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Gestured Space as a First Introduction to Model Making

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Abstract

When talking about modelling in architectural education, the question of whether we should focus on digital or analogue models easily pops up. But both have advantages and disadvantages. Virtual models are efficient and easily adaptable. Physical models incorporate tactility and better express the designer's chosen position. More important is to use the right model at the right moment in the design process.

However, they both have the disadvantage of focusing on the objects, the volumes and planes, and not on the voids defined by these objects. After all, architecture is all about designing spaces and places. We design objects, walls, floors and ceilings, but only to create these places with specific characteristics. Experienced designers know this workaround. But if beginning architecture students start making models as we know them, they might get a wrong understanding of what the focus in architecture should be about.

This can be partly countered by showing them how to make negative models—for example, carving out space out of a block in clay. An even faster way of modelling space is by using hands to define voids. A vertically positioned hand can evoke a wall. A horizontal hand can call up a floor. Young designers can easily focus on the design of the voids because their hands are already there; they shouldn't be designed anymore. Larger surfaces can be created by more hands by more collaborating designers. `More curved or broken surfaces can be easily made by manipulating the hands, for example, by bending the hand or just a few fingers.

In architectural education in our school, we have let students use their hands to create scaled spaces before making other models as we know them.

Keywords: model, space, place, gesture, education

1. Introduction

How can we quickly get starting architecture students on the right track? On the one hand, there is the fear of the blank page. The assignment should be easily accessible to start with. On the other hand, we also want students to design the space, not the objects that define that space.

Gestured space turns out to be a barrier-free method that meets these requirements, which was tested in a specific case.

2. Design Assignment for Starting Architecture Students

Each year, a whole new generation of students starts an education in architectural design. On

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the first day they arrived in the design studio, most of them had no experience with design. How can we teach these absolute beginners how to design, and where do we start? Let us first investigate the characteristics of designing.

2.1. The Design Process as a Cycle

During the design process, designers develop concepts. Concepts are the tentative solutions to one or more constraints of the problem at hand. Designers start by developing an initial solution. Unless the design proves completely successful, as Lawson (Lawson, 1980) formulates it, one of two things happens to halt this evolutionary phase. Either the general form of the solution reveals itself incapable of solving enough problems, or so many modifications need to be made that the idea behind the solution is lost and abandoned. In either case, the designer is likely to choose the revolutionary step of starting a completely new train of thought.

The importance of generating variations or alternatives cannot be overestimated. According to Marples (Marples,1960), the nature of the problem can only be found by examining it through proposed solutions, and it seems likely that its examination through just one proposal leads to a very biased view. It seems probable that at least two radically different solutions need to be attempted to obtain a clear picture of the 'real nature' of the problem through comparisons of subproblems.

More recently, Nigel Cross (Cross, 2007) confirmed that designers seem reluctant to abandon early concepts and generate a wide range of alternatives. Although designers first and foremost need to solve a design problem, it may be beneficial to consider several solution concepts in the process. Such a multiple-solution approach should promote a more comprehensive assessment and understanding of the problem. As Heylighen (Heylighen, 2007) puts it, "the ill-defined nature of a design problem appears to necessitate the generation of alternatives to explore and understand its full complexity". According to Lawson (Lawson, 1980), it is, therefore, perhaps better for designers to use divergent thinking in excess rather than too sparingly. For most people, it is easier to think convergently than divergently on demand. Indeed, reason is more easily controlled than imagination, and the results of free imaginative thought can readily be subjected to rational evaluation later.

Designing is thus an iterative process in which the cycle of concept, test, evaluation and conclusion is repeated until a satisfactory solution has been formulated (Heynen, 2007). Designers start by developing a first solution, then evaluate that idea in drawings, models or other media and then react to that evaluation by changing their solution or developing a new one. This, in turn, is followed by another cycle of evaluation, the formulation of other variations and so on. Once in the cycle, students are led by the rhythm of the process.

2.2. Avoiding the Frightening Blank Page

The cycle of design is evidently beneficial. The question now remains how students can be stimulated to enter this cycle. The formulation of a first solution often seems to be a difficult step to take. Mau (Mau, 2000) suggests starting anywhere, and Frederick (Frederick, 2007) prompts students to do just about anything. "When a design problem is so overwhelming as to be nearly paralysing, don't wait for clarity to arrive before beginning to draw. Drawing is not simply a way of depicting a design solution; it is a way of learning about the problem you are trying to solve".

