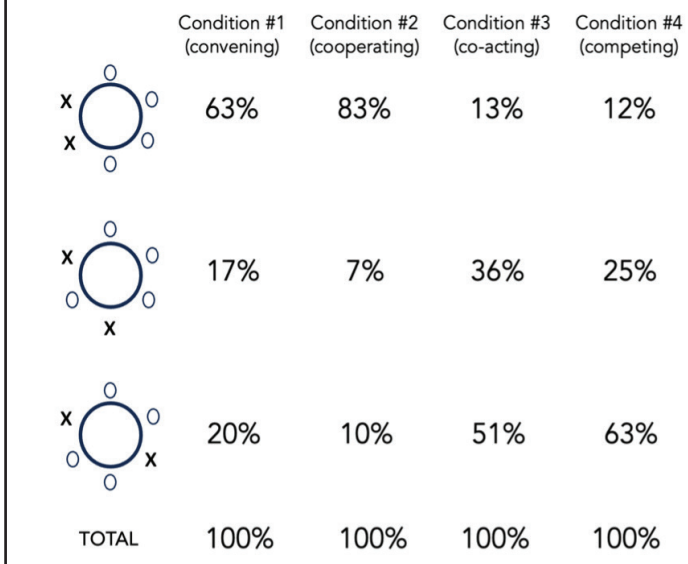
What is interesting, is this research used these behavioral scenarios, called the seating arrangement as 'conditions.' Condition #1 (convening), condition #2 (cooperating), condition #3 (co-acting), and condition #4 (competing) (see his Fig. 1 with rectangular tables below and Fig. 2 on the following page with round tables). The second experiment used round tables and a similar questionnaire was used.



A. Rectangular Tables

Each student was asked to indicate his/her own seating and that of a friend on diagrams showing a rectangular table [p.61] (1-2-1-2). Students overwhelmingly chose a corner-to-corner or face-to-face arrangement for casual conversations... The explanations emphasized both physical proximity and visual contact in these arrangements. The students selected a side-by-side arrangement for cooperative activity and explained that it was easier to share things this way. Competing pairs generally chose face-to-face seating, although some used a distant seating pattern. Those who chose the face-to-face arrangement maintained that it stimulated competition. Various distant or catty-corner arrangements were selected by students who worked separately at the same table (co-acting pairs). The students cited the minimal eye contact in a catty-corner arrangement – e.g.: 'It allows staring into space and not into my neighbors' face.'"[pp. 62 & 63]

Figure 1. Adaptation of Fig. 3# Seating Preferences at Rectangular Tables, p.62.



B. Round Tables

This test used a different group. The diagram used here showed a round table with six chairs. The study found that most pairs who wanted to converse or work together used adjacent seating. The reason corresponded to study A and emphasized psychological closeness: "I want to chat with my friend, not the whole cafeteria, so I sit next to her," and "more intimate, there are no physical barriers between us." This segment of the study also indicated that "... competing pairs chose to sit directly across from one another to keep from seeing each other's work, and to stimulate competition b being able to see how the other was doing. The students working separately left empty chairs between one another."[p.63]

Figure 2. Adaptation of Fig. 4# Seating Preferences at Round Tables, p.63.

This type of research has been duplicated many times and each draws similar conclusions. At the end of the day, seating arrangements matter. That means that the choice of tables and their shapes matter, and perhaps student agency comes into play here as well.

As Sommer points out in this early study, choice is related to task required. A variety of affordance selections seems to support an individual's needs. For practical applications, knowing how groups arrange themselves given a choice "...can assist in fostering or discouraging relationships." [p.72]

In the CEU The Psychology of Shape,' the author points out this curved vs. angular approach but at the macro scale – architecture. In the table below, one can begin to discern the differences between our cognitive intake and our emotive ones. We humans constantly make these connections to these fundamental shape differences[7].

Ok, but how does this information connect to Thornburg's Campfire metaphor? That's next.

Curved Architecture vs. Angular

A Cognitive + Emotional Contrast

FEATURE	CURVED DESIGN	ANGULAR DESIGN
Visual Perception	Soft, Fluid, Continuous	Hard, Rigid, Abrupt
Emotional Response	Calming, Welcoming	Alerting, Potentially Harsh
Neurological Reaction	Positive Affect + Reward Activated	Neutral or Avoidance-triggered Reactions

3. Campfire...

"The Campfire[8] is for storytelling. It is also often the lecture space, the space where a large group of students learns from one individual (teacher, presenter, fellow student) at the same time. Although this lecture-style space is overused in our current educational system, there is a place for it and we shouldn't eliminate it entirely. The key is for lectures to give students 'just enough information to set the stage for student discovery. '[p.14]) Asking questions and not providing all the answers. Give students a chance to tackle engaging questions and discover things on their own..."[9]

