



# EXPLORING SOCIAL CONSTRUCTION IN ARCHITECTURAL PEDAGOGY

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## Abstract

*The orthodox approach in contemporary architectural pedagogy, grounded in a narrowly conceived rationality, lacks diversity in terms of both the population it serves and the methods it follows in the studio. This paper advances a social construction model with distinct advantages over the rational model. Based on multidisciplinary research, the model presented here is experimental, promoting innovation and allowing the unpredictable to emerge. It encourages students and studio clients to create their own collaborative reality. The paper recommends four socially constructive techniques for architecture/community design in neighborhood revitalization. Inversion begins with the client's vision. As students and residents work together to form their own image of the ideal community, the resulting vision informs subsequent data collection and analysis. Simulation allows students and other participants to undertake small-scale experiments, drawing immediate lessons that enhance the final implementation process. Reciprocity involves role-switching between expert partners and non-expert participants to counter biases while building mutual understanding. Finally, with Research in Action, hypothesis testing and design occur simultaneously. With these social construction approaches, pre-determined steps in the rational model are reversed, merged, or even omitted. Faculty and expert partners behave more like facilitators than directors, coordinating activities and processes, reinforcing initiatives, and resolving conflicts-as clients make key design decisions. By assigning some major responsibilities to students and residents, social construction creates a sense of ownership among stakeholders. The paper compares the rational and social construction approaches, discussing implications and suggesting areas of further study.*

**Keywords:** Social Construction, Architectural Pedagogy, Rational Model, Experimentation, Studio Education

## INTRODUCTION

Consider the case of the less fortunate among us, such as low-income African Americans living in Detroit, Michigan in the US. Detroit has slightly fewer than one million people and 80% or more of them are black. In conjunction with this paper I recently conducted in-depth interviews with African American female leaders in architecture and allied disciplines (KIM, 2005). I learned in the interviews that black women in such fields who work in underserved urban areas of Detroit must wear many hats in the course of their work and address issues that they never encountered in design school. In addition to carrying out the traditional activities of a professional designer and planner, they often find themselves acting as counselors, facilitators, and educators. The physical and social environment in which these professionals typically operate require skills in social learning, public deliberation, negotiation, community building, participatory design and planning, and hands-on field research. Their every-

day work environment is replete with abandoned buildings, burned-down houses, vacant lots, trash, and abandoned cars on the streets-not to mention crime, vandalism, drugs, and other social and economic problems. Despite such difficult conditions, and against long odds, these minority professionals play a significant role in neighborhood revitalization.

Such dedicated minority professionals must be able to respond quickly to unpredictable, complex situations that can spin out of control if not addressed effectively. They improvise, make the best of the limited resources they have, modify the conventional approach that they were trained to apply, and experiment with radical or untested ideas. I contend that contemporary architectural pedagogy does not train students to deal with such difficult situations, especially those involving underrepresented segments of the population. Such situations form the everyday environment that Habraken (2003) and Till (2003) talk about in their papers. The contemporary architectural pedagogy

to which I refer here is what Till characterizes as the prevailing, 'orthodox' approach in architecture schools today. My paper turns on the argument that current pedagogy in architecture lacks diversity in terms of both the population it serves and its traditional approach to studio teaching.

This perspective is, however, nothing new, as Habraken and Till pointed out. In this paper, I contend that the aforementioned orthodox model is grounded in a rational approach to teaching in architecture, an approach with significant limitations. In response to such a rational model, I propose a social construction model. I argue that the social construction model is more effective than the rational model because it helps students to experience a sense of ownership and autonomy, to deal confidently with difficult situations such as the ones faced by African Americans, to explore innovative ideas, to fire their imaginations, and to enable them to realize their full potential. My study combines practical and theoretical examples because it is based not only on real experience but also on imaginary scenarios undertaken at the Detroit Studio, a community design and outreach program of the architecture school at a local university in the US where I have been teaching. These examples and materials are supplemented by the results of the abovementioned interviews with African American female leaders of neighborhood revitalization in Detroit. I will draw lessons not only from such fields as planning, anthropology, environmental psychology, and sociology but also from my experience in that community outreach studio. As Bechtel & Churchman (2002) argue, drawing on such diverse sources can provide us with new tools in design and allied disciplines, promoting new discoveries and new understanding.

