Journal of Architectural and Planning Research
18:1 (Spring, 2001) 59

THE SCIENTIST, THE SOCIAL ACTIVIST, THE PRACTITIONER AND THE CLERIC: PEDAGOGICAL EXPLORATION TOWARDS A PEDAGOGY OF PRACTICE

Keith Diaz Moore

This paper is an initial effort to address two pressing issues facing architectural education: 1) the scarcity of critical engagement of the pedagogical approaches employed in architectural education; and 2) the rift between the academic community and the practice of architecture as discussed in the Carnegie Report (Boyer and Mitgang, 1996). Although the views of specific individuals may change over time, underlying personal pedagogues are implicit world views which shape and affect how human activity is conceived, the definition of what construes knowledge, and how that knowledge is learned. All of these, in turn, affect how one teaches, researches, and practices. The paper illustrates that there is a range of pedagogues within architectural education but that the approach that is most espoused but least utilized and therefore least well-developed is that which tries to adopt the epistemological assumptions of architectural practice. The paper suggests that practice operates within a systemic world of social meaning, where the line between ontology and epistemology are blurred and that at the core of practice is human agency. The opportunities and difficulties with such a pedagogy are briefly outlined.

> *In the main, a person's values, beliefs, and philosophy can easily be ascertained by the way he or she teaches. The instructional strategies and techniques that are adopted by a teacher bespeak his attitudes about himself (sic), his students, and their representative roles in the teaching-learning process.*
> (Crow, 1980)

In 1993, the five collateral organizations[1] which coalesce around architectural education and practice recognized a need for a comprehensive examination of their architectural community. These organizations pooled their resources to hire the Carnegie Foundation for the Advancement of Teaching to conduct a thirty-month study whose final report was published in May of 1996. This report (Boyer and Mitgang, 1996), commonly referred to as the Carnegie Report, set a broad agenda for architecture as it moves toward the twenty-first century. Boyer and Mitgang critique that on the whole, the development within architectural education is best characterized by stasis, and challenged educators and professionals to view architectural education as being "about fostering the learning habits needed for the discovery, integration, application, and sharing of knowledge over a lifetime" (p. xvi). There has been much discussion of this since its publication, some offering praise (e.g., Dill, 1997), while others seem perplexed by the gross generality of this proposed agenda. That is because it is an agenda without agency.

Boyer and Mitgang offer lofty aspirations for which to reach, but offer no guidance in how to critically engage the fundamental issues at hand. What the report lacks is agency, "the attempt to understand how people value their world and act within it" (Dutton, 1996:160). Unfortunately with this being the case, the Carnegie Report merely reduplicates the primary dilemma which architectural education has faced at least since the thirties (Bosworth and Jones, 1932): the deficiency in critical engagement of the inherent philosophical assumptions of faculty and their associated schools of architecture. It is precisely this critical activity which is essential to begin the "dialogue of consequence" Boyer and Mitgang hoped their report would stimulate.

As Crow identifies above, teaching techniques reveal the assumptions regarding instructors' views of themselves, their students, and I would suggest, the nature of the world. As research methodologies logically stem from the researcher's epistemological and ontological foundation (Burrell and Morgan, 1979; Pepper, 1942), so too does pedagogy flow from one's view of the world at any particular point in time. Any developed architectural pedagogy should not be considered in the abstract, because the chosen method embodies a variety of assumptions regarding the nature of knowledge, the methods through which it can be transferred, as well as a set of root assumptions about architecture itself as both a process and artifact. This paper proposes that reflective engagement of pedagogical approaches and their related ontologies provides the Carnegie Report's "missing agency" and a mode of action for stimulating the "dialogue of consequence."

ADDRESSING PEDAGOGY

Pedagogical discussion is not very common in schools of architecture. This could be for myriad reasons, not the least of which is the current "understaffing" typical at most schools of architecture which do not allow time for such a self-reflective action (c.f., Crysler, 1995). While this is possible, faculty (architectural or not), when asked about their instruction method, are most likely to respond that they teach in the manner in which they were taught — a self-perpetuating proposition (Grasha, 1996). The value-laden assumptions of the architectural educational process created 150 years ago have become increasingly ingrained with each passing generation, even though our world, and our world views, are in the midst of great change.

Typically, at best pedagogical discussions involve issues of teaching method: lecture, Socratic method, service learning, and so forth. This focus on philosophically disembodied teaching methods is a pervasive bias not solely endemic of architecture, but of higher education as a whole. Such a limited working definition of pedagogy, however, robs the term of much of its richness. Pedagogy

TABLE 1. Five teaching styles (adapted from Grasha, 1996).