Here, an easy-to-realise barrier-free model can help bypass the frightening blank page in that it almost immediately offers a first solution that students can examine. They immediately have a project that they can begin to 'literally' manipulate and transform.

De Bono calls this reactive thinking (De Bono, 1994). It is easier to react than to be proactive. Herzog (Herzog J. et al., 2006) compares this approach to the strategy of an aikido master who turns the attacker's energies to his own ends. Through this tactic, something new is produced.

2.3. The Space (and not the Objects)

In addition, we know from Collins, Brown and Newman (Collins, 1989) that for a learning environment in which students learn in an effective way, tasks should be ordered according to

increasing complexity and diversity. So, a good design assignment for beginners has simple constraints. If we limit boundary conditions, we only have to keep the most important ones. (Vandenhende, 2013)

In architecture, that should be the designing of the space and not the objects that define that space. A simple first step is to create space by cutting it out of a volume as a void, for example, by hollowing out a block of clay and shaping the space while cutting. This method has the disadvantage of 'stuffed potatoes'. You have to cut out a part of the potato first to be able to cut away the contents. And where you cut through the volume partly determines how you can cut off volume in the remaining halves afterwards. This creates a barrier to start investigating space because you have no idea yet what the space will look like; you just want to test that, and yet you already have to choose where you will cut the volume.

2.4. Gestured Space

Using hands to depict space does make starting spatial research barrier-free. No decision has previously been made. A vertically positioned hand can evoke a wall. A horizontal hand can call up a floor. One finger can even be used as a scale figure. Larger surfaces can be created by more hands by more collaborating designers. `By manipulating the hands, for example, by bending the hand or just a few fingers, more curved or broken surfaces can be easily made (Fogure 1).

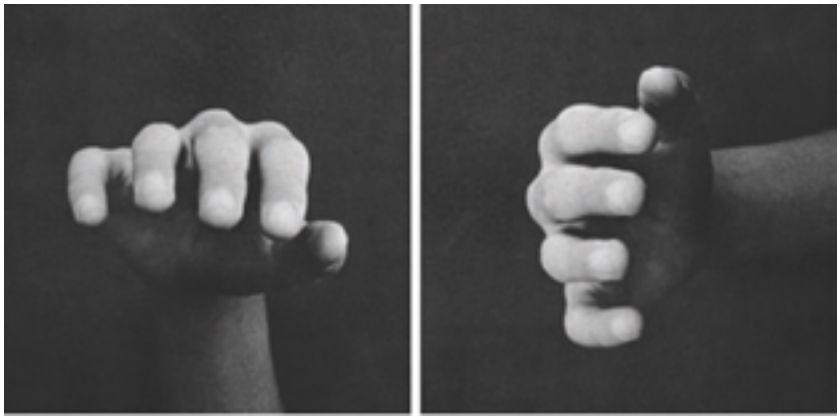

Figure 1. A horizontally positioned hand can evoke a floor. A vertical hand can call up a wall

Figure 2. Students testing spaces with gestured models

3. Case Study

This was tested in a specific case. More particularly, we asked 95 architecture students in the first year as a first assignment to design a 'time-out' as a complementary room to a typical student's residence. Instead of letting them make a design first with drawings and investigate the designed spaces afterwards, we immediately asked them to start to design the space in three dimensions. First, they started imagining possible spaces with their hands. For that, we asked them to work together in groups of 5 or 6 to investigate multiple variants and capture them in photos (Figure 2).

Afterwards, some of these variants were also tested as a cut out of clay. Later, the space was examined in the plan and cut, and finally, at the end of the assignment, the space was materialised with a model for a specific location (Figures 3, 4 and 5).

Figure 3 and Figure 4. Substractif and additive clay models

Figure 5. Substractif and additive clay models

4. Conclusion

The results were spectacular compared with the results of previous assignments we started in the studio in the past. Students now immediately started modelling spaces with their hands, having very clear tasks that they could accomplish. Also, the transition from the space depicted with the hands and the space carved from clay also turned out to be small.

Gestured space appears to be a barrier-free method to allow starting students to explore space in a barrier-free way.

Conflict of Interests

The author declares no potential conflict of interest was reported by the author.

Endnotes

This paper has been presented at the SPACE International Conference 2022 on Architecture and Design Education.

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