

## WHERE IS THE 'PROBLEM' IN DESIGN STUDIO: Purpose and Significance of the Design Task

**Beatriz C. Maturana**

University of Chile  
maturana@uchilefau.cl

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### Abstract

*Design studio is characterised by a teaching model that is distinctly suited for problem-solving. Correspondingly, literature, including information produced by Australian faculties of architecture about their courses asserts that design studio is modelled around problem-solving. However, my research into design studio handouts found a common omission in posing a 'problem'—a problem that would justify a design solution and from which the 'significance' of the task would derive. I argue that a well-articulated design problem imbues the case with purpose and significance. It also provides a benchmark against which the results can be assessed and verified.*

**Keywords:** Architectural education; Problem-solving; Design studio

### INTRODUCTION AND RESEARCH BACKGROUND

Most literature, including recent research and information produced by faculties of architecture in Australia, asserts that the design studio is modelled around problem-solving (Ostwald & Williams, 2008). However, an issue that permeates the findings in this paper is that of posing a 'problem'—a problem that requires a *design* solution. The interest in *reality* in design studio (reality understood as the quotidian, or the commonplace) and consequently for a design problem, is associated with and confirmed by the aims of universities claiming to encourage a public-spirited education that can contribute to solve problems affecting the wider society and the world and that necessitates an approach founded on "evidence and reason" (Davis, 2009, p. 5). Similarly, architectural faculties also tend to demonstrate the value of their study program on their contribution to the 'world', as shown in the following excerpt,

[This] is a new and exciting program of study that reflects the changing demands and challenges of the world we live in. The degree replicates the interdisciplinary nature of real-world projects, ... (The University of Melbourne, 2008, p. 1).

What was observed through this research was a difficulty in articulating real and *pragmatic* architectural problems. I am not referring to a philosophical, theoretical or an abstract aesthetic problem, but problems that originate from actual architectural concerns; from costs, to technology, client's needs, city's needs, and regulations (Maturana, 2010). This observation resonates with Ashraf Salama's claim indicating that among design studio tutors, "only 32.4% believe that identifying design problems is more important than developing concepts toward solutions" (A. Salama, 2008, p. 105). Hence, in this paper I contend that while design studio is generally perceived as focused on *problem-solving*, few studios aim to articulate or *solve problems*. This situation has important implications for architectural education, particularly when faced with environmental challenges—often cited as an important concern within the disciplinary curriculum—requiring us to deal with actual problems, with relevant questions, under real contextual conditions. The research did not intend to evaluate the professional or academic career of the studio leader, nor the aptitude of the students. The research, based on the design

studio handout, is not meant to give an answer as to *why* this situation is so, but rather raise a question in regards to what we say we do (problem-solving), and what we actually do, as described in the handout.

Using quantitative and qualitative methods, the original research examined 143 undergraduate design studio handouts from three Australian architectural faculties, against the reality of practice—practice representing a meaningful first stage of engagement with professional reality and reflected in the project brief. A part of the results has been already published (Maturana, 2010). These undergraduate design studio handouts consist of 1-2 pages summarising the studio topic for the semester and made available to students for the selection of their preferred studio. Therefore, these handouts represent critical data upon which students base their decision regarding the design studio for the semester. For this research each handout was given a unique code, for example *SD.3B.05.Fb*. This code signifies the type of document (SD), year and semester level (3B), calendar year (05) and faculty (Fb) (for more details see Table 1). It is not an objective of the study to evaluate the handouts of the three faculties against each other. These handouts belong to the five-year period aligning with a full undergraduate architectural degree before the 2008 Australian Universities Reform, after which postgraduate studies began from the 3rd year onwards.

Table 1: Cases are identified by using the following code.

| Typology of studio handouts | Year Level | Semester (when known) | Year | Project No. when more than one case | Faculties of architecture (code used to identify each faculty is known only to the researcher) |
|-----------------------------|------------|-----------------------|------|-------------------------------------|--|
| SD. (studio description)    | 1          | A. (first)            | 03.  | -1.                                 | Fa, Fb, Fc   |
| OL. (subject outline)       | 2          | B. (second)           | 04.  | -2.                                 |  |
|                             | 3          | C. (third)            | 05.  | -3.                                 |  |
|                             | 4          |                       | 06.  | -4.                                 |  |
|                             | 5          |                       | 07.  |                                     |  |