Expert
Possesses knowledge and expertise that students view as necessary. This style strives to encourage growth in the students' knowledge base and to enhance their competence. Advantage: The information, knowledge and skills such individuals possess Disadvantage: Can be intimidating to students
Formal Authority
Possesses status because of knowledge and role as faculty member. Concerned with the correct, and acceptable ways of doing things. Advantage: Focus on standards Disadvantage: Leads to rigidity and standardization
Personal Model
Establishes a prototype for how to think and act. Encourages students to emulate instructor. Advantage: Provides observation of a role model Disadvantage: Presented as the way to do things and some students can be left feeling inadequate if they cannot meet expectations
Facilitator
Emphasizes the personal nature of teacher-student interactions. Guides students by asking questions, exploring options and encouraging them to develop criteria for making informed choices. Advantage: Focus on students' needs and goals and willingness to explore alternative courses of action Disadvantage: Time consuming and can make students uncomfortable if not employed in a positive manner
Delegator
Concerned with developing students' ability to function independently. Advantage: Helps students to perceive themselves as a resource person Disadvantage: Some students become anxious when given autonomy

refers to "all those practices that define what is important to know, how it is to be known, and how this production of knowledge helps to construct social identities" (Sholle, 1992:272). These are important assumptions which, in theory, form the conceptual base from which goals, objectives and methods naturally proceed. Yet typically, teaching styles are intellectually hollow. As the beginning quote from Crow (1980) identifies, teaching methods reflect hidden values and beliefs which are espoused within that given classroom experience. The critical engagement of a teaching method is to unpack the hidden assumptions which drive that given technique. If not unpacked and understood, teaching methods are apt to be applied in counter-productive fashion, leading to a deficient educational experience.

Grasha (1996) suggests that most teaching methods cluster into five different teaching styles: Expert, Formal Authority, Personal Model, Facilitator, and Delegator (see Table 1). Here it is suggested that the Delegator style, with its concern for developing students' autonomous abilities, is actually subordinate to the other four, as it can be accommodated within each of the others. Further analysis reveals that the four other styles of Grasha's are actually of two types.

Teaching Style: The Character and the Translated in Student-Teacher Interactions

Formal and Facilitator styles reflect the character, from the teacher's perspective, of the student-teacher interaction. The Formal style of instruction focuses on the instructor imparting his or her wisdom upon the students. One is concerned with correct and acceptable ways of doing things. The Facilitator style does not focus on the distribution of knowledge, but conversely, in developing learning skills in students. One works with students in a consultative fashion, exploring the educational terrain together as co-explorers.

TABLE 2. Teaching methods and their relationship to implied teaching styles.

What type of knowledge is transacted in student-teacher interactions?	What is the character of student-teacher interactions?	
	Formal	*Facilitator*
Expert	Lectures Exams/Grades Term papers	Case studies Problem-based learning Practicum
Personal	Coaching Sharing personal experiences Demonstrating ways of thinking and doing	Debates Small group work teams Panel discussions

Expert and Personal model styles, on the other hand, refer mostly to what is being transacted through the student-teacher interaction.[2] The Expert holds knowledge or skills — gained through some sort of experience, whether that be advanced education, research or practice — which is to be gained, in some fashion, by students. The Personal instructor holds knowledge beyond the speakable, to more ephemeral truth about how one should act and think. The Personal instructor serves as a role model which students are to exemplify.

Table 2 places these dimensions in relation to one another, suggesting that what Grasha refers to as teaching styles can be thought of as reflecting two distinct dimensions of pedagogy — namely the character of student-teacher interactions and that which is transacted in that interaction. Pedagogues can thus be thought of as clustering into four types — Expert/Formal, Expert/Facilitator, Personal/Formal, and Personal/Facilitator — each having a distinct position in regard to each dimension of style.[3] Returning to Sholle's (1992) definition of pedagogy, each cell of the matrix can be seen to embody a distinct pedagogy as each reflects a position in regard to "what is important to know" (What is transacted?), "how it is to be known" (teaching methods) and the nature of "social identities" (What is the character of human interactions?). In Table 2, it is suggested that the two dimensions of style are characteristics embedded within, and which should inform, teaching methods. Methods such as lectures, exams, and term papers all reflect assumptions of the teacher as the keeper of knowledge whose main role is to deposit that knowledge in students while the student's role is to digest and regurgitate that information. Coaching (e.g., Schön, 1987), sharing of personal experiences, and demonstrating ways of thinking and doing are methods which similarly reflect a formal scholar-student/master-apprentice type of relationship, but one not based upon the transmittance of expert knowledge, but rather growth in entire modes of conduct. All of these teaching methods have a formal character to the student-teacher relationship, but in the former what is transacted is limited to certain knowledge or skills, while in the latter it is an entire way of doing or being.

Similarly, certain teaching methods reflect a facilitating type of interaction: case studies, problem-based learning, practicum, small group work teams, debates, and panel discussions. These methods are significantly different than those found in formal student-teacher interactions. Distinguishing between these methods in terms of what is transacted is more pliable and not as clear-cut than that found in formal approaches. This is no doubt due to the fact that, as opposed to the formal methods where the teacher is seen as a subject imparting knowledge upon an object (the student), facilitative methods stress the dynamic reciprocity of the student-teacher interaction. What distinguishes the Expert/Facilitator and Personal/Facilitator pedagogues is not method *per se*, but rather what type of knowledge is valued. Expert/Facilitator methods stress the process of critical inquiry and problem-definition and solution. Conversely, Personal/Facilitator methods emphasize the values, agenda, and modes of conduct of the instructor. No doubt both pedagogues would contain aspects of the other, but the character of the resulting learning environment would be heavily influenced by which is made to be the clear priority.

TABLE 3. Four pedagogical metaphors and their relations to teaching styles.

