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Reframing Architecture through Design

A "Meta-Framing" Approach to Making Shared Meaning in an Architecture Studio Context

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Re-Framing Participation in the Architecture Studio

Recently, within design literature, significant attention has been given to collaboration across different disciplines (see for instance, Nicolini et al.; Carlile), as well as consideration of the

breakdown of traditional disciplinarity and the corresponding involvement of users in cogeneration (Sanders and Stappers, "Co-Creation" 11–12) through the development and deployment of structured methods and toolkits (Sanders et al., "Framework"; Sanders and Stappers, "Probes"). Relatively less attention has been paid to the workings of the "communities of practice" (Wenger) operating within the disciplinary domain of architecture. The discourse around concept design in architecture has tended to emphasise individualist approaches driven by personal philosophies, inspirations, imitation of a more experienced designer, and emphasis on latent talent or genius (for instance, Moneo). This can be problematic because without a shared language and methods there are limited opportunities for making meaning to facilitate participation between collaborators in architectural studio settings. It is worth asking then: are there things that "Architecture" might learn from "Design" about the deployment of structured methods, and might this interdisciplinary exchange promote participatory practices in studiobased cultures?

We address this question by connecting and building on two important concepts relevant to design methods, meta-design as described in the open design literature (De Mul 36–37), and design frames as described by Schön and formalised by Dorst ('Core'; *Frame*; see also Weedon). Through this combination, we propose a theory of participation by making shared meaning in architectural design. We animate our theoretical contribution through a design toolkit we have developed, refined, and applied over several years in typologically focused architectural design studios in Australian university contexts.

One important contribution, we argue, is to the area of design theory-building, by taking two previously unrelated concepts from the design methods literature. We draw them together using an example from our own design practices to articulate a new term and concept for making shared meaning in design. The other contribution made is to the translation of this concept into the context of studio-based architectural practice, a setting that has traditionally struggled to accept structured methods. The existence of other form-metaphor design tools available for architecture and the theoretical basis of their development and connection to design literature more broadly has not always been clearly articulated (see for example Di Mari and Yoo; Lewis et al.). The rationale for giving an account of the construction and deployment of our own toolkit is to illustrate its theoretical contribution while providing the basis for future field testing and translation (including by other researchers), noting the established trajectory of this kind of work in the design literature (see, for example, Hoolohan and Browne; Visser et al.; Vaajakallio and Mattelmäki; Sanders and Stappers, "Co-Creation" and "Probes").

In line with this issue's thematic and epistemological agenda, we adopt what Cross identifies as "designerly ways of knowing" (223), and is at least partly a reflection on a practice in which we engage with our own disciplines and research interests to propose and deploy design thinking as a kind of critical "reflection-in-action" (Robertson and Simonsen 2).

Meta-Framing: Combining Meta-Design and Framing

Meta-design is a term used in open design literature to describe approaches aimed toward orchestration of a project in such a way that people are afforded the agency to become effective co-designers, regardless of their pre-existing skills or design-specific knowledge (De Mul 36). According to a meta-design approach, design is conceived of as a shared project of mutual learning instead of an individualistic expression of singular genius. Through the establishment of

shared protocols and formats, what Ehn (1) calls "infrastructuring", individuals with even very limited design experience are provided scaffolds that enable them to participate in a design project. One important way in which meta-design helps "create a pathway through a design space" is through the careful selection and adoption of shared guiding metaphors that provide common meanings between co-designers (De Mul 36).

The usefulness of metaphors is also recognised in the context of design frames, the second concept on which we build our theory. Conceptualised as "cognitive shortcuts" for making "sense of complex situations" (Haase and Laursen 21), design frames were first conceived of by Schön (132) as a rational approach to design, one guided by "epistemological norms". Frames have subsequently been further developed within the design methods literature and are defined as a system of counterfactual design decision-making that uses metaphors to provide a rationale for negotiating ill-structured problems. According to Dorst, frames involve:

the creation of a (novel) standpoint from which a problematic situation can be tackled Although frames are often paraphrased by a simple metaphor, they are in fact very complex sets of statements that include the specific perception of a problem situation, the (implicit) adoption of certain concepts to describe the situation, a 'working principle' that underpins a solution and the key thesis: IF we look at the problem situation from this viewpoint, and adopt the working principle associated with that position, THEN we will create the value we are striving for. (525)

Despite Schön choosing to illustrate his original conception of framing through the example of a student's architectural design project, there has been limited subsequent consideration of framing in architectural studio contexts—an exception being Eissa in 2019. This may be because formalised design methods have tended to be treated with suspicion within architectural culture. For instance, Christopher Alexander's Pattern Language is one such "highly systemised design process" (Dawes and Ostwald 10) that despite its potential to guide participatory design has had an "uneven reception" (Bhatt 716) within architecture itself.

