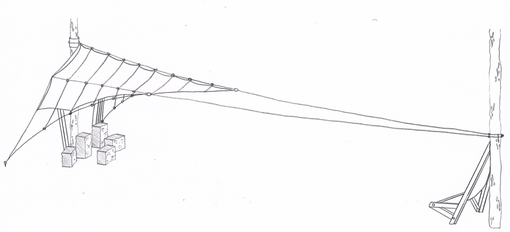
EVALUATION OF HUMAN SEATING

This research explores the implementation of key seating elements – such as surface material, seat height and their influence on user comfort and posture. The project also investigates how variations in stone treatment and positioning contribute to the seated experience and a persons body language.
Through a combination of secondary research, observational studies, and user testing, the report analyzes how these elements affect ergonomic suitability and interaction between users. Each component was tested in three variations, with comfort, posture and body language evaluated through both subjective feedback and objective assessment. The findings identify which configurations best support comfort, focus, collectivity and alignment with ergonomic standards, offering insights into how design can improve the quality of seated interaction in both designed and natural seating contexts.

APPLIED RESEARCH METHOD



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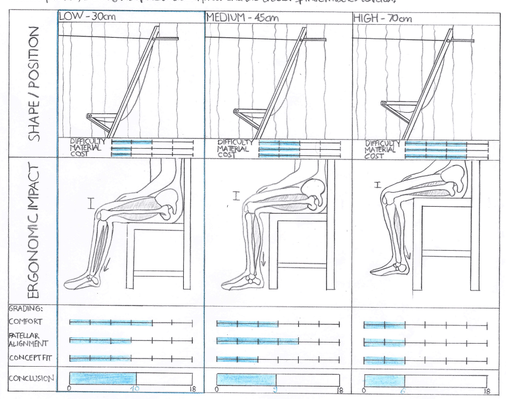
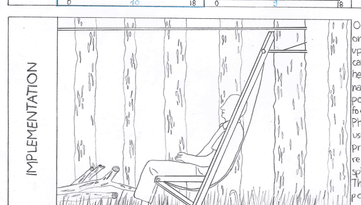
SEAT HEIGHT

Seat height has a big impact on posture and circulation. An ideal height ensures that the knees remain at a 90-degree angle, minimizing stress on the patella (kneecap) and quadriceps tendon. A seat that is too high reduces foot contact with the ground, causing instability and lower back strain, while a seat that is too low increases knee flexion, leading to joint compression. Proper seat height improves blood flow to the legs, reducing fatigue and enhancing focus. However, when a comfortable and supportive backrest is provided, a low seat height can actually encourage a reclined position, allowing the spine to decompress and the erector spinae muscles to relax.

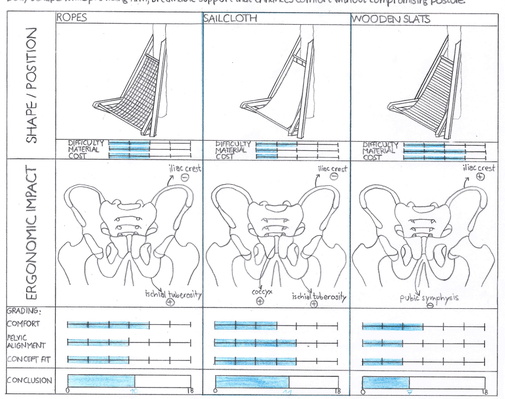


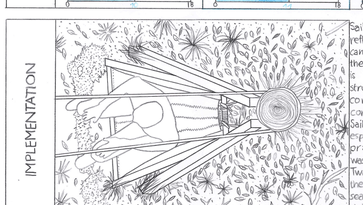


Our aim is for the person seated on the chair to naturally gaze upward toward the sky and the canopy overhead. A low seat height supports this intention by naturally tilting the gaze and posture upward, guiding the visual focus vertically.
Physically, a lower seat allows the user to lean back more easily, promoting lumbar relaxation and reducing tension in the erector spinae muscles along the spine. This encourages a reclined, restful posture that enhances both visual experience and physical comfort.

