

# Emerging Dynamics in Design Education: Integrating Theory and Practice as Design in the Making.

## Abstract

Design theories and processes are increasingly taught including emerging technological and dynamic processes that make apparent new concepts about the interfaces between people, spaces and objects. This paper considers how traditional design foundations might be reconsidered, and how social and human issues are best integrated through a philosophically phenomenological foundation to design thinking. Theoretical ideas are presented as part of ongoing research in this area, and in terms of how theory and practice can be integral to dynamic design studio experiences and activities. Examples of design projects are explored, and pragmatic ways of encouraging design studio learning are discussed. Ultimately what we wish to know as designers is how to engage in design problem-solving that situates the human user as active recipient of design interventions, in ways that value both technological need and emotional, personal and social aspects of living in our complex global world.

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## Introduction

What do we do as designers and how do we do it? How do we integrate human needs within emerging dynamic inter-relationships of humans with increasingly virtual objects and experiences and this within flexible and changing needs and spaces? What are design foundations in this shifting world economy, where global practices and technology dominate design discourse? Design theories and processes are increasingly taught with a view towards the emerging technological and dynamic processes that make apparent new concepts about the interfaces between people, spaces and objects, concepts that are changing the very underlying values inherent in what we do and how we do it. Social, sustainable and human inter-relationships with both time and space are shifting, while design foundations remain essentially within education processes that are grounded in the human interface with the design environment as a physical entity.

This paper explores my ongoing research into what constitutes students' design studio experiences, and how a philosophical underpinning of phenomenology might be considered. Actual lived experiences, in the phenomenological sense, are a means to situate emerging design students and researchers into design theory through pragmatic studio experiences. Why? As we become an information and technologically mediated society, our physical needs, in relation to objects and spaces, are shifting. People want the convenience and immediacy of technology and yet also continue to crave comfort and stability in their lives through designed spaces and objects for work and play that stimulate and also invigorate the senses. How do designers create better living and working environments within these new contexts? While new technologies integrate good design into life, social and humanistic disciplines increasingly inform design decision-making, as we encounter global human problems and try to provide alternatives.

Students need to see how these theories are shifting how we see design, and how what they are taught is transferred into real project scenarios. The more we get away from the physical object and the human condition, the more we need to make design processes real for students in tangible ways. Not only are students increasingly using digital medias to explore design, they are also creating digitally mediated environments, yet doing so using traditional design methods that situate object and subject as separate entities.

This paper explores these emerging contexts within design, how design as a process could be viewed within these new parameters, and how theory can be integrated with practice while constantly pushing the theoretical boundaries of what constitutes design. First, I explore the dichotomy between theory and practice, and how the relationship between humans and designed objects and spaces is changing. Second, a phenomenologically pragmatic perspective is presented, as this situates the student as designer within a design problem living the experience of design. The discussion moves into situating design thinking, within the context of intimate lived experiences, in two examples of design studio projects. A more humanist context for design problems is necessary as the foundation for developing design intentions, and helps students understand design

problems as social and human problems, as much as technological ones. Examples of student work in undergraduate projects are discussed, how these incorporate both theory and practice, and empower students with the ability to question and contextualize design problems. Design foundations become collapsed within larger issues of society and human experience, transcending the physical form alone. Considerations are given to possible ways of integrating traditional theories with these new integrated humanistic and technological dimensions. The conclusion suggests how design foundations might be taught in light of these ideas, and how practical lived experience can be a useful tool to explore possibilities for design interventions.

### **The context: Virtual and physical experiences with objects and spaces, and changing design foundations**

Physical experiences of space are increasingly mediated by virtual and sensual experiences [19], [20]. In a recent design magazine in Canada, a preview of future design included "...buildings that mimic nature, plastic you can eat, disaster relief shelters, bio-energy, prefab and the personal spaceship..."[3]. Our relationship to designed objects and the processes used to design is becoming increasingly both dynamic and complex in nature, as we become intertwined with new product and environmental experiences. Where in this complexity do we situate people when their more intimate needs still need to be served? How do we understand these increased uses of designed objects, interior spaces and buildings within new and emerging dynamic contexts of both virtual and physical space? Who are we designing for as the world population becomes developed and ages?