What type of knowledge is transacted in student-teacher interactions?	What is the character of student-teacher interactions?	
	Formal	*Facilitator*
Expert	The Scientist	The Practioner
Personal	The Cleric	The Social Activist

Epistemological Assumptions

The four clusters representing different pedagogues — Expert/Formal, Expert/Facilitator, Personal/Formal, and Personal/Facilitator — already reflect core assumptions in regard to the nature of knowledge that is valued and the relationship between the knower and what can be known. These are fundamental epistemological positions. It is proposed that each of the four pedagogues can be potently conveyed by a distinct metaphor which embodies not only epistemological assumptions but other assumptions relevant to pedagogy as well (see Table 3). From Pepper (1942) to Buttimer (1993), metaphor has offered a uniquely valuable route toward elucidating intellectual styles. Metaphors communicate a wealth of information, relying upon our socially-shared understandings of our world. The four metaphors which follow are structured around their implicit epistemological assumptions.

The Expert/Formal pedagogy assumes that knowledge is of something external to the knower, that research can converge on a "true" state of affairs. Thus knowledge tends to be conceived as a commodity which can be transferred between teacher and pupil. Similarly, the relationship between student and teacher is conceived as dualist in nature, where each is an object that the other responds to: the teacher lectures and the student takes notes; the student takes an exam and the teacher grades. This is the traditional mode of instruction in higher education, which is historically linked to the scientific method. As such, the metaphor for the Expert/Formal quadrant becomes The Scientist.

The Personal/Formal pedagogy conceptualizes knowledge as something which cannot be transferred but is transcendental. The relationship between student and teacher — as well as between person and environment — is not "real," but rather a projection of human consciousness. Thus the nature of the phenomenal world would remain unknown, except that it may be accessed through particular modes of insight — into which the student is indoctrinated. This pedagogy is that of The Cleric.

The Expert/Facilitator and Personal/Facilitator pedagogues view knowledge as something that is dynamic and negotiable — co-constituted by individuals. This reflects a blurring of distinction between ontology and epistemology, a recognition of integration between the transactions amongst people and the knowledge they share. The Expert/Facilitator views knowledge as the patterns by which human experience is made meaningful. These patterns ensure a certain degree of continuity, but are always open to the fundamental socially-constructed nature of life. This will be argued to embody the pedagogy of The Practitioner. Conversely the Personal/Facilitator views any patterns which may emerge as wrought with issues of power and politics. The knowledge which is valued is that which attempts to "understand in a rationally responsible manner the oppressive features of a society such that this understanding stimulates its audience to transform their society and thereby liberate themselves" (Fay, 1987:4). The Personal/Facilitator pedagogy is captured in the metaphor of The Social Activist.

Such epistemological positions have inherent within them assumptions regarding human nature which are captured in the metaphors assigned to each pedagogy. These assumptions are core to pedagogical dialogue as they serve as the basis for selected theories of learning and of teaching, and the fundamental relationship of humans to their world. Assumptions of human nature reflect the core essence of one's worldview and thus serve as a useful means for typologizing between various modes of human activity. This has become quite topical within research communities (e.g., Guba and Lin-

TABLE 4. Ontology, ways of knowing, and ways of teaching as exemplified by architectural academics (those in italics are used as exemplars in the article.).

ONTOLOGICAL METAPHOR	*Scientist*	*Social Activist*	*Practitioner*	*Cleric*
ASSUMPTIONS OF HUMAN NATURE	human beings exist in an interactive relationship with their world	humans are social actors who operate in a reality of a web of meanings imbued with power and politics	humans are purposeful social actors interpreting and understanding their milieu, creating a world of significance	humans are intentional creatures who shape the world within their own experience
EPISTEMOLOGY	dualist (subject-object duality); objectivist; findings are considered true	value-mediated findings of a specific context; what can be know is intertwined with person's perspective which is shaped by one's values	to take goal-oriented action in an uncertain world; emphasis is placed on resolving problematic situations through negotiation	phenomenological intuition — transcendental conversion to understanding
PEDAGOGY	banking approach; knowledge as a commodity to be deposited	primarily problem-posing; values emphasized	problem-posing approach - real life-based issues and action	journey-guide approach: knowledge seen as being on some distant horizon
TEACHING STYLE	expert and formal authority	facilitator and personal; instructor and students as co-investigators	facilitator and expert instructor and students as co-investigators	personal and formal; mystical master
TEACHING METHOD	lectures; teacher-centered discussions; laboratory	small group teamwork: problem-based learning; debates; discussions	case studies; practicum; problem-based learning	self-discovery activities; coaching; role modeling
UNDERLYING STUDENT ROLE	dependent; individual and competitive	collaborative; good citizen; participant	participant; independent; collaborative	disciple; dependent; individual
EVALUATION METHOD	exams; grades on defined content including basic knowledge; application; critical thinking	mix of peer, instructor and self-evaluation in relation to expression of social agenda	based on critical thinking; mix of peer, instructor and self-evaluation in relation to stated goals (social construction)	instructor prerogative; orthodoxy to the prototype
MAJOR PROPONENTS IN ARCHITECTURE	Batchelor (1991) Cohen (1987) *Rapoport (1984, 1995)* Seidel (1981)	*Dutton (1991, 1996)* Mayo (1991, 1996) Weisman (1991, 1998) Ward (1996)	Cuff (1989) *Symes (1985)* Underwood (1991, 1994) Watson (1993, 1994)	*Bognar (1985)* Graves (1975) Loomis (1991) Perez-Gomez (1991)

coln, 1994; Neuman, 1997), but is equally true and thus could be equally informative to pedagogical discussion. These assumptions of human nature can be extracted based upon the epistemological assumptions given above. (Of course, an individual may modify his or her worldview over time or may even adopt different approaches to different subjects [e.g., how to teach design vs. how to teach statistics]. But, such individuals are apparently so rare that the above assumptions are not challenged.)