SEATING SURFACE

Seating surfaces significantly impact posture and musculoskeletal health. Well-designed surfaces help maintain spinal alignment and evenly distribute weight, reducing pressure points on the pelvis and lower back. Flexible or contoured surfaces promote a neutral pelvic tilt, while straight, rigid surfaces can be beneficial by providing consistent support and preventing excessive sinking or tilting. However, if too rigid, they can cause uneven weight distribution, leading to discomfort and long-term issues like back and hip pain. Sailcloth is a strong yet flexible material that adapts to the body's shape while providing firm, breathable support that enhances comfort without compromising posture.

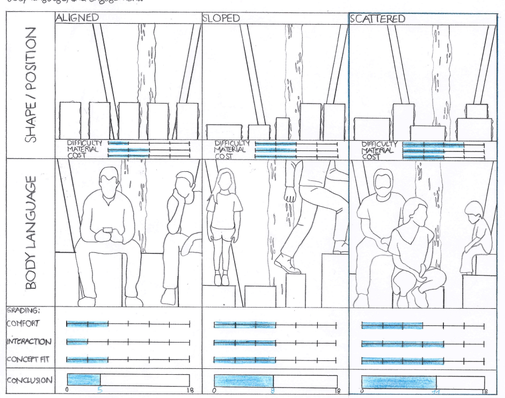


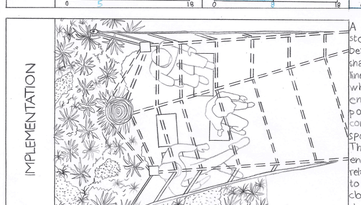


Sailcloth as the seating surface reflects the theme of the artificial canopy on the opposite side of the pond, where the same material is suspended beneath a rope structure. This visual and material connection creates a strong conceptual link across the site. Sailcloth is also highly durable especially when sewn, and offers practical benefits such as washability and weather resistance. Two tensioned ropes run along the sides of the cloth, shaping the seat and providing structural stability.

STONE POSITIONING

Seating positioning plays a critical role in shaping how individuals interact with and experience public spaces. The physical arrangement, height, and orientation of seating elements influence not only where people choose to sit, but also how they relate to others, how long they stay, and how they move through the space. In our case, we worked with the sizes of stone blocks available from the quarry, but by rotating them, we were able to test different sitting options with varying the heights, widths, and lengths to create a range of spatial experiences that influence posture, body language, and engagement.

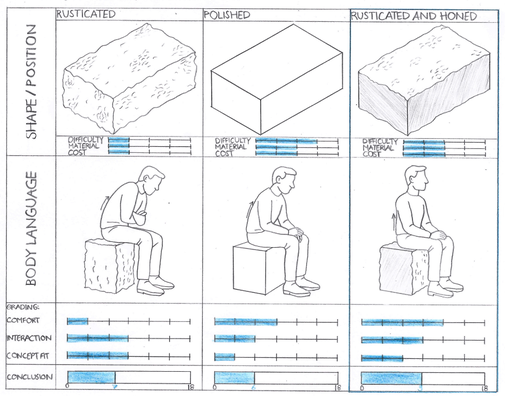


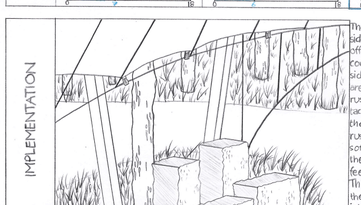


A scattered positioning of the stones encourages interaction between users while maintaining a shared focus on the pond. Unlike linear or sloped arrangements which limit face-to-face engagement. This way of positioning supports quiet contemplation of the water and spontaneous social connection. This stone formation also encourages more open and relaxed body language in contrast to the forward-facing, often closed-off posture that linear or sloped seating tends to produce.