### Purpose of the ‘Problem’ as a Learning Tool

Michael Benedikt (Benedikt, 2001, p. 2) argues that the four qualities essential to an “Architecture of Reality” are *presence*, *significance*, *materiality* and *emptiness*. *Presence* and *emptiness* can be judged by the resulting building forms. *Materiality* and *significance* are expressed in the processes that are grounded, empirical and that satisfy needs. Thus, it is within these qualities, noted by Benedikt, that the design *problem* could be found. Ruben Pesci goes further, claiming that resolving *need* (as a problem) is of such importance that an architecture that “is generated without need is a still-born” (Pesci, 2006, my translation from Spanish).

Advancing on these notions, John Biggs puts forward the notion of ‘constructive alignment’, where objectives, teaching methods and assessments are aligned and the learning objective defines the methods and style of assessment. In other words, this is a teaching/learning model whereby *tangible* objectives guide the learning. The objectives (firstly of solving the design problem) are pivotal and as such, they require to be clearly articulated. In fact, Biggs upholds that “Problem-based learning is alignment itself” (Biggs, 1999, p. 161). Therefore, based on those objectives, the criteria to assess the results are established. Similarly, objectives and acknowledgement of their contextual *constrictions* (or potential problems), form what John Dewey called a *discipline of mind*, acquired through experience, knowledge and respect for the role of rules—a discipline that endows a freedom in the *true* sense because,

...control of method in a given subject has been attained so that the mind is able to manage itself independently without external tutelage (Dewey, 1910, p. 63).

Discussing university education in general, Australian critic Philip Bell (2010) argues that emphasis on theory without experience simply rehashes philosophical ideas without the students having a knowledge of how or why the question was asked. In fact, he claims that “the answers seem to be looking for a question” (Bell & Saunders, 17 April 2010). It is in this environment that according to Bell, writing becomes ‘performative’, abstract and verbose. This situation, continues Bell, is characteristic of Anglophone universities since the 1950s (Bell, 2010, pp. 15-20). Humanities, cultural studies and social disciplines (among which I include architecture), misunderstand and misquote much of the philosophy, degrading in the process humanism, materialist philosophies and science. These observations resonate with David Sibley’s claims (2004) that education is “disengaged” from reality. This is a claim that is supported by Edgar Morin (1999), Habraken (2007), Bell (2010) and Argyris (2003). Thus, notions that for long have been associated with human development and education, such as *judgement*, *critical* and *logical reasoning* (science), *experience* and expanding the ‘*field of care*’ (Tuan, 1979), have taken a back seat.

In architectural education Boyer and Mitgang assert that a solid theoretical base should not represent a dilemma if at the same time they include ‘real life problems’ in the studio (Boyer & Mitgang, 1996). In this regard, active and *experiential* learning, can be viewed as a way to bridge the “real and the hypothetical, the process and the product, the objective and the subjective” (A. M. Salama & Crosbie, 2010, p. 293). However, critics point to a lack of rigour and a self-referentiality in design studio methods, where “knowledge comes not from an assimilation of external information, but wholly from an internal dialogue between the individual and his inner self (Ledewitz, 1985; Pérez Gómez & Pelletier, 1994; Stevens, 1998). As claimed by John Silber (2007), under the banner of *creativity* such an approach places many of the world’s prominent architectural works at the opposite end of what would exemplify *rational* thought—an approach that to him amounts to the absurd. Ostwald and Williams (2008) observe that looking inwards for the answers occurs at the expense of other areas of knowledge while misleading students with respect to “wider societal concerns and the real world of practice.” While looking inwards may be perceived by some as freedom—the freedom of an artist—this is not what John Dewey considered *genuine* freedom, which he described as follows:

Genuine freedom, in short, is intellectual; it rests in the trained power of thought, in ability to “turn things over,” to look at matters deliberately, to judge whether the amount and kind of evidence requisite for decision is at hand, and if not, to tell where and how to seek such evidence. If a man’s actions are not guided by thoughtful conclusions, then they are guided by inconsiderate impulse, unbalanced appetite, caprice, or the circumstances of the moment. (Dewey, 1910, pp. 66-67).