THE SCIENTIST, THE SOCIAL ACTIVIST, THE PRACTITIONER, AND THE CLERIC

The four metaphors of the nature of the human in the person-environment nexus, as reflected in the four pedagogues in Table 3, are: The Scientist, The Social Activist, The Practitioner, and The Cleric.[4] Each of these pedagogues, to various degrees, exists within architectural education. Through the critical engagement of these pedagogues and their inherent philosophical assumptions, a new understanding of what drives the pluralism and divisiveness in the architectural community is revealed and sets the foundation on which Boyer and Mitgang's "dialogue of consequence" may occur. What follows is a discussion of each pedagogy and its inherent ontological position. This ontology serves as the conceptual base for issues of epistemology, teaching style, teaching method, assumptions regarding students' roles and evaluation method selection. Each of the pedagogues are discussed in terms of their application within architectural education (see Table 4).

BOX 1. A scientist exemplar — Amos Rapoport, University of Wisconsin-Milwaukee.

As an exemplary proponent of the Scientist pedagogical approach, Rapoport's vision for architectural education revolves around his belief that architectural design would be much better served by shifting from an art model to a science model (Rapoport, 1984, 1995). Rather than responding solely to personal intuition and motivation, design should be deductive and experimental in nature, with stated hypotheses to be either supported or falsified. The process Rapoport espouses focuses on "setting objectives, evaluating their validity, testing whether objectives have been met, developing and refining theory and building a cumulative body of theory and knowledge" (Rapoport, 1984:103). His pedagogy assumes an objective, real world which exists external to the designer-researcher that can be measured, and therefore the veracity of the hypotheses can be evaluated.

Rapoport does not offer specific descriptions of how a studio would operate within this pedagogical approach; however, he has stated it should work similarly to a science lab (Rapoport, personal communication, 1996). As Rapoport sees it, the lab is organized around identifying a problem, developing hypotheses and solving it in terms of stated goals and objectives. These objectives would be those dictated by the standing paradigm. Evaluation would be on how well the initial problem was defined and operationalized.

Rapoport sees the world as a reality existing external to the human. He sees the human in an interactive, cause and effect relationship with the world and that the role of the instructor/student is to come to understand those interactions. Interventions should initially start as hypotheses to be supported or falsified as the case may be. Rapoport assumes that knowledge can be deposited in students and will then be furthered by student hypothesis-testing. It is assumed that one builds off of existing knowledge and is indoctrinated into accepting the assumptions which underlie previous research. For Rapoport, what is critically important is for architects to have at their disposal environmental responses which have predictable results.

The Scientist

For the scientist, humans are seen as responding and adapting to external forces. In teaching, this is best exemplified by the reward-punishment underpinnings framing the examination method of evaluation. Students are expected to regurgitate information "deposited" in them by the instructor and are seen to be motivated by competition. This is consistent with a mechanistic model of interaction where there are causes and effects. Epistemologically, the person is seen as operating within a given, external reality — person and reality viewed as independent entities. Thus if information is gathered correctly, such information can be said to be true if it indeed corresponds to that external, objective reality. Observable facts are fundamentally distinct from ideas or values; hence the epistemology is considered dualist (e.g., Neuman, 1997).

The relationship between teacher and student is viewed as that between person and reality — as two independent entities. Reality, teacher, student and knowledge are all seen as discrete components. Teachers are viewed as having knowledge and whose job it is to distribute that knowledge. Students are viewed as empty vessels to be filled with knowledge, theory and the correct method by which to generate new knowledge. The Scientist treats knowledge as something which can be accumulated by students, either through the dispensation of the instructor or through adherence to appropriate methodological technique. Friere (1970) has referred to this as the "banking concept" of education in which reality is viewed as compartmentalized and predictable.

These assumptions are consistent with the pedagogy characterized by the Expert/Formal teaching styles. These styles and the methods which embody them are reflective of these hidden assumptions. The lecture perhaps is the clearest example of a method predicated on the Scientist metaphor. Here, the instructor speaks and the student takes notes, ostensibly representing the transfer of knowledge. Exams tend to request that same information to be returned, validating that the knowledge had indeed been transferred and deposited.