## ARCHITECTURAL PEDAGOGY: CURRENT DEBATES AND RESPONSES

In addition to Habraken (2003) and Till (2003), several other scholars have criticized the current state of architectural pedagogy for its lack of diversity in terms of both the population it serves and its approach. Critics have argued, for example, that orthodox pedagogy neglects the concerns of disadvantaged populations, such as low-income people, the handicapped, the sick, the elderly, women, etc.

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Moreover, orthodox pedagogy is often associated with a student-apprentice model, complete with painful (to students) studio crits and other inflexible, top-down techniques. Arguably, such orthodox approaches have isolated the architectural profession, alienating certain populations as it discourages diversity, especially in studio culture.

These traditional practices and cultural norms mean that architectural education rarely serves as a fundamental agent of socialization, a concern of many scholars who think about traditional design studio pedagogy, content, and culture. Boyer and Mitgang (1996) and other scholars support studios that address human equity issues for both architecture students and those who inhabit or experience the built environment. They urge faculty to transform the teaching of architecture into a socially embedded discipline and to foster an atmosphere of collaboration and respect in their classrooms. Boyer and Mitgang contend that the curricular and design sequences imposed on students at architecture schools should foster a climate of caring for human needs by including more frequent contact with clients and communities and by placing greater emphasis on environment and behavior. Building to meet human needs means helping architecture students become effective teachers and listeners who are able to translate the concerns of clients and communities into caring design.

The aforementioned studies, along with organizations such as Adaptive Environments, argue for generating a more human-centered curriculum and for improving access for people who need it most in schools of architecture (see [www.adaptiveenvironments.org](http://www.adaptiveenvironments.org)). They also emphasize the need to adopt a holistic view of design that integrates human health, environmental health, and social justice in its approach. They highlight the essential or vital connections that must be made to create inclusive, healthy, and sustainable neighborhoods or communities. The increasing separation of populations or societies by race and income and the struggle to end environmental racism and gender discrimination are all interrelated community-building challenges. The approaches suggested above by Boyer and Mitgang (2002) and Day (2003) also emphasize teaching the goals and techniques of inclusive or universal design in design school programs. My paper responds to these debates and concerns, focusing primarily on the issue of diversi-

ty in architectural education in terms of its scope, goals, and approach to studio teaching, as I join in calling for the discipline to break out of its orthodox model.

## A RATIONAL MODEL IN ARCHITECTURAL PEDAGOGY

This paper focuses on studio pedagogy because studio teaching is so integral to architectural education today. One characteristic of the orthodox process that stands out is its rational approach to studio teaching. Research by Friedmann (1987) suggests that a rational decision-making process typically consists of identifying necessary information and objectives, evaluating information, making decisions based on information provided in the preceding steps, implementing the resulting decisions through appropriate institutions, and assessing program outcomes.

Similarly, despite variations naturally expected in diverse studio conditions, the orthodox system is viewed as rational because a studio typically consists of assignments or activities that begin with initial research (e.g., identifying pertinent issues, data collection) and move serially to the analysis of issues, synthesis of design goals and concepts, implementation of design and physical strategies, and feedback on student outcomes (such as studio reviews). Moreover, studio teaching thrives on the abovementioned student-apprentice model. Students adhere to strict guidelines laid down by studio faculty, learn and apply standardized principles to whichever architectural styles their instructor promotes, and deliver projects that often emulate or echo their teachers' ideals. In addition, the review process in a typical studio is interrogative, top-down, expert-driven, product-oriented (e.g., student performance is measured mainly by reference to the finished product rather than to engagement in the process of learning), largely undemocratic, and dictated by faculty along with other expert guest jurors who critique student work in front of a "silent" audience (the students). Such is the rational model.

According to Friedmann (1987), rational decision-making is characterized as linear, administrative, technical, and bureaucratic, advancing a technocratic approach to problem solving. Several of these characteristics resemble what happens in stu-

dio pedagogy. This can have a negative impact on studio teaching, as we will see in the next section. The rational model does, however, offer some benefits. Cullingworth (1997) explains that the expert-driven orientation of the rational decision-making approach promotes technical rigor. At the same time, however, this strength can be a weakness. In the next section, I discuss one of the major drawbacks of the rational model, namely that it rarely allows for healthy or productive experimentation. As a result, the benefits of the rational approach to studio teaching, although real, are limited in value.