There is not an agreement regarding the source of creativity. However, with a few exceptions (Lewis, 2005, p. 42), those who have studied it tend to agree that *the problem* represents a “creative potential” (Akin, 1990, p. 108; Tezel & Casakin, 2010), whereby problem posing, problem *re-structuring* and *knowledge* are devices for the realization of creativity in design. Creativity, an *intellectual process* as described by Dewey, necessitates *expertise* as a prerequisite (Akin, 1990; Bell, 2010). Thus, it would be a mistake to think of Dewey’s *discipline of mind* (leading to creative freedom) as being in opposition to creativity, imagination, metaphors (Casakin, 2007), or aesthetic considerations. The issue is the disconnection between what is

imagined and the 'real world' of needs and *purpose* (Dewey, 1938)—in other words, of design problems.

As noted by Donald Schön, design studio presents a model that is distinctly adequate “for artistry and problem-solving,” a model that can be traced back to the apprenticeships of the medieval guilds and more recently to the *École des Beaux Arts* (Schön, 1985, p. 6). Important in this analysis is Schön’s contention that more urgent than *problem-solving* is *problem finding*. By this, and similarly to T. Lewis (2005) and O. Akin (2010), he highlights the need to ensure that the problem to be solved is *the* right problem. He illustrates the point with the following example:

is not only how to pour the concrete for the highway, but what highway to build? When it comes to designing a ship, the question we have to ask is, which ship makes sense in terms of problems of transportation? (Schön, 1985, p. 11).

Stressing the *manner* in which these problems are pre-structured, Bill Hillier claims that a systematisation of the procedures assists to analyse problems and synthesise solutions (Hillier, Musgrove, & O'Sullivan, 1972). Thus, finding the *right problem* requires contextualising it, understanding its peculiarities, its consequences and significance. In other words, a process from which *meaning* derives (Hall, 1970).

For this research, I have used the words ‘meaning’ or ‘significance’ to indicate the degree to which the project is needed, its urgency and justification or the *reason* for the project. Hence, I use the notion of a *problem* to encompass the essence of what motivates us to find a solution—the problem that gives *meaning* to the task. This approach is not in conflict with the notion of ‘appreciative inquiry’ and encompasses the idea of ‘aspiration’ and that of a ‘wicked problem’ (Holm, 2006), which as noted by T. Lewis, would involve *problem re-structuring* (Lewis, 2005, p. 42).

### Seeking Problems

The research in this paper used discourse analysis to search for the existence of a *problem*. In line with the stated aims of most architectural faculties in Australia, the research utilised a wide definition of a ‘problem’. There was no assumption that all design studio handouts should convey the problem in the same manner. Yet, at its core, the study searched for a problem or an issue(s) that the hand-out aimed to define, even if *ill-defined* as noted by Tezel and Casakin (2010).

Identifying the design problem is not an easy task, seldom is the problem expressed neatly and completely in one paragraph. Instead, when the problem was present in the hand-out, it was often alluded to in tiny fragments and from several perspectives. For instance, note how the following example, from one of the handouts, presents many ideas leading to a *sort* of design problem.

Was he [Boyd] writing today, he would have added to his catalogue of ills ascribable to the individual house, the destructive effects of urban sprawl...

... and though social housing is no longer the dominant domain, surprisingly modest houses shoulder aside more public buildings, as the architecture of note ...

The needs to which your design responds must be established by research, because they cannot be drawn from your own limited experience...

This problem of the architectural object and its setting is particularly poignant in housing. You are dealing primarily with the identity of the people who occupy those homes... Case: SD.3.05-2.Fb.

The issue(s) presented by the quoted case above, is technical; it is also regulatory, consultative, and theoretical and it is about the attitude of the designer who is expected to be *mindful* of the identity of the users. Whereas, making the design ‘problem’ difficult to pinpoint, the manner in which the issues are addressed adds dimensionality to the case.

While trying to identify the problem, it is too easy to be side-tracked by the narrative of the text and confuse the description of a *problematic* situation with a *design* problem. To illustrate what I mean by this I will use a rather blunt example from one of the cases studied:

It [the library] contained one million volumes in the languages of various cultures that have influenced Bosnia, and also housed Bosnia’s national archives and the University of Sarajevo collection. On 25 August 1992 the Library was shelled with incendiary grenades until its interior and almost [the] entire library collection was destroyed and the building structure significantly damaged. Case: SD.3B.05.Fb.