This pedagogy is the most pervasive throughout higher education and has its basis in the scientific method. Because it is the prevailing paradigm in education, many of the underlying assumptions are taken for granted; knowledge and its production become characterized by stasis due to the institutionalized nature of the paradigm. The methods of the pedagogy have been adapted unquestioningly by disciplines outside of the hard sciences, including architecture. Most so-called "support courses" (those courses in architecture curricula that are not design studios) adopt this pedagogy, with students assuming that such courses will involve "two tests and a paper." Those who have explicitly placed in

the public domain the Scientist as their expressed pedagogy include Eleni Bastéa (Bizios, 1991), Peter Batchelor (Bizios, 1991), Richard Chylinski (Bizios, 1994), Ellen Dunham-Jones (Bizios, 1991), Gary Moore (Bizios, 1994) and Leftori Pavlides (Bizios, 1994). While the following may not be true for those just mentioned, for the most part, I would suggest that this is due to pedagogical institutionalization rather than critical pedagogical reflection.[5] Part of what drives this suggestion is that relatively few architectural educators have argued for this pedagogy to be applied in what has come to be considered the heart of architectural education — the design studio (e.g., Anthony, 1991). Those who have include Jean-Louis Cohen (1987), Amos Rapoport (1984, 1995) (see Box 1), and Andrew Seidel (1981).

Another potential explanation for this split is the assumed bipolar condition of architectural knowledge — theoretical and practical (Speckelmeyer, *et al*., 1985). In this scenario, the dominance of the Scientist pedagogy in support courses could be explained as an effort to "deposit" theoretical knowledge in those courses which could then be called upon in the design studio, where process is ostensibly learned. This dichotomy thrusts responsibility for integration solely on the backs of students, relieving support course instructors of knowing whether their knowledge is indeed ever found to be useful, and design instructors from worrying if students are calling upon substantive knowledge at appropriate times in the design process. For teachers, each can operate in blissful ignorance of the other. For the student, confusion and incoherence predominate. (This theme will be returned to later.)

The Social Activist

The Social Activist is pedagogically opposite to the Scientist, in terms of the knowledge that is valued, the relationship between student and teacher, and the techniques employed. The Scientist views past and present social relationships as objective entities which exist externally to the investigator. Conversely, the Social Activist views reality as being socially-constructed whereby all those participating in a human experience are integral and inseparable from the phenomena itself. Humans are viewed as creating their realities in the most fundamental ways, but that those realities can only be perpetuated through unwitting collusion. People can change their reality, but they can also be misled and exploited. Humans operate in a reality consisting of a web of meanings and obligations imbued with power and politics.

This vision of human nature has a concept of knowledge that is both transformational and socially-constructed. Because reality is a social construction, student-teacher interactions are viewed as integrated and both are becoming empowered together. The Social Activist values that which can transform ignorance and misapprehensions into an informed consciousness focused upon change. Of course judgments of misapprehensions are value-laden as those judgments may change based upon one's value position. For the Social Activist, facts and values are inseparable. The Social Activist goes farther and suggests that all human activity necessarily begins with a moral point of view and that only one point of view can be correct (e.g., Neuman, 1997). Thus in the Social Activist pedagogy, the instructor has a moral imperative to not only impart knowledge but a particular manner of viewing and acting in the world.

This pedagogy has found increasing currency within architectural curricula over the past decade. Those in architecture who propagate the Social Activist approach include:

- Thomas Dutton (1991, 1996), (see Box 2);
- Lian Hurst Mann (1996), arguing that architecture needs to be at the heart of social production and social transformation;
- James Mayo (1991, 1996), expressing a Marxist economic interpretation of architectural academia and practice;
- Marc Treib (1987), arguing that architecture is becoming culturally stripped and solely a cog in the economic machine; and
- Anthony Ward (1996), whose essay's sub-title says it all: "Architecture as war."

BOX 2. A social activist exemplar — Thomas Dutton, University of Miami (Ohio).

Dutton's critical pedagogical approach relies heavily upon the values and assumptions espoused by Paolo Friere (see Friere, 1970). According to Dutton, curricula "introduce and affirm social practices and forms of knowledge which legitimate particular directions of social life" (Dutton, 1991:174). Thus the production of knowledge occurring in our educational institutions privileges some over others and Dutton argues that it is an educator's responsibility to democratize such a process. His, as well as Friere's criticism, stems from the authoritarian means of knowledge associated with the banking concept of education as was evidenced in the Scientist pedagogy. For Dutton, knowledge cannot be viewed as objective, rather it must be recognized as value-laden, context-specific and a result of social production. Dutton thus challenges his students to see themselves as social activists and their work as having the power to redress social inequities, or at least serve as agents for social change. Dutton (1991, 1996) has written extensively about his approach to the design studio. He argues that the studio is characterized by an increased recognition of social dynamics and that his studio highlights those dynamics by making them explicit. Three social objectives are promoted: democratization of the studio, shift in locus from teacher to student group, and decision by group consensus. Dutton attempts to change the nature of the studio from a solitary creative act to one revolving around small group consensus by dismantling his studio into relatively autonomous small groups of five to eight students. Critiques are altered from their typical student-teacher individual desk critique to instructor working with the group as a group. Students are expected and encouraged to take up the responsibility of critiquing each other's work. Hence, evaluation involves both faculty as well as peer evaluation. How effective these approaches are is situational in nature. Dividing students into groups, either by assignment or through volunteerism, creates unexpected group dynamics which may affect each student differently. Dutton himself illustrated one of these situational considerations when he discusses that in the consensus-building context, some students tend to dominate while others are passive. How democratic this process is then comes into question.