As both virtual and physical spaces are mediated by human inter-relationships with interactive technologies and changing ideas about environments as experienced space, design foundations are increasingly relegated to second place. These foundations, such as context, need and form (just to name a few) have long dominated design discourse, and form the design fundamentals that situate humans within the aesthetic physical embodiment of designed objects and spaces [16],[17]. Conversely, emerging inter-disciplinary design theories and ideas situate human embodied experience as the dominant factor in designed object interfaces and spatial experiences, in a more subjective and integrative sense. [24] These are integrated into design thinking from a psychological, sociological or humanist context [21].

These emerging design complexities are shifting the very nature of how design is taught. Both traditional and newer multi-layered design foundations (as discussed above) are situated in theoretical realms [16] and may be considered somewhat remote from the realities of design problems, this particularly in the studio where designs are often either conceptually created or completely situated within pragmatic problem-solving [12]. If we agree that what designers do is conceive products, spaces and buildings for human use and experience in an intimate and multi-dimensional sense, then why discuss these emerging ideas at all? Are we not simply broadening design foundations to include these new concepts? Perhaps, but we do so without examining what this means in terms of underlying values used to teach and learn design both as a process and as a means to evolve both the conception of and making of design interventions, these as both theoretical and pragmatic situations involving virtual and physical design interventions [28].

Traditionally, the designer uses the design process or problem solving as a means to create objects or environments to satisfy a particular set of criteria. Design schools in my

experiences tend to give emphasis to visual form and context. This transfers to designers in practice also creating solutions more often giving a visual emphasis, especially in terms of interior human lived experiences of space [19]. This visual emphasis on the aesthetic form and visual effect are generally given priority over more intimate subjective human issues and experiences of space [16], [17].

Alternatively, when designers are involved with inter-disciplinary and trans-disciplinary projects that encompass broad social and human contexts within real world projects and problems, the designer becomes engaged in a multi-layered project-based problem that situates human users more often at the centre of the issues at hand [20], [21]. These contexts include design for the aged and for vulnerable populations, when approached from the designers' stance [28].

### **Considering the integration of theory and practice: The possibility of dynamic experiences in design problem solving**

The underlying issue here is the either/or approach to design problem solving; design schools either use one or another approach. However, both can be integrated systematically within theory and practice in design education and can become a vehicle for allowing design concepts to be actualized, and both if integrated well can be considered for either virtual or physical problem solving. This means allowing students the exposure to dynamic experiences that make the design process 'real' for them, and this in ways that transmit theories as integral to the ideas, and this within the real experiences that they may have, as explored in design studio teaching. How to situate design problem-solving within these more human contexts, while understanding intimate human needs, and achieving aesthetically pleasing and responsive products and environments? There are many broad values that shape human endeavour, such as social values, psychological factors, social-psychological needs and direct lived experiences, and these are mediated by both learning and what we as students or designers may know as truth and knowledge [5], [9],[13]. However, these values are more difficult to transmit as learned design concepts.

Consequently, design process acquisition, concept development and practical application and production of design problems have become a difficult animal to teach. The naturally creative and iterative nature of design has been relegated to the back seat while technology and scenario making has taken over, and students lack the more fundamental design thinking skills of problem solving. Virtual and time-space shifts have meant a new emphasis on the communication of design thinking in virtual media, and different human space-time dimensions have been introduced to the design disciplines [20]. These space-time dimensions, for example, include the phenomenon that designers are not just designing, they are also working globally more than ever before, and are subsequently employing new methods and processes to engage clients and users in increasingly virtual ways. These new ways of designing perpetuate a removal of the designer from the physical processes of built environments, as buildings are built and spaces created increasingly virtually so that the designer may never physically see the built product [21].