Undoubtedly, the above example conveys a tragedy at many levels—a problem. Yet, this is not a *design problem*, unless something like this was added: *the aim is to house the existing rescued collection in the same footprint area, while maintaining as much as possible of the original structure*. Then the problem would be contextualised by historical facts and resulting needs. Thus, the design problem would consist of how to accommodate what is left of the collection and the new copies in the same floor area.

### Typologies of Problems Found in Design Studio Handouts

The study broadly identified five typologies of approximations to the design task in design studio handouts (see table.1 for their distribution), these are: the *problem* as reason and trigger for finding a ‘solution’; an investigation or exploration; a theme; the philosophical question; and the project instructions.

Table 2: Distribution of the problem typology among the assessed design studio handouts

| Traditional problem  | Other forms of spelling the task without articulating a design problem |             |                                |                              |
|--|--|-------------|--------------------------------|------------------------------|
| (1) The problem as reason and trigger of search for a ‘solution’ | (2) An investigation or exploration                                    | (3) A theme | (4) The philosophical question | (5) The project instructions |
| <b>21%</b>   | <b>22%</b>   | <b>22%</b>  | <b>12%</b>                     | <b>22%</b>                   |

The following examples show cases from some of the above categories. For this paper, I have not included examples from the categories *An investigation or exploration* (2), nor *The project instructions* (5), where the information is arranged around a series of *instructions* about what to do, rather than a question or problem. While some of these instructions may deal with a problem, these are secondary to the theme and offer no apparent reason or justification for an overall need to *solve* a design problem through undertaking the project. Thus, these types of handouts are those further away from the notion of problem-solving in design studio (see fig.1).

### The Problem:

The following example manages to express the issues that the project will deal with, while also presenting the students with an aspiration grounded in *need*, which takes the form of a “circuit breaker to conflict.”

As an urban locale, Jerusalem is a site of resource scarcity, ecological degradation, deeply flawed urban design, and ungainly or dysfunctional/segmented areas of built space. (...) As our project is to develop patterns for new physical infrastructure, we will be looking for inventive solutions to the distribution of land and services that might be a ‘circuit breaker’ to conflict, rather than begin with a utopian view that architecture can create peace on its own. *Case: SD.5B.07-1.Fc.*

The aspiration is, in a sense, open. On one hand, it requires addressing the pragmatic infrastructural needs. On the other hand, in such a context, the approach demands an involvement of theoretical, political, tactical and/or philosophical considerations and understanding. Philosophy, theory, or ideology in *this* case assists students to contextualise the design task. These ideas help to understand the circumstances and enrich the possible solutions, yet, they *do not* take the place of the architectural problem. On the contrary, the text highlights the fact that architecture alone cannot be the vehicle that delivers conflict resolution. The context is well described, and so is the pre-emptive architectural solution suggested in the metaphorical form of a “circuit breaker.”

Occasionally, a design ‘problem’ emerges under the notion of an ‘opportunity’. Note for instance how the following case uses the opportunity created by disused land to *justify* and give the proposal a *raison d’être*. From this perspective, a design *problem* or *opportunity* has the same effect and the concept of a ‘problem’ *cannot* be taken literally.

The use of opportunities presented by railway land in central areas is a challenge faced by major cities the world over. In the 1990’s XXX took its first steps along the road to making better use of this resource and embarked on the civic and architectural ‘adventure’ which led to the creation of a new city block at what is now XXX. (...).

The Challenge of the Studio will be to first understand the site and its place within the city...how does the city work around. *Case: SD.4B.05-8.Fc.*

The following quote shows the closest example to a design problem in *context* that I have found—a case actually requiring *problem-solving*, in the form of a need for something new.

The increased level of activity together with significant infrastructure investment is expected to stimulate private sector investor confidence and opportunities in adjacent areas.

The need therefore to focus on and implement the development of a new terminal complex is pivotal to realising the success of the twin ferries and the potential economic benefits to the region. *Case: SD.3B.03.Fa.*

Most of the design studio handouts that define a problem (typology 1) include one or all of the other typologies. Accordingly, based on extensive discourse analysis of the handouts, I found that typology 1 handouts are more complex (see fig. 1), richer in content and context and offer more options from which to tackle the design task. On the other hand, those handouts that approach the task without a problem (typologies 2-5) tend to be single-minded.