The instructor's role seems to be that of a collaborative investigator working with the students to arrive at new understandings of how architecture expresses cultural meaning. The students' role is that of independent collaborator, working with others in the group to arrive at mutual understanding, but then independently working to develop that understanding within their own project. The learning process is evolutionary and has a low-level of instructor control, at least as articulated. Dutton discusses a multiple source method toward evaluation, including peer review in an attempt to extend this notion of co-equals. Of course the question remains that since the instructor chooses the topic (housing), delimits the sites (the boundary condition between the central business district and a low-income neighborhood), and ultimately turns in the final evaluation, how co-equal is the relationship that is experienced?

Those pieces of literature which are specifically pedagogical in substance are addressed to the studio setting while the others are generally most applicable to the studio. However, the Social Activist pedagogy also finds advocates in support courses who perhaps include:

- Susan Moody (1997) (University of Arizona) who stresses a service learning approach to architectural programming;
- New Jersey Institute of Technology's Leslie Kanes Weisman (Bizios, 1991) who takes such an approach in both history and person-environment studies;
- Rob Pena and Will Sturges' (Bizios, 1994) technology course stressing environmental sustainability at the University of Oregon; and
- Brad Grant (1996) who takes a look at the African American experience of architecture.

There is a smattering of Social Activists throughout architectural curricula with perhaps entire programs, such as Howard University, Southern and perhaps Parsons, having the Social Activist as their espoused pedagogy.[6] Such programs have two potential difficulties: one, that a particular perspective will receive the majority of attention and obscure other perspectives which have just as much right to be heard; and two, that such programs may have such a diversity of perspectives that their community disintegrates through polarization.

The Practitioner

Often the worldview of the practitioner seems to be convoluted. Practice does not possess the clarity provided by explanatory theory within the Scientist pedagogy nor that provided by dogmatic principle for the Social Activist. Schön (1983) suggests that architects operate with two different types of theories: espoused theory and theory-in-use and that these vary per person. Because of this pluralism in the profession, it is often thought that the nature of architectural design cannot be characterized as having any shared qualities. Cuff (1991), however, concludes in her book *Architecture: The Story of Practice* that "design itself is a social process."

Practice is found by Cuff to have characteristics of social dynamism which are fundamentally dialectical in nature (i.e., Individual vs. Collective; Art vs. Management). This stress on dialectics expres-

ses that practice is essentially an unending process of negotiation. Forester (1985:14) wrote that if practice was "understood more deeply as an activity of making sense together, designing may then be situated in a social world where meaning, often multiple, ambiguous, and conflicting, is nevertheless a perpetual practical accomplishment." For the Social Activist, such a world is prime for intervention in an effort to transform those meanings. The Practitioner's world is more concerned with consensus than revolution, with identity than diversity. At times transformation may be essential, but for the Practitioner, who operates in a complex, multi-dimensional world, coming to understand the patterns which are preserved by society in order to perpetuate collective action is primary. People are seen, first and foremost, as social actors, interpreting their milieu in an effort to make their actions and the actions of others meaningful.

This emphasis on negotiation and interpretation are processes which emphasize the integration of the various parties. Thus within the Practitioner pedagogy, the student and teacher are viewed as interactively linked where knowledge is actually created as the process proceeds. This view stresses the collaborative and places the Practitioner pedagogy squarely in the Facilitator column of the matrix, which it shares with the Social Activist. Unlike the Social Activist, however, the Practitioner does not stress that which is true from or within a particular political dogma. The Practitioner does not espouse "a truth" but rather "many truths," each held by a particular shareholder in shared human experience. These realities may be in conflict, but the goal of the practitioner is to, in the Deweyan sense, "resolve" the problematic situation. Thus for the Practitioner, design does not begin with the assertion of a desired result as the Social Activist does, but rather with a focus on resolving or, in other words, on process. For the Practitioner, that knowledge which is valued is the practice of reflective practice (Schön, 1983). Schön (1987) suggests this only develops with experience and it is on the basis of experience that the status of "expert" is conferred.

The Practitioner pedagogy would need to emphasize a dialogical interaction between teacher and student. It would also need to emphasize the importance of substantive knowledge (or "know that") within the context of the process of reflective practice ("know how"). Reflective inquiry has its roots in John Dewey's approach to education as is the case study method, and it should be of no surprise that the case study is considered a primary method in the pedagogy of the Practitioner.[7] Dewey wrote that reflective inquiry is best learned when:

> *the pupil has a genuine situation of experience ... secondly, that a genuine problem develops within this situation as a stimulus to thought; third, that he (sic) possess the information and makes the observations needed to deal with it; fourth, that suggested solutions occur to him which he shall be responsible for developing in an orderly way; fifth, that he has opportunity and occasion to test his ideas by application, to make their meaning clear and to discover for himself their validity.*
>
> (Dewey quoted in Barnes, Christensen and Hansen, 1994:14)

One can see embedded in Dewey's work the core assumptions of the Practitioner (i.e., the contextual nature of knowledge, defining a problem, being driven by action, and retaining social meaning at the core). The Practitioner pedagogy addresses head-on the "two faces" of knowledge implicitly assumed to be required of architects. Procedural knowledge is viewed as meaningless without an informed substantive base while substantive knowledge remains impotent without the procedural knowledge which directs action-taking. Both substantive and procedural knowledge are viewed as integral to one another.