I propose giving students both lived situations and physical products and objects as complementary tools that both recognize the value of form development and use real lived situations to make the design process representative of human lived experience. This approach situates the students within the design more directly. The underlying values used to teach design are supported in this instance by a

philosophically phenomenological stance [7], and this means putting students into concrete lived experiences that integrate both the virtual and the physical. This view understands lived experiences as mediated by the body in space [18] and as a social being that is entitled to a positive embodiment of both personal and social human experiences of space and interacting with spaces and products.

### **What happens in a design class? Contextualizing the discussion**

In discussing these complexities of design knowledge production, it is vital to explore what actually happens in a design studio class. Whose voice we use when we explore design meanings is as important as our philosophical stance, and how these design values are transmitted to students becomes an essential consideration. Traditional philosophies used to teach design situate the interface between users with objects, interior environments and building structures as physical entities [17], [23]. These values include the physical embodiment of designs using fundamental aesthetic categories such as form, context and need [14], [17]. This has meant creating concepts of objects and environments within three-dimensional representations of form, and using three-dimensional representations of created objects that satisfy need as a secondary element.

Compounding this problem is the issue that while teachers teach with greater knowledge of theory, they are not always aware of what epistemological knowledge underlies this teaching, and the impact of the underlying values taught. There is much philosophical debate in architecture, industrial design and the visual arts about these issues [13], [17], [23] in North America. For example, in interior design, Henry Hildebrandt [11] notes that this means ‘...an ambiguously defined theoretical knowledge base...’(p.75) There are different and opposing views of what constitutes critical theory in interior design, for example, as interior design often finds itself caught between theories situated within industrial design and within architecture. Historically in North America, interior design research has leaned towards the pragmatic and has tended to concern itself with practical problems as opposed to philosophical ones [10]. This leads to an over-emphasis on physical issues of space over humanistic and socially responsible issues of the dynamic experiences in space and with objects of a subjective and emotional human user [28].

### **Dichotomies of design theory and practice: alternatives for consideration**

Current design education is caught between two opposing views, one where the belief is that aesthetic categories are paramount and that human function is secondary, while the other view is that human need and user experience must drive design thinking. In the first instance, the emphasis on form means an aesthetic emphasis of the visual over other senses and human needs [17], [19]. This stance tends to be grounded in issues of physical form and aesthetic symbol, as understood in both architecture and design [17]. In this case, students learn to appreciate form and visually pleasing solutions over practical ones. Social needs and humanistic issues of the built environment within this type of framework are also considered from a form rather than an intimate user perspective. Further upheaval to these opposing theoretical premises occurs when virtual and digital technologies are added to the mix.

There is a disparity between the theories used to teach design and the actual act of designing. Some of these theories are ascribed as objectivist and absolute truths [17], [19]. Notions of truth, beauty and values embedded in assumptions about what constitutes design are often taken for granted [9],[24],[28]. For example, much of the design history studied in design schools situated in architecture in North America, is influenced by Modernism, which advocates the use of aesthetic categories and constructs that situate the architect as the visionary who determines a building vocation through the aesthetic categories of symbol and form [17],[19]. The unquestioned acceptance of these aesthetic categories as part of a particular design stance does not take into account the role of humans as subjective entities with both intimate and social needs they require to navigate increasingly hostile urban environments or increasingly complex virtual and interactive ones, or issues of gender and stance in these social negotiations [1],[5],[9],[12],[24],[26],[37].