### The Theme:

While it may appear obvious, it is important to highlight that there is a difference between a theme (or topic) and a problem. Housing can be a *theme*, but it does not represent a *problem*, at least not until issues such as housing density, or affordability, or footprint reduction, et cetera, are added to the mix. The following example presents the proposition of a *theme*, followed by instructions as to what the design should include. However, it does not articulate a problem—unless the students find themselves an issue to resolve.

The building is a public transport research centre, similar in programme to a university department building. Space for ground floor tenancies is incorporated to add to street life and provide onsite services to research students. The design will incorporate the following major items... Case: *SD.5.03.Fc*.

On the other hand, the next example shows how students are presented with a theme (high-rise development) and a *challenge*, where comparable densities and an alternative building typology is required—an architectural problem:

On one side, we want to see if it is possible to devise an alternative to the high-rise development that is currently engulfing the city, (...) In contrast to this trend, we are asking students to develop housing of comparable density, but as platforms rather than towers. Case: *SD.4A.03.Fc*.

### The Philosophical Problem:

Within the philosophical problem, it is possible to distinguish at least three approaches representing what I call *aesthetic ideas*, *pure theory* and *pragmatic theory*. The examples discussed below derive from handouts based almost entirely on theoretical, philosophical and abstract narratives, with little or no contextual information. In fact, several of these handouts included numerous pages comprising of the tutor's own essays discussing his or her philosophical, aesthetical and/or theoretical interests. The following quotes aim to illustrate what I mean by these categories:

#### *Aesthetic ideas:*

But the non-referentiality of abstract art requires the viewer to plumb new emotional reservoirs in order to absorb and to be touched by it. Various explosive, serene, intense, or contemplative, abstraction offers kinds of beauty unimaginable in earlier art. Case: *SD.1A.03-2.Fa*.

The studio will work with spatial ways of making clocks and clouds through a project. It will stress architectural techniques of achieving "polyrhythmic...complexes (which) melt into diffuse liquid states and vice versa" through form, program, and construction. Case: *SD.4B.04-1.Fc*.

#### *Pure theory/philosophy:*

To explore the significant contributions and multiple dimensions of three critical theories: Deleuze and his philosophy of immanence; Casti and his explanation of Complexification as the science of surprise; and Lyotard and his perspectives on the post-modern aesthetics of the sublime. Case: *SD.5A.06-2.Fc*.

The intellectual discipline to develop an imaginative design proposal underpinned by thoughtful responses to broader philosophical and theoretical issues. *Case: OL.4B.05-1.Fa.*

### **Pragmatic theory:**

As architects, we make decisions that have long-term consequences. Buildings which consume more than their fair share of resources, result in environmental degradation, contribute to the poor health of their users, and give no joy to their users, may well be the result of unethical, or at the very least, thoughtless and uncaring behaviour. *Case: SD.2A.03.Fa.*

Interest in the exploration of theory and/or philosophy, particularly those ideas expressing ‘pure theory’ and ‘pragmatic theory,’ might give evidence to a desire for a heightened intellectual understanding of architecture, or perhaps simply to understand, via an intellectual approach, what architecture does better. However, what this research has found is that these attempts often fail to connect the intellectual pursuit to the work of architecture. The focus on philosophy or theory is often expressed in the studio handouts devoid of tangible engagement with architecture, therefore, increasing the gap between ideas and the practice. Furthermore, most of these handouts do not offer an empirical way to proceed and/or, at least partially, *objectively* and rationally to assess the architectural response. It may be in this created void that a focus on aesthetics takes supremacy. Whatever commendable intentions these ideas may express, they succumb to formalistic and metaphorical solutions—in other words, often the exact opposite of what the ideas criticise and discuss. For example, see how the case quoted below deals with the topic of institutions and note the disconnection between the ideas presented and the design request:

...other institutions for this new century: the Let’s Alleviate the Causes of Terrorism (LAtCoT) Institute. Subjective Analysis Exercise

(...)

Ask yourself to at least five levels, why society has institutions? Don’t give 5 answers at the same depth, dig deep. For example: 1. Why have institutions? To gather like minds. 2. Why gather? For strength. 3. Why strength?

(...)