## DRAWBACKS OF THE RATIONAL MODEL

Design studios often approach studio problems through the rational, apprenticeship model with little student input, even though some studios do promote participatory design by students or studio clients. Such approaches follow a systematic routine comprising data collection, analysis, and synthesis; concept development; and design schemes and implementation strategies-in that order. The rational decision-making process discourages innovation and creativity in part because of faculty presuppositions about what data is worth collecting-they favor the predictable and comfortable because they are familiar with or have become accustomed to such information or because they prefer only what they like or admire. Moreover, such a rational, expert-driven approach can undermine students' sense of ownership and undervalue a student's unique characteristics, values, and potential (which are not always recognizable to outsiders) because the "comfortable" data or information favored by faculty and experts may apply only very generally. This problem is a typical symptom of the "one-size-fits-all" approach.

A system that is confined within a rigidly linear and top-down process can serve useful purposes but at the expense of new or accidental discovery, innovation, sense of ownership, diversity, and flexibility. Research by Christenson (2005) indicates that an 'accidental' approach can spark new or experimental ideas that would have never arisen under a rigid, expert-driven, preconceived 'manual' approach, which is one major aspect of the rational model. For example, in many studios students

are expected to follow a pre-determined, mentor- and textbook-driven approach to designing the physical environment for a given site or an area. There is a danger that rigidly adhering to such a linear, step-by-step, manual approach can stifle the imagination of students, precluding the "accidental" development of experimental or innovative ideas. As such, the rational model is inherently limited. Among its most serious drawbacks is that rational decision-making is likely to promote predictable processes and outcomes in a way that discourages healthy experimentation. In the next section, I will discuss alternatives to the rational model and suggest how studio teaching can benefit from experimentation via social construction.

## THE SOCIAL CONSTRUCTION MODEL AND EXPERIMENTATION

Given the aforementioned weaknesses in the rational model, I argue that we should explore new approaches—not to replace it but to improve on it by compensating for its inherent defects. A major criterion for developing new approaches is that they should allow experimentation to occur in the design studio. In this paper I advocate a type of experimentation that promotes a culture of innovation, productive accident, fresh thinking, a sense of autonomy, a sense of ownership, and the acceleration of implementation (making design applicable to real world problems in a timely manner). I view these as positive outcomes that benefit architecture students during and beyond the school years.

In response to the call for such a criterion of success, this paper, informed by multi-disciplinary findings, advances a social construction model within which variations in approach are possible and experimentation can occur. In the social construction model, a studio instructor "facilitates" rather than dictates the studio process, allowing a student to create or construct her own reality, her own image, and her own future. Social construction is experimental and non-linear. Socially constructive design does not necessarily start, for example, with data collection. Data collection in some social construction models happens only after the implementation or visioning of students' own goals (or the studio clients' goals), with little grounding in the goals of faculty or design experts. This is likely to promote

innovation or new discovery because it allows the unpredictable or accidental to happen as a result of breaking out of a predictable, "rational" routine by encouraging experimentation.

The social construction model can also benefit studio clients, project sponsors, and residents. For example, Hou & Rios (2003) argue that current practice in neighborhood development lacks political crafting and cultural framing (e.g., discourse building or consensus building). Thus in the case of community design projects undertaken at the Detroit Studio or at any similar university-based community outreach studio in collaboration with a sponsoring community, social construction benefits such a community by helping its residents help themselves to craft their own political reality. This makes it easier to build consensus among residents because no one is pushing the ideals of the studio or its faculty on them. It is, after all, the community residents' own project that studio participants will have to execute. Similarly, social construction may contribute to a sense of autonomy and ownership among students in other types of studio projects as well (e.g., hypothetical projects). In the following section, the paper explores several types of social construction that allow experimentation in a way that often leads to positive outcomes. When that happens, students enjoy a new kind of success in the design studio.

## FOUR TYPES OF SOCIAL CONSTRUCTION

This section describes in detail four social construction approaches that promote experimentation in the studio, and that are potentially beneficial to neighborhood design and revitalization projects, or at least to projects of the type that are undertaken at a community outreach or service learning program such as that of the Detroit Studio. The paper discusses the key strengths and weaknesses of each approach.

### *Inversion*

Inversion starts with imagining the future rather than with global data analysis. Students or student/studio client groups work together to form their own image of the ideal place and the results inform and

focus subsequent data collection and analysis. Inversion calls for a studio instructor to work from the outset directly with the "untested" visions that have spawned in the minds of students or studio clients (residents, project sponsors, etc.). In other words, an instructor will use students' or studio clients' untested visions as a guide to data collection rather than conducting a time-consuming process of comprehensive data collection and analysis first. We can think of students' or studio clients' visions or imaginary solutions to their problems as hypotheses that need to be tested. To test such hypotheses, one needs to collect data for later analysis.