### **Considering alternative values in design thinking**

In considering a phenomenological stance, I suggest an alternative complementary means to understand the philosophical values that constitute design knowledge production. In trying to reconcile both aesthetic experiences with social and subjective human ones, everyday human lived experiences understood philosophically offer a means to understand and situate broader design values. Everyday experiences help us as humans to formulate a philosophical understanding of the theoretical basis of the values and knowledge [25] that we use. For example, in terms of interior spaces and our interactions with objects, Heidegger [17] suggests that in our society we are all users of space and of the places that we inhabit (p.278). In this more philosophical sense, we all bring our human values to the design of spaces. If value production is composed of multiple constructed knowledges, as is suggested by Lorraine Code [5] and others [8], then this implies recognition of the subjective differences of humans in how meaning is constructed. We as designers naturally bring these more subjective voices into our design decision-making, and as students we need to see how both subjectivity and decision-making occur. The design studio is the place where conversations and design activities most effectively frame students’ learning.

The uniqueness of design processes demands a framework that is at once philosophical and pragmatic, and that expands beyond the limitations of modernist thought and objectivist absolute truths [17], [30], [31]. Occupied interior space and the constant interactivity of people with design objects is at once personal, physical, and psychological, as much as it is technological and virtual. In a human sense these experiences are subjective and personal, and designed objects increasingly extend beyond pure user use or object beauty in their intent. With these fundamental aspects of design creation we now integrate increasingly virtually mediated activities within spaces, and these where human use and need are integrated with information and communication technologies. As Poldma & Samuelson [20] state: ‘...the primary relationship of the user-product-technology interface is considered to be the human-technology interface, and this is often seen as taking priority over human spatial psychological needs. The user environment is generally not treated in conjunction with the user-technology interface, masking problems inherent in technology as the driver of change and at the expense of more humanistic concerns.’([8],[15],in[20]).Increasingly, virtual needs and design considerations often drive flexibility requirements within the designed environment, and this means that

different types of design interventions are required, often these within the same design problem. The result is different responses to design interventions that place the designed space and object within the realm of a more supporting role, and this in helping the human user achieve what they set out to do. However, too often the continued emphasis on physical form means designing too many things, rather than designing the right thing for more uses and activities, and cutting down on things rather than increasing the need for more.

I now turn to issues in the design studio, and how a phenomenological approach to design studio activities might integrate design theories within pragmatic issues of lived experience in student design interventions.

### Students in the design studio: What actually happens in design studios

It is in the first year of most design bachelor programs that the foundations of design thinking are laid for future problem solving. The learning environment frames the meaning making that we will engage in later on with our clients [7]. In first year, a vital part of student development is the design of projects that encourage both cognitive and affective responses [2], [27], skills that are developed through theory but honed in the design studio. The programs that I have studied in North America use the design studio project as the means of engagement [12]. Studio project content is usually structured in one of two ways. The first is to promote the design project as an aesthetic problem, where the teacher is the all-knower informing the student as the empty vessel recipient [6]. The second is the project that simulates practical experiences in the profession [6], [12]. A third possibility is the alternative of exploring design processes as a social and collaborative dynamic integrating both aesthetic theory and actual practice. By this alternative I refer to the teacher who transforms design problem solving into a stimulating exchange that promotes student learning [4], [29].

### Considering phenomenological lived experience in the design studio

One of the things that is essential in the design studio is conversations between students and faculty, and the exchange that occurs in conversations that help to criticize and evaluate project development [28]. In our emerging society, new meanings that bear consideration about the dynamics, personal experiences, and social processes in society are the basis for how students will consider design in the future as designers. If design studio problems are created with real problems and world issues in mind, students learn to criticize and use informed judgment integrating these issues as part of aesthetic and functional requirements. Studio activities can help achieve these ends, and this may mean creating multi-layered exercises and activities that add complexity to design problem solving.