Submission and Presentation

Two 3-dimensional found objects (objects you would consider beautiful from an area of design outside architecture – industrial design or jewellery for example). The first a stretch-institution object, the second a squeeze-institution object. *Case: SD.4B.06-2.Fc.*

Thus, a paradoxical aspect of this focus on theory and philosophy and the gap between reality and ideas which they create, is that most of these cases *are* searching for a better understanding of human conditions, experiences and actions—but without engaging with it or experiencing it.

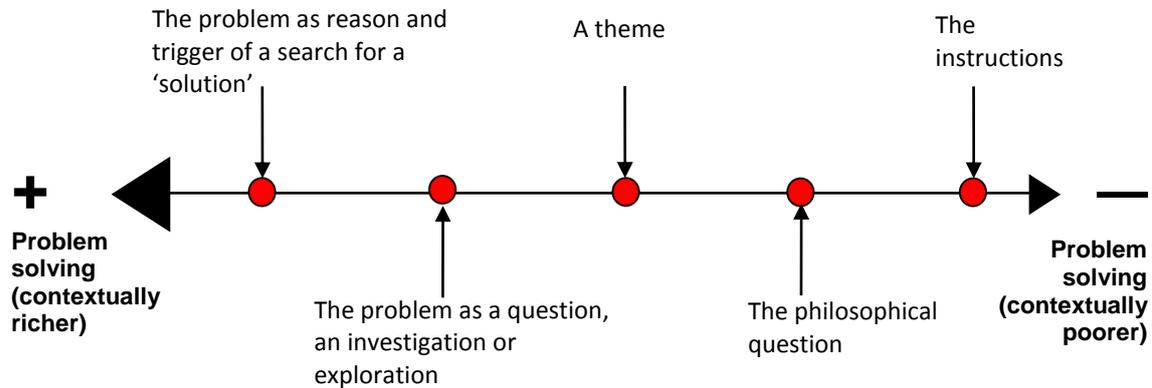


Figure 1: Typologies and relative levels of presence of a 'problem' to be solved in design studio handouts (Source: Author).

### The 'and?' Question

While most handouts do not pose a problem as such, what was most puzzling was an empty space left between the description of a situation—which could potentially contextualise the design problem—and the design project task. I call this empty space the 'and?' question. See for instance the following two cases:

**Case 1:** Furthermore, libraries have become fundamental centres in the construction of community identities. As Lukez (1997:13) argues, 'despite our transference from physical to virtual realities, we are social creatures who need to belong (and be seen to belong) to groups and communities. In an urban context, this presents both a challenge and an opportunity. Cities are concentrators of difference, where competing interests and beliefs converge and collide.

[And?]

The location of this studio project in Melbourne, a city with a violent ecological past, a vibrant social history and a prevalent cultural diversity will provide the opportunity to explore the multiplicity of identities and functions of the contemporary city library. *Case: SD.4A.06.Fa.*

The above case presents us with a theme, namely, the library theme. The context, historical, social and environmental could potentially add flavour to the design process and the design response, response that will not necessarily be a design solution.

**Case 2:** The hydrology and landform of the area – comprising the high ridgeline (...) – suggests the site was sheltered from westerly and south-westerly winds, provided plentiful water and food, and afforded good prospect over the surrounding region. The lowlands were originally crossed by watercourses and swamps, some of which still remain in Park. Traces and remains of traditional ceremonial activities around the site were uncovered during construction of the hospital buildings.

[And?]

XXX is the name given to a newly formed State centre, which was launched in August, providing a focus for research into Indigenous education and studies... *Case: SD.4A.05-1.Fb.*

In both cases above, the tensions (problem or opportunity) are *somehow* described in the first paragraph, yet they are not posed as a problem, or as a question. There may be a few reasons for this, of which I can only speculate. A contributing factor to this situation may be that few architects have been trained to teach or trained to write unambiguous exam papers. Also, it may be that the writer of the handout believes that just *describing* a situation may spark different responses from the students and that it is up to them to choose which one of those *personal* responses to follow. Or, this approach may reflect a cultural preference—the Anglophone culture in education as opposed to the Napoleonic or European culture. Edward Hall (1970) offers one way to describe this difference when he claims that “Western” culture is *low-context*, compared, for instance, to Japanese culture that is *high-context* (Argyris, 2003; Hall, 1970). These differences may, to some degree, determine the *assumptions* of what is known by the listener (in this case the students). Thus, the assumptions may have implications for the way that a project is defined. If this were the case, I would consider the above quoted cases as attempts by the authors to contextualise the design task—to give them meaning—however uneasy or *timid* this approach to posing the *problem* might be (without actually spelling it out).