Those in architectural education who utilize the case study and all of its components as just described are not as plentiful as one may think. Beginning with the support courses, in the area of environment-behavior, Min Kantrowitz (1997) (University of New Mexico) uses case study as does her colleague Andy Pressman (1997) in practice courses. Both Max Underwood (Bizios, 1991) and Donald Watson (Bizios, 1994) use the case study in approaches to technology. Lane Duncan (Bizios, 1994) utilizes a case approach to theory and Morganthaler (1995) advocates a history course which is sympathetic to the Practitioner pedagogy. In terms of studio, those which profess a pedagogy consistent with the Practitioner pedagogy would include Dana Cuff (1989), Gabriella Goldschmidt (1989),

BOX 3. A practitioner exemplar — Martin Symes, University of Manchester.

Symes's pedagogy takes a case approach to education which focuses on developing the students' abilities to make decisions at critical points in the design process. Symes argues that the case method encourages active student participation in architectural problem-solving as it is really practiced (Symes and Marmot, 1985).

What is interesting about Symes' argument is that he offers the case approach as a supplement to the traditional curriculum, as a course solely focused on decision-making and integrating diverse information. The class method begins with the instructor distributing a package of material (the case study) to absorb before class (the exact contents of what forms a case remains ill-defined). The case stops when a decision point is reached and a problem must be addressed. Students then are asked to develop their intervention strategy. These strategies are discussed as a group and the desired outcome is for students to develop a working framework from which to understand future studies. Evaluation is not based upon the students' promoted decisions, but rather their group participation.

The case approach of Symes is a mixed-model, accepting of the need for substantive knowledge while at the same time acknowledging the context-specificity of sense-making (c.f., Cuff, 1991). The case itself is material distributed for consumption by individuals who possess an amorphously-defined knowledge base (assumingly "deposited" from other courses) that is to be drawn upon in making decisions. Concurrently, humans are seen as constructors of social reality — that there are myriad ways in which to respond to exactly the same dilemma, all of which are driven by goals and ethics in addition to "facts." Symes' case approach retains the inherent conflict of recognizing the nomothetic/idiographic disjunction while simultaneously having as a goal the development of generalizable principles.

This schizophrenia influences the role of the instructor as well. The instructor is at first — as distributor of the case — a source of authority, establishing a model of what a case is (the information and knowledge it should possess). Often times, as is illustrated in many law schools across the country, this authority comes across as intimidating and misunderstood. During class discussion, Symes maintains the instructor is a facilitator, guiding and directing students by asking questions and exploring options. Students present their solutions and discuss the bases and implications of their proposals. The instructor changes hats, from that of formal expert (in giving the case) to facilitator — guiding students in exploring options and encouraging them to develop their own criteria for making informed decisions. One of the biggest criticisms of the case approach is that often times students are made to feel uncomfortable by the process (being more demeaning than reinforcing). This often stems from instructors being unable to fully divest themselves from their role of formal authority when acting as a facilitator. Grasha (1996) indicates that multiple teaching roles create an interaction based on stress and confusion as expectations are difficult to predict with the inevitable result of the educational environment being counter-productive.

Horst Rittel (1971) and again, both Max Underwood (Bizios, 1994) and Donald Watson (1993). Martin Symes (and Marmot, 1985) suggests a case study class which needs to supplement the typical curricular structure found in architecture of studio and support courses (see Box 3).

On the surface this list appears to be quite scant, since as early as the 1930s, architectural education — a professional education — has been perceived as being based upon the case approach (Bosworth and Jones, 1932). I would suggest this is a misperception, with the typical implementation of the case study in architecture being a pale imitation at best. Schön's (1987) suggestion is that the architectural studio, with its emphasis on learning the practice of reflective inquiry by doing, be considered an exemplar of profession education is a useful starting point. Schön points out significant issues in regard to the studio method: that the instruction be dialogic; that a defect in student understanding should be viewed as a defect in instruction (reflecting co-responsibility for learning); and that the issue of stance, or of social worlds, is of utmost importance. All of these are consistent with the pedagogy of the Practitioner, but they are exactly the points on which Schön found shortcomings in his examples from architecture. Returning to a primary proposition of this paper, teaching methods have embedded within them assumptions in regard to the world and the nature of humanity in that world, and all too often in architectural education, the embedded assumptions of the pedagogy of Practice are violated. While the pedagogy of the Practitioner is that which is most often espoused in architectural design studios, it is not that pedagogy which is truly implemented.

The Cleric

Schön's (1983) effective characterization of the interaction between teacher and student as reflective of master and apprentice is insightful to the hidden assumptions of what is the most common pedagogy-in-use in architectural education. Cuff (1991:121) summarizes Schön's observations by stating that "a studio instructor acts as master to apprentices modeling appropriate behavior, values, design strategies, and thought processes." What is transacted between master and disciple is much more than

BOX 4. A cleric exemplar — Botand Bognar, University of Illinois.

Bognar's approach stems from a particular philosophical tradition — that of phenomenology. The stress in this pedagogy is for students to develop a personal understanding of experiential phenomena as holistic rather than accepting the subject-object dualism present in Rapoport's approach. Bognar proposes that architectural education should start with students exploring their own environmental experience (Bognar, 1985). Students attempt to understand the personality of each place which arises from its particularly unique and synthetic quality. Bognar points out that experience is modified by people's will and their resulting actions. He suggests that true "sense of place" involves a kind of transcendental significance, Christopher Alexander's "quality without a name" (Alexander, 1979:19).