One way architecture as a disciplinary domain and as a profession has attempted to engage with design method is through typology, which is one of the few persistent and recurring notions in architectural discourse (Bandini; Grover et al.). As a system of classification, typology categorises "forms and functions as simply and unequivocally as possible" (Oechslin 37). In addition to being used as a classification system, typology has also been positioned as "a process as much as an object", one with the potential for an "active role in the process of design" (Lathouri 25). Type and typology have been conceptualised as a particular way of projecting architecture's "disciplinary agency" (Jacoby 936), and this goes some way to explaining their enduring value.

A potentially valid criticism of framing is that it can tend toward "design fixation", when a preexisting assumption "inadvertently restricts the designers' imagination" (Crilly). Similarly, typology-as-method—as opposed to a classification tool—has been criticised for being relatively "inflexible" or "reductive" (Shane 2011) and responsible for perpetuating "conservative, static norms" (Jacoby 932) if applied in a rote and non-reflexive way. We deal with these concerns in the discussion of the deployment of our Typekit below.

We are drawing here on our experience teaching in the first two years of undergraduate architecture degrees in Australian university settings. As well as being equipped with a diversity

of educational, social, linguistic, and cultural backgrounds, students typically have divergent competencies in the domain-specific skills of their discipline and a limited vocabulary for making shared meaning in relation to an architectural proposal. The challenge for studio-based collaborative work in such a context is developing shared understandings and a common language for working on a design project to enable a variety of different design solutions. The brief for a typical studio project will specify a common site, context, and program. Examples we have used include a bathhouse, fire station, archive, civic centre, and lifesaving club. There will then be multiple design solutions proposed by each studio participant.

Significantly we are talking about relatively well-structured problems here, typically a specific building program for a specified site and user group. These are quite unlike the open-ended aims of "problem frames" described in the design thinking literature "to handle ill-defined, open-ended, and ambiguous problems that other problem-solving methodologies fail to handle" (Haase and Laursen 21). However, even for well-structured problems, there is still a multitude of possible solutions possible, generated by students working on a particular project brief. This openness reduces the possibility of making shared meaning and thus hinders participation in architectural design.

Designing the Typekit

The Typekit was developed heuristically out of our experiences teaching together over several years. As part of our own reflective practice, we realised that we had begun to develop a shared language for describing projects including that of students, our own, precedents and canonical works. Often these took the form of a simple formal or functional metaphor such as "the building is a wall"; "the building is an upturned coracle"; or "the building is a cloud". While these cognitive shortcuts proved useful for our communication there remained the possibility for this language to become esoteric and exclusionary. On the other hand, we recognised the potential for this approach to be shared beyond our immediate "interpretive community" (Fish 485) of two, and we therefore began to develop a meta-design toolkit.

Fig. 1: Hybrid page from the Typekit

We began by developing a visual catalogue of formal and functional metaphors already present within the panoply of constructed contemporary architectural projects assembled by surveying the popular design media for relevant source material.



Fig. 2: Classification of contemporary architectural built work using Typekit metaphors

We then used simple line drawings to generate abstract representations of the observed building metaphors adopting isometry to maintain a level of objectivity and a neutral viewing position (Scolari). The drawings themselves were both revelatory and didactic and by applying what Cross calls "designerly ways of knowing" (Cross 223) the toolkit emerged as both design artefact and output of design research.

We recognised two fundamentally different kinds of framing metaphors in the set of architectural projects we surveyed, rule-derived and model-derived—terms we are adapting from Choay's description of "instaurational texts" (8). Rule-derived types describe building forms that navigate the development of a design from a generic to a specific form (Baker 70–71) through a series of discrete "logical operators" (Choay 134). They tend to follow a logic of "begin with x ... perform some operation A ... perform some operation B ... end up with y". Examples of such operations include add, subtract, scale-translate-rotate, distort and array.

Model-derived framing metaphors are different in the way they aim toward an outcome that is an adapted version of an ideal initial form. This involves selecting an existing type and refining it until it suits the required program, site, and context. Examples of the model-derived metaphors we have used include the hedgehog, caterpillar, mountain, cloud, island, and snake as well as architectural Ur-types like the barn, courtyard, tent, treehouse, jetty, and ziggurat. The framing types we included in the Typekit are a combination of rule-derived and model-derived as well as useful hybrids that combined examples from different categories. This classification provides a construct for framing a studio experience while acknowledging that there are other ways of classifying formal types.