Actual lived experiences can also include the more physical aspects of traditional design teaching, such as drawing, model making, or seeing design in action outside the studio. Understanding the designers' role in society means situating problems within real world issues and contexts, be they local or global. In first year, for example, traditional design projects might include designing a studio space within an appliance. This is fun and a great example of changing scale to stimulate design thinking. However, this leads inevitably to primarily form-oriented solutions. If, however, the same project is centred on designing a shelter for the homeless, then societal issues drive the design problem. These two

studios were done in two successive design studios with the same teachers over a two-year period. Issues of empathy for the user were not evident in the first example, but when the problem issues shifted to the social issues of being homeless in the urban milieu, students reacted quite differently both in the exploration of the problem, in the meaning of being homeless, and in the ways that they proposed design interventions [28], as opposed to 'solutions'.

Figure 1 is an example of the design of a homeless shelter considering the stance and point of view of the user, in this case a homeless young person, and how these issues frame fundamental human emotions such as rejection, empathy for a user and sympathy. When ascribed to the physical understanding of space, spaces are confined and framed within an understanding of the lived reality of the user.

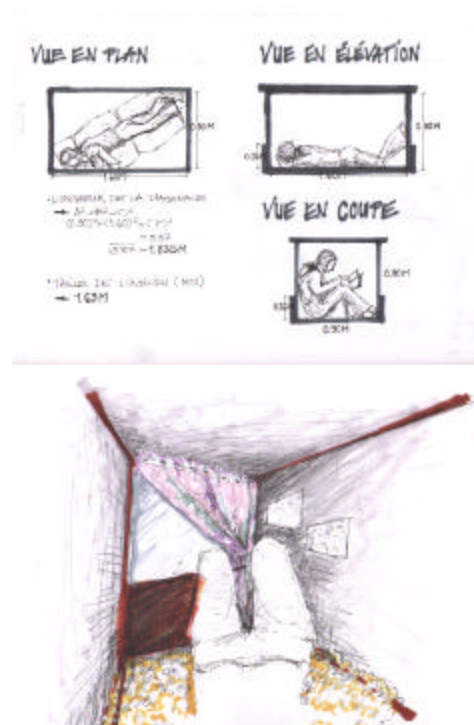


Figure 1 Design for a homeless shelter, first year undergraduate design studio. Issues of empathy and design are explored within a context of understanding actual lived needs of a real user unknown to the student.

Figure 2 is an example of students' projects in an interdisciplinary design studio in the third year baccalaureate program of interior and industrial design, where students are in an inter-disciplinary design studio. They explored themes and theories about new technologies and their interface with art, design and the environment, and this within the real building and lived context of users as artists and as interactive visitors of an artistic collaborative exhibition-work space. Issues of the complexity of this new art form were explored within a hostile environment without light and good ventilation. Both products and environments were reconsidered in terms of the need for flexibility, the interactive nature of the art and the participant, the interactive nature of the artist engaging the viewer in groundbreaking ways, and the need for a positive working interior space that satisfied multiple needs.

## Discussion: Integrating theory and practice within the design problem

When design foundations become situated within an integrated understanding of the design problem as theoretical-practical, then the broader humanistic context can be considered as integral to design problem solving. In the examples described above, project-based studio work that explores the real world situates the student as designer in a lived, human sense, and can invite theory explorations that inculcate new ways of seeing the world. This phenomenological approach situates students in questioning the lived experiences as an act grounded in design in all the senses [19], [25] where aesthetic physical constructs are not primary. An alternative concept of aesthetic meaning drives inquiry, conceptual problem finding, and human contexts situated in flexible ideas about time and space. In this phenomenological approach, the students' personal idea of social and human problems guides the design studio problem, but not in a simplistic or unguided way. Design projects incorporate theory and practice, empowering



Figure 2 Inter-disciplinary design class for interior and industrial design students exploring technology arts and media multiple space configurations. These two images represent the same environment.

students with the ability to question and contextualize design problems. Design foundations become collapsed within larger issues of society and human experience, transcending the physical form alone. Considerations are given to possible ways of integrating traditional theories with these new integrated humanistic and technological dimensions. For example, in the first year project described in Figure 1, issues of empathy for the user in a dire situation are made tangible for the students, while designing within an appliance (as was done the previous year) does not. This idea of empathy situates the student within an added framework of human emotion and need, in ways that the study of aesthetic form

and context alone cannot. The designs are then realized still using design foundations of form and context, but this within larger issues of empathy and user experience.