According to Forester's research (1989 & 1999), when facing the intimidating expertise of a professional, such as a studio professor or a guest design crit, it is easy for laypersons such as students or community residents to let their visions be pushed to the sideline. Inversion advances the idea that, rather than thinking of the untested visions of students or studio clients as uneducated or unsubstantiated pipedreams, a studio instructor should treat them as hypotheses and assess them empirically. This is similar to thinking of a design as a hypothesis that will have to be tested via proper research, as the environment-behavior research by scholars like Zeisel (2006) suggests. Such an approach can allow an instructor and a student to learn how to undertake more sharply focused data collection, which reduces the time and effort needed for data collection and analysis. Such an approach is particularly valuable in the case of architects, planners, and other professionals who work in neighborhood revitalization in underserved urban areas. To inform a project with a student's or a studio client's own vision of his or her site's future gives that project a clear direction.

It is possible, of course, that such an informing vision, unmoored to solid ground by professional expertise, will turn out to be totally unrealistic or unsubstantiated. Experimentation by nature carries some risk. Some hypotheses are not testable. Some visions cannot be implemented practically. So some caution is necessary. Without assuming some risk, however, no experimentation is possible. For example, since there are not always enough resources, time, or manpower available in poor areas, the inversion approach, featuring careful selection of a community vision proposed by residents themselves, can promote workable experimentation

because residents will likely know more about the limitations and possibilities of their communities than outside observers. Much is at stake, but making positive outcomes more likely is surely worth the risk.

### **Simulation**

Simulation allows students or studio clients to undertake small-scale experiments (such as the design and construction of a small "mock" playground, ideally in the field), drawing immediate lessons that can make the final design process more efficient and effective. The goal is for a studio and its instructor to facilitate a process in which students are allowed to experiment with some of the ideas residents have been thinking about. It gives students and residents the opportunity to test their ideas and get an immediate result.

Simulation gives students or residents the opportunity to test "big" ideas before launching into full-blown implementation. Especially when a proposed idea is potentially too expensive or too risky, conducting a small-scale experimental simulation is wise, economical, and safe. The key is to keep simulation to a modest scale: small enough to be relatively manageable and small enough that mistakes are not overwhelming in their consequences. Simulation is, then, based on the idea of the 'small experiment' proposed by Kaplan, an environment-behavior scholar (1998). She explains that small-scale experiments are a powerful means of sharpening our intuitions, overcoming indecision, and testing ideas without undue baggage.

In a recent community design project undertaken at the Detroit Studio, residents wanted to develop a program to teach children about the importance of taking care of the physical surroundings of their own block and neighborhood. We developed an experimental class comprised of seventh-grade African American students in the study neighborhood in Detroit. Students learned to make architectural scale-models, conducting pre- and post-tests on the effectiveness of the proposed program. Such a short-term experiment enabled us to draw an immediate conclusion. In spite of partial and imperfect answers, the small-scale exercise contributed to greater understanding as well as to new explorations. The outcomes of the experiment were incorporated into the studio's design process.

By thus producing immediate results, simulation

enables students or studio clients to clarify many of the mysteries, misunderstandings, misgivings, and doubts they might have about the ideas to which they have been attached, while preventing false hopes from disappointing them later. In this way students learn that a small-scale experiment can help expedite the implementation process by saving time spent debating whether or not to launch a big, expensive program or policy that would require a major commitment of time and resources. A community should be able, based on the outcomes of small-scale simulations, to re-think or implement an original, "big" idea more wisely when it is attempted later on a much larger scale.

Despite the positive virtues of simulation, a studio or a community must be careful when choosing which simulation of a project component to undertake first and which ones to undertake later. Since conducting even a small-scale experimental simulation can be expensive, careful planning is needed. On the whole, the experience and outcome of a small-scale simulation can give students or studio clients a sense of control, a sense of accomplishment, a sense of hope, and a sense of confidence. Small-scale experimentation thus provides a way of addressing some of a project's intended purposes within the constraints of existing resources. There is no assumption of perfection, but rather a sense of drawing closer to a useful understanding.