Fig. 3: Development of isometric drawings of metaphor-frames

After we developed a variety of these line drawings, we carried out a synthesis and classification exercise using a version of the KJ method. Like framing, KJ is a technique of abduction developed for dealing objectively with qualitative data without a priori categorisation (Scupin; Kawakita). It has also become an established and widely practiced method within design research (see, for instance, Hanington and Martin 104–5). Themes were developed from the images, and we aimed at balancing a parsimony of typological categories with a saturation of types, that is to capture all observed types/metaphors and to put them in as few buckets as possible.

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Fig. 4: Synthesis exercise of Typekit metaphors using the KJ method (top); classification detail (bottom)

Deploying the Typekit

We have successfully deployed the Typekit in architectural design studios at two universities since we started developing it in 2018. As a general process participants adopt a certain

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metaphor as the starting point of their design. Doing so provides a frame that prefigures other decisions as they move through a concept design process. Once a guiding metaphor is selected, it structures other decision-making by providing a counterfactual logic (Byrne 30). For instance, if a building-as-ramp is chosen as the typology to be deployed this guides a rationale as to where and how it is placed on the site. People should be able to walk on it; it should sit resolutely on the ground and not be floating above it; it should be made of a massive material with windows and doors appearing to be carved out of it; it can have a green occupiable roof; quiet and private spaces should be located at the top away from street noise; active spaces such as a community hall and entry foyer should be located at the bottom of the ramp ... and so on.

The adoption of the frame of "building-as-ramp" by its very nature is a crucial and critical move in the design process. It is a decision made early in the process that prefigures both "what" and "how" types of questions as the project develops. In the end, the result seems logical even inevitable but there are many other types that could have potentially been explored and these would have posed different kinds of questions and resulted in different kinds of answers during the process.

The selection of a guiding metaphor also allows students to engage with historical and contemporary precedents to offer further insights into the development—as well as refinement— of their own projects within that classification. Even given the well-structured nature of the architectural project, precedents provide useful reference points from which to build domain-specific knowledge and benchmarks to measure the differences in approaches still afforded within each typological classification.

We believe that our particular meta-framing approach addresses concerns about design fixation and balances mutual learning with opportunities for individual investigation. We position framing less about finding innovative solutions to wicked problems to become more about finding ways for a group of people to reason together through a design problem process by developing and using shared metaphors. Thus our invocation of framing is aligned to what Haase and Laursen term "solution frames" meaning they have an "operational" meaning-making agenda and provide opportunities for developing shared understanding between individuals engaged in a given problem domain (Haase and Laursen 20).

By providing a variety of opportunities within an overarching "frame of frames" there are opportunities for parallel design investigation to be undertaken by individual designers. Metaframing affords opportunities for shared meaning-making and a constructive discourse between different project outcomes. This occurs whether adopting the same type to enable questions including "How is my building-as-snake different from your building-as-snake?", "Which is the most snake-like?", or different types ("In what ways is my building-as-ramp different to your building-as-stair?") By employing everyday visual metaphors, opportunities for "mutual learning between mutual participants" (Robertson and Simonsen 2) are enhanced without the need for substantial domain-specific architectural knowledge at a project's outset.

We argue that the promise of the toolkit and our meta-framing approach more generally is that it actually multiples rather than forecloses opportunities while retaining a shared understanding and language for reasoning through a project domain. This effectively responds to concerns that typology-as-method is a conservative or reductive approach to architectural design.

It is important to clarify the role of our toolkit and its relationship to our theory-building agenda. On the basis of the findings accounted for here we do claim to draw specific conclusions about the efficacy of our toolkit. We simply did not collect experimental data relevant to that task. We can, however, use the example of our toolkit to animate, flesh out, and operationalise a model for collaboration in architectural design that may be useful for teaching and practicing architecture in collaborative, team-based contexts. The contribution of this account, therefore, is theoretical. That is, the adaptation of concepts from design literature modified and translated into a new domain to serve new purposes.

The Promise of Meta-Framing through Typology

Through our work, we have outlined the benefits of adopting formalised design methods in architecture as a way of supporting participation, including using toolkits for scaffolding architectural concept design. Meta-framing has shown itself to be a useful approach to enable participation in architectural design in a number of ways. It provides coherence of an idea and architectural concept. It assists decision-making in any given scenario because a designer can decide which out of a set of choices makes more sense within the "frame" adopted for the project. The question becomes then not "what do I like?" or "what do I want?" but "what makes sense within the project frame?" Finally and perhaps most importantly it brings a common understanding of a project that allows for communication across a team working on the same problem, supporting a variety of different approaches and problem-solving logics a voice. By combining methodologies and toolkits from the design methods literature with architecture's domain-specific typological classifications we believe we have developed an effective and adaptive model for scaffolding participation and making shared meaning in architecture studio contexts.

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