However, my experience suggests that few students would have enough *expertise*, or the ‘discipline of mind’, as referred by John Dewey, to fill the ‘and?’ in a manner that is relevant to the task and more importantly, to the needs of the clients. That is, unless the clients are seen as an emulation of the student themselves as illustrated by the following example, where the needs of the clients are those of the student.

The clients are an imaginary pair. It is up to you to give them attributes that are relevant to the questions you are exploring in your design. The only requirement is that the pair must somehow challenge conservative norms regarding the idea of a couple. Case: SD.2B.03-1.Fa. (Maturana, 2010)

The self-referential approach, a drawback in any other discipline, becomes apparent when seeking for criteria to assess the results. As Salingaros and Masden II (2010) would put it, “Without real criteria to guide design, endless subjective speculation is all you have.”

Coming from a different cultural background, I see how others and I would approach the same situation differently, most probably, by way of contextualising and revealing the problem loud and clear, as an intellectual challenge, whereby the speaker takes a stance that makes his/her view intentionally ‘vulnerable.’ By doing so, the author’s view is presented with the prospect of being progressively challenged, modified and refined. One possible argument to validate this approach is that some (and I include myself here), take the stance that most students *do not have* enough experience to fill in the ‘and?’ and that by clearly articulating the problem students are offered the opportunity to think it over, while *challenging* the premise—something that students *are* well equipped to do.

## CONCLUSION

The lack of a ‘problem’ was a salient feature in the studio handouts. However, it may be helpful to understand the role of a problem (or opportunity as noted in the analysis) and its potential as a teaching device (Biggs, 1999). The presence or absence of a problem within the design studio handouts could be a *deliberate* intent and not simply the result of the unawareness of its importance. Familiarity with and skilfulness in proposing design problems are crucial factors in design studio teaching. The *problem* in itself is the generator of the criteria by which to assess the results and the direction of the learning. Without a clear design problem (need or purpose), there is no alternative but to base this assessment upon aesthetics and/or form alone.

It is not possible to say whether the lack of a clearly identified problem, rooted in the notion of design as *problem-solving*, is influenced by a neglect of empirical inquiry. This in spite of the use of terms such as *research*, *experimental* or *laboratory*. In fact, the experimental nature of design studio does not preclude the experimentation from having a question (problem and/or purpose). On the contrary, one could speculate that an empirical method of experimentation, promoting analysis and synthesis, would foster an approach whereby a problem and hypothesis (or question) is put forward. If this were the case, the findings of this research showing that only 21% of the studio handouts posed a problem (more or less articulated as such), could represent the other side of the same coin. Based on this study, it is possible to observe that a well-articulated design problem, or *opportunity*, has the capacity to imbue the design studio proposal with backbone, direction and coherence. Without this base, the design studio proposal is weak.

As mentioned earlier, handouts that focused on theory tend to address important aspects of our human condition. It is possible that these handouts are conceived as a way to bring about balance, not to the studio, but to an architectural education that is perceived by many as lacking such balance. This of course may apply to most of the handouts that are single-minded in their approach to the design studio project and which dismiss many crucial architectural facets. My concern in this regard should not be interpreted as a call for a simplification or for a disregard of the role of theory and philosophy. On the contrary, what is missing in this approach to theory is relevance, sophistication with a *purpose* and a reasonable balance that includes actual *architectural* considerations, focusing on the learning interests of the students and the wider implications and *meaning* of the design task.

Something not missing in the real world and the world of architectural practice are problems. In a time of climate change, with an increasingly urbanised and socially effervescent world, we do not need to look far to find vastly different problems posing significant challenges to our discipline. As noted in some of the examples, the more these problems are contextualised in reality, the more they offer a level of complexity that enriches the learning experience and that can prepare students for a complex (not to be confused with impenetrable) and richer understanding of design studio. Design problems offer the opportunity to respond in a creative and responsible manner that demonstrates our commitment to a public-spirited education, the wider society and the world.

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**AUTHOR:**

**Beatriz C. Maturana, PhD**

University of Chile  
maturana@uchilefau.cl