STONE TREATMENT

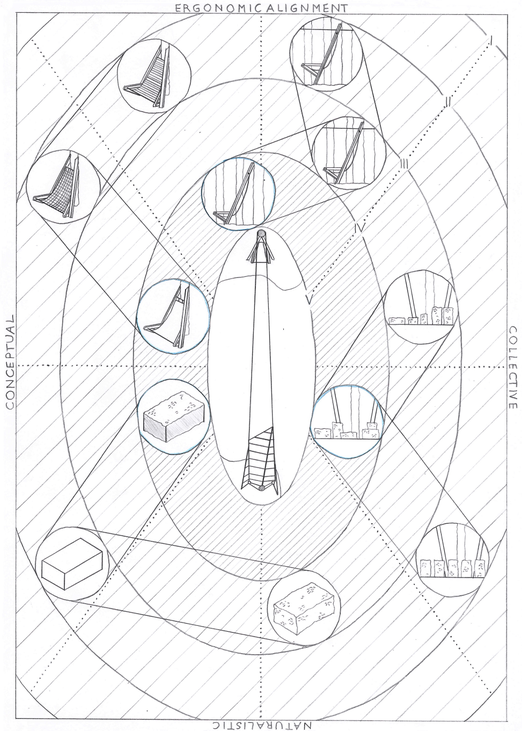
The treatment of stone subtly guides how people move, sit, and relate to one another in a public space. This is also true for materials like limestone, which we used in our project for its natural texture and versatility.
Collaborating with a local quarry allowed us to test various surface finishes and observe their effects. Rough textures tend to discourage prolonged contact, while smooth surfaces invite more relaxed, open posture. However, fully polished stones can be slippery and unstable on uneven forest ground. A thoughtful mix of smooth and rough areas creates seating that feels stable, tactile and comfortable.





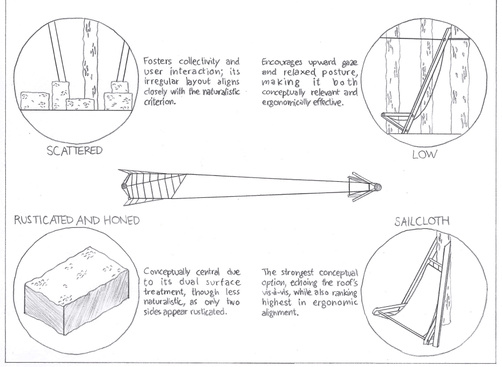
The combination of four honed sides and two rusticated surfaces offers a good balance between comfort and context. The honed sides provide pleasant seating areas where needed, while the rusticated faces create a natural tactile quality that complements the forest environment. The rusticated and honed treatment softens the overall appearance of the stone and prevents it from feeling too sharp, shiny or artificial. This design decision helps to settle the stones visually and physically into the landscape.

ERGONOMIC ALIGNMENT

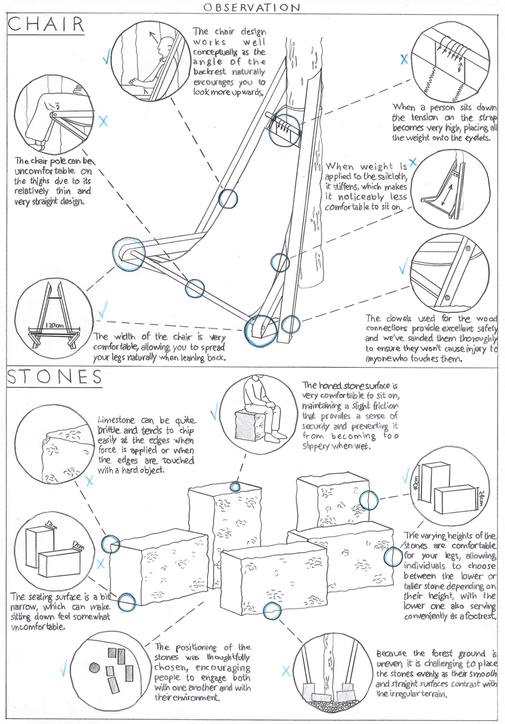


CONCLUSION

The graph analysis shows that no single option fully meets all criteria. I've loosely divided the graph into two areas – one aligned with stone-related aspects (Naturalistic and Collective) and the other with chair-related aspects (Ergonomic Alignment and Conceptual). Options closer to the center tend to balance and satisfy multiple criteria from both sides.
This illustrates that the criteria function more as a spectrum than a binary system. That's why I chose to represent the options on a sphere, allowing them to move and rotate freely within the space.
What becomes clear is that an option meeting only one criterion isn't suitable as the final design. The ideal choice must address a broader range of criteria.



OBSERVATION



REFLECTION