## About knowledge-making and the design process

The phenomenological study of students in the design studio environment is as much about actual lived experiences as it is about knowledge and knowledge-making. Learning how to think in design is as vital as learning how to envision design interventions. Thinking and designing as doing are fundamental aspects of design problem solving. Learning through a phenomenological process situated in design problems opens up new possibilities for understanding interior design students as gendered social beings, as negotiators with their teachers, as peers of a profession in evolution, and as designers. Questions can be formulated about the broad and complex nature of the design act, with its inherent subjective and inter-subjective perspectives. However, these constructs must also effectively support the evaluative aspects of design and its transfer into the tangible reality of the public domain, through credible design products and environments that respond to a changing society.

In essence, what I suggest, through the engagement of students with their lived experience, is an engagement of the student in the design process itself. Students need to appropriate the design act, and when doing so understand what it means to design for someone as well as to design something. This necessitates engaging the student, not in fluffy ideas about self, but rather in situating self within a broader philosophically pragmatic understanding of what it means to design for people with particular, varied and changing needs. This infers a movement beyond the mere act of teaching, and an engagement by educators in a critically philosophical approach that is rigorous and reflective [28]. The role of the design studio is in part to open the door to students to an engagement of theory with practice. As Adriana Hernandez (1997) suggests, there is:

'...The need to develop a theory by theorizing the practice, what Giroux would refer to as a theory emerging in concrete settings, although not collapsing in them, in order to analyse them critically.... the use of concepts, such as voice and dialogue...to deconstruct and reconstruct the terrain of everyday life...' (p.14) [28]

Conversations, lived experiences and engagement with oneself and others both personally and socially, are all lived experiences that contribute to the designers' education. In advocating an understanding of the actual lived experiences of students within the design studio milieu, theories can be constructed in the concrete settings and need not be held in opposition with practices nor aesthetic considerations. Teachers themselves need to understand the critical and dialectical nature of design both as process and product, and how this might be achieved through the integration of theory into practice. This includes evolving philosophical and phenomenological questions that situate the student as the designer within the design process, and developing theoretical constructs that bring the user experiences into the direct realm of student learning.

## Conclusion

The study and analysis that I have described herein uncovers issues of values that underpin what we learn, how we learn it, and what we subsequently teach as truth and knowledge. Design educators must constantly reflect on their studio practices, and use iterative design process thinking situated within lived experience considered critically, as Hernandez suggests. Current design research includes studying what students are doing, and how new and emerging technologies

can be considered as design tools that integrate human users and their life concerns. Research projects include both theoretical and pragmatic issues such as community and trans-disciplinary studies designing for Alzheimer's patients and the elderly, research initiatives into dynamic lighting and community work that liaises graduate students in design with industry. Future research includes studying the students' experiences over the long term, and how these inform their design decision-making as practicing professionals.

Current teaching includes reflexive and reflective practices that challenge both teachers and students through the activities of the studio projects. As a design educator, I am constantly looking for the means to engage students in the ways that I have described. Projects change every year and the context shifts, depending on the current issues at hand locally or on the broader international scene. Projects are grounded in both local and international issues, and, depending on the subject, integrate both intimate and social human contexts, and this within the complexity of information and communication technologies.

Ultimately what we hope to do is engage students in the design studio to become innovative and responsible designers. Design problem-solving that situates the human user as active recipient of design interventions in ways that value both technological need and emotional, personal and social aspects of living, help students to integrate fundamental considerations within their emerging design thinking. Design in our complex global world requires asking questions that bring us closer to what we wish to know.

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