### **Reciprocity**

Reciprocity in the design studio encourages students and studio clients to switch roles. Role playing has been used widely in applying reciprocity to planning and other fields (HOCH, 1994), as well as in projects that involve group activities, multiracial and intergenerational age groups, diverse social classes, and multiple disciplines (LEVY, 1997). In the design studio, when role playing, students present their findings to studio clients and vice-versa in a mutual critique that counters biases while enhancing mutual understanding. Reciprocity can be applied to students and guest jurors as well. For example, students can play the role of laypersons, while guest juries play their usual role of experts. It has been widely published that experts and laypersons have different preferences for or levels of understanding of the production of a built environment (see, e.g., GROAT, 1995; SCHON, 1985). The purpose of reciprocity is therefore to

educate participating professionals (experts, jurors, etc.) and non-professionals (students, residents) about the difficulties of collaborating with someone from a different background, as well as to bring both sides to acknowledge that they need each other to ensure the success of a project. When practicing reciprocity, all project participants—experts and non-experts alike—critique one another's ideas and viewpoints.

At the Detroit studio, especially in the beginning of a semester when meeting with project clients or sponsors (e.g., community development agencies), students play the role of residents by attempting to ask the same types of questions that residents would ask experts. During one of the focus group sessions, students then play the role of experts, asking the sorts of question they would expect professionals to ask students or residents. During one of the workshops, participating professionals are instructed to play the role of residents, asking students questions from that perspective. Residents are then asked to play the role of students during progress review sessions. The participating residents are asked to be open-minded about students' fresh or experimental ideas. In another example, participating experts at the Detroit Studio are asked to discuss a list of local anchor groups—formal or informal associations of people who play a significant role in the community—from the perspective of residents. Residents are asked to do the same by playing the role of experts. These exercises reflect stereotypical views expressed all too often by people of different backgrounds.

One possible liability in using reciprocity is that it may be difficult to apply it to situations involving technical matters (e.g., sewage treatment facilities) because students or residents typically lack the technical background offered by experts. It would be hard for students or residents to play the role of professionals when addressing such issues, but even in that realization a valuable lesson is learned about another perspective. One of the strongest benefits of reciprocity to project participants may be, however, their increased understanding of the diverse methods of communication used by people of different backgrounds in the design process. In particular, difficulty in communication between expert professionals and laypersons is among the most serious roadblocks to successful multi-party collaboration (FORESTER, 1998). From the standpoint of students, being able to communicate with people of

different backgrounds is likely to provide a sense of satisfaction and confidence and to broaden their perspectives on the design process.

### **Research-in-action**

Finally, research-in-action allows research tasks (such as data collection) to take place simultaneously with design and implementation activities (such as completing a design). Research-in-action is based on 'action research' (AR) or 'participatory action research.' Such an approach has been promoted in anthropology, planning, sociology, and other related fields (GREENWOOD AND LEVIN, 1998). Greenwood & Levin explain that AR promotes broad participation in the research process and supports action that leads to a more just or satisfying outcome for stakeholders.

In the rational design studio model, research precedes action. That can cause problems, especially in the case of community outreach projects or others in the real world when there is neither the time nor the inclination to conduct extensive research because of the urgency with which residents wait for outcomes to emerge. When practicing research-in-action, project participants conduct design-design hypothesis testing and repeat it as time permits. This gives students the opportunity to create a design and immediately test a corresponding design hypothesis. The goal is to generate quick feedback on a design hypothesis via (scientific) research (e.g., surveys, a face-to-face interview, or a combination of this with simulation) with prospective or hypothetical building users. Such almost instantaneous feedback can guide students/faculty into conducting more sharply focused data collection and analysis as well as better informed design.

Design hypotheses can be tested by reference to study participants' comments. To test outcomes in this way can inform students/faculty about which data are needed in a particular case. Once the necessary data are collected, class participants can quickly revise or improve their design, based on that data. Through such a process, a design decision is supported by scientific or empirical data. Following data analysis, a design team can present an improved design hypothesis to studio clients and prospective or hypothetical building users for further testing. This cycle or process is typically repeated several times within an allotted time limit.

At the Detroit Studio, a key building proposed in

a recent project was a farming education center with a market. Students had performed a quick conceptual design exercise to develop a design hypothesis using video, painting, music, installations, and the like. They presented their design hypothesis to residents, project sponsors, and other participants early in the semester. Based on the reactions of the participants, students quickly defined what kinds of issues they needed to focus on and exactly what type of data they needed. They then collected specific information on the appropriate subject matter. Next, they revised their design concept by supporting it with data they had collected and reported back to residents and other stakeholders for subsequent feedback. Such an integration of research and design is a major benefit of research-in-action. In research-in-action, students develop their design ideas by formulating a design hypothesis and testing it via field research. Such a process of confirming, contesting, and redefining collaboratively with project participants enriches the design process while conducting to outcomes acceptable to all.