The campfire for storytelling is ancient. It's the place in oral tradition, where the stories of the ancestors were told. Before the written word, and even in some cultures today, oral story telling is a critical cultural component. "Because the storytellers were the keepers of knowledge in preliterate time, they wielded enormous power – a power that has remained in the hands of teachers today."[p.12]

Here is where I can see Thornburg's idea for the metaphor campfire - about one person owning the knowledge and sharing it with others. However, campfires are round. Thus, the metaphor of his campfire doesn't fit for the spatial conditions we have set for hundreds of years using a didactic/ lecture-based learning practices [the place is the 'Cell']. Individual classrooms along double-loaded corridors, in a teacher-centric, controlled row-by-column classroom setting, all eyes forward[10]. In fact, Socrates, the ancient Greek philosopher as seen here in this image in the School of Athens, is always about dialogue in the round.

Raphael, Public domain, via Wikimedia Commons

A 'Campfire' setting then, in my view, takes on new meaning and design parameters for use today. I'll explain. To set the stage here, we must understand that multiple types of learning practices are used throughout the rhythm of any one learning time, but we'll just focus on this one and how spatial arrangements can support a social ecology. The Campfire, as Thornburg points out is not about, "What is the answer? but rather, what are the questions. Why? When we give the answers the learning stops."[p.15] So, how might we set up a learning setting to support the connections to others, yet in a non-competitive arrangement? One learning practice is to engage in what is referenced as the Socratic method.

"Socrates, the early Greek philosopher and teacher, believed that disciplined and thoughtful questioning enabled the student to logically examine and validate ideas...By using Socratic questioning, instructors promote independent, higher-level thinking in their students, giving them ownership of what they are learning through discussion, debate, evaluation, and analysis of material."[11]

Image by classroomreimagined.ai

Teaching in the round [aka campfire setting] is completely egalitarian. Look to find ways to move your affordances into a circle easily and quickly. Circle = a shape becoming the silent instructor, guiding through non-verbal cueing (the third teacher).[12] Not everything needs to be a chair either. Stools and cubes and even triangles offer alternatives for gathering – still counting for bums in seats. Stools that are easily picked up [i.e., fluid], make for easy reconfigurability, adds student agency in that each individual can pick one up and put it into a circle. Let the conversations begin!

Curves =
Comfort + Approachability

Image by Marco

When we add in biophilic tenants/patterns[13] with refences to nature either by color, or by pattern, we are once again connecting intentionally and holistically the neuro-centric needs of all individuals – a connection to the natural order. "Curves are associated with biophilic patterns. The biophilia hypothesis suggests that humans are biologically inclined to seek connections with nature. Nature is inherently curvilinear—think rivers, trees, shells, hills, clouds. Natural forms are non-linear: plants grow in spirals, landscapes undulate, water flows. Curves in design help replicate natural environments, tapping into this innate preference. And the Emotional Benefits? Curved shapes reduce stress, fatigue, and cognitive overload. They promote a feeling of softness and security—making students feel more at ease."[14]

Stock photo by Vecteezy

The new 'Campfire,' it's easy. It's cueing the learners that when we move into whole group discussion using the Socratic method, we not only physically change our postures, our positions, our arrangements, our use of affordances [e.g., furnishings, fixtures, equipment, and/or technology], but also the way in which we conduct ourselves using this type of learning strategy. So, when we come together it's to a full circle: gentleness, unity and balance – referencing the psychology of space. Campfire then can be a cueing pattern, as well as a learning practice. This new idea of 'Campfire' allows for a more encouraging way to engage in conversations as no one person is seen as the expert.

Next, is the 'Watering Hole.'

We'll unpack this idea next when we dig deeper! Until then.

4. ENDNOTES

[1] J. Ungvarsky, (2023). Pareidolia. EBSCO Knowledge Advantage. https://www.ebsco.com/research-starters/health-and-medicine/pareidolia

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[5] Sommer, R. (1969). Personal Space: The Behavioral Basis of Design. Englewood Cliffs, NJ: Prentice-Hall.

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[7] Marco (2025). The psychology of shape. CEU.

[8] Thornburg, D. (2014). From the campfire to the holodeck: Creating engaging and powerful 21st century learning environments. San Francisco, CA: Jossey-Bass.

[9] Thornburg, D. (2014). From the campfire to the holodeck: Creating engaging and powerful 21st century learning environments. San Francisco, CA: Jossey-Bass.

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