It is possible that in some cases students need time to warm up their "design machine" before developing and testing a conceptual design idea. Nevertheless, research-in-action can allow class participants to quickly identify the needs of their clients. In such a process, design is supported by research in a proactive and timely manner. Research-in-action properly utilized should help students and residents experience a greater sense of control as they witness how their feedback is reflected in the multi-stage design-design hypothesis-testing process.

### **CONCLUSION, IMPLICATION, AND FURTHER STUDY**

This section discusses some of the key themes and implications cutting across the four models of social construction and suggests areas of further study. I acknowledge that there is some overlap among the four approaches to social construction. Each of them, however, has its own unique set of characteristics. All four approaches will have to be utilized in studio teaching to ensure success or to achieve the maximum effects of social construction. In these four social construction models, predetermined

steps in the rational decision-making model are reversed, merged, or even omitted. In that sense, the models are experimental, allowing new or accidental discovery or learning to emerge. For example, when the untrained visions of students or residents, not those of the experts, guide sharply focused data collection and analysis only after conducting visioning of goals (Inversion); when participants are executing small-scale experiments that may be modest, incomplete, and imperfect (Simulation); when participants switch roles (Reciprocity); when design is merged with research (Research-in-action)-in all these cases, anything can happen. Thus they all are experimental.

Furthermore, the examples given in this paper indicate that all four models, if implemented successfully, could save time and resources in a community, an especially attractive benefit to architects and planners working on projects based in underserved, resource-poor urban areas. More importantly, the four approaches enable students or residents to take charge and take responsibility for their own ideas. Ideally, the four approaches promote a sense of control and accomplishment by giving participants the opportunity to try out their ideas to see what happens. In this context, a studio instructor is more like a facilitator than a master-director, setting up meetings, coordinating activities, reinforcing initiatives, nudging reluctant participants, informing the process, and resolving conflicts-all the while letting studio clients or residents make certain key decisions via a democratic process, as students and studio clients experiment with their ideas and take responsibility for their actions.

Despite the excellent prospects for yielding positive outcomes of the four models of social construction, a few words of caution are well advised. The rational decision-making model does have some useful qualities. It is not realistic to abandon the rational model or replace it entirely with social construction, especially in the case of community revitalization in poor areas. Building on some of the strengths of the rational model can benefit social construction. For example, Kaplan (1998), while advocating for the power of small-scale experiments, cautions that careful, goal-directed planning of the execution of an experiment and the dissemination of the outcomes is necessary to ensure an effective project.

The social construction approach faces challenges, even though the four types of social construction could teach students about conversational social learning, community building, and participatory design and planning as well as about the environment and behavior perspective. For example, we need to know the specific skills students should acquire in order to successfully utilize social construction in the design studio. Inversion and reciprocity may require negotiation skills because they require students to work with faculty, studio clients, and other stakeholders. Simulation and research-in-action require field research skills that would enable students to undertake hands-on assignments working in collaboration with classmates or studio clients. My research (KIM, 2005) on African American female professionals working in underprivileged urban areas indicates that their work requires negotiating and hands-on research skills as well as related skills needed for conversation, social learning, public deliberations, democratic practices, and environment and behavior research. While some of these skills can be learned via the four types of social construction, further study is needed to develop a program for teaching other skills to students. After all, many of the aforementioned skills are not part of mainstream studio teaching approaches.

Social construction techniques allow participants to experience the excitement of experimentation via social construction while successfully completing a project, but it is also vital to equip students with the basic design skills and technology necessary for professional registration and successful architectural careers. We need also to study the effectiveness of the four models of social construction. In what type of project would social construction be more beneficial than the rational model? Can the social construction model work better for a neighborhood revitalization project in a poor area than an "enlightenment" project like an expensive orchestra hall in an affluent area? A study comparing both models in terms of their effectiveness in conducting various types of projects would be useful. It is impossible to eliminate all risk from experimentation via the social construction model. Still, addressing the aforementioned challenges to social construction techniques points up several areas that need further study if we are to maximize the benefit of the social construction model.

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