To promote experiential awareness, Bognar developed a series of exercises for his design studio which were designed to sensitize students to the experiential qualities of places. The first exercise has the students writing an essay about a powerful place in memory. These memories are then shared to expose the diversity of experiences. The second project is designed specifically to address the issue of reductive abstraction mentioned above. For this project, the instructor distributes a site plan to the students and they must design a project to sit on that site. After they have designed the project, students are taken to the actual site to compare the experienced environment with that they imagined from the site plan. After a series of other projects involving phenomenological observation and the development of design intention and interventions, the final project is to design a home for the "eternal traveler."

The role of the instructor seems to be that of a wise mystic and students are seen as those seeking discipleship. The studio is designed to indoctrinate one into the faith and evaluation stems solely from the impressions of the critic. The world is viewed as being comprised of completely unique events, which may or may not have underlying patterns. Bognar suggests that human experience is more than the sum of discrete interactions and must come to be understood holistically through phenomenological intuition. This is a murky proposition and one that reflects this pedagogy's embracing of a mystical sort of process. What is proposed is an awakening of a transcendental self-discovery (Bognar himself links phenomenology to Zen Buddhism). Students are seen as disciples learning the phenomenological process at the knee of the master.

the substantive and procedural knowledge associated with the practice of reflective inquiry found in the Practitioner pedagogy. Rather, what is attempting to be transferred are entire modes of acting, thinking and being. The studio instructor is not simply an expert, but more of an archetype whom students attempt to model themselves after. Studios serve instructors as places of conversion: instructors expect students to cleanse themselves by suspending previously held beliefs and being open to the master's ideology.[8] What is transacted between teacher and student is mystical and transcendental, reflective of a personal model teaching style. This serves as the stimulus for the Cleric metaphor wherein human nature is seen as being transcendental: the Cleric having achieved revelation and the disciple yearning for it.

The character of the teacher-student interaction in the Cleric pedagogy is much different than that within the Social Activist or Practitioner pedagogues. In the latter two pedagogues, the student-teacher nexus is considered dialogical in nature as opposed to that found in the traditional design studio which Cuff (1991) characterizes as the master "giving" and the disciple "getting." Crysler (1995) observes that traditional studio instructors are cast as "full vessels" and students as "empty vessels" and that professional education is assumed to be a process of indoctrination. Both Cuff's and Crysler's statements are reflective of a formal characterization to the student-teacher interaction. The Cleric pedagogy rests at the intersection of the Formal and Personal styles of teaching and are best captured in Crysler's felicitous term of "indoctrination." To indoctrinate is "to teach to accept a system of thought uncritically" (American Heritage Dictionary:656). Thus the Cleric pedagogy is a polar opposite of the espoused Practitioner pedagogy which emphasizes critical engagement.

As was stated, the Cleric position is the most common pedagogy-in-use in architectural education, although typically relegated to the studio setting. In support courses, Clerics include Alberto Perez-Gomez (Bizios, 1991) and his history and theory courses; Kansas State's David Seamon's (1994) environment-behavior courses and Norman Crowe's (1986) drawing courses at Notre Dame. In terms of studio, the list is long and varied. Of those who have written or discussed their pedagogy, certainly Michael Graves (1975) and Peter Eisenman are two well known Clerics. Stories of Michael Graves being willing to serve as master to those he deems worthy have trickled out for years from Princeton. Those who have written about their teaching consistent with the Cleric pedagogy include Alan Stacell (Texas A&M) (Cappleman and Jordan, 1993),[9] Alberto Perez-Gomez (1987), John Loomis (Bizios, 1991), Karen Bermann (Bizios, 1994), and Botand Bognar (1985) of the University of Illinois - Urbana/Champaign (see Box 4).

The Hegemony of the Scientist and Cleric Pedagogues: Unlikely Bed-fellows

The pedagogues of The Scientist, The Social Activist, The Practitioner and The Cleric all exist within architectural education but to varying degrees. Each has very different assumptions regarding human nature, and this in turn manifests itself in particular classroom experiences driven by the particular teaching method of choice. But the current nature of architectural education cannot be stripped from its historical context. Embedded in architectural education since the days of apprenticeship and the atelier is the concept of education being individual in nature. Certainly the atelier had a social climate based on cohesion but this had little to do with education *per se* and more to do with the propinquity provided by groups spending long hours in small spaces. The master of the studio would impart his wisdom to each student in individualized desk-side critiques. Students are viewed as needing to be molded in such a way as to move away from the pedestrian and the tastes of pop culture and indoctrinated into bearers of the flame of high culture (c.f., Anthony, 1991). What better way to accomplish this than create a curriculum which leaves no social and temporal possibility of socialization with those outside of the sub-culture?

Crysler (1995) discusses how this issue of time and curricular restraint, typical of the old ateliers, remains fundamentally bound into the practices of architectural education today. It should be of little wonder that the Cleric pedagogy is dominant within architectural studios today — the most direct descendants of the atelier model. This has been the historical mode of architectural education which has been institutionalized over the past 150 years.

When architectural education came to be placed within the university setting however, this educational model ran counter to that associated with the sciences. The hegemonic pedagogy in the university was, and remains, the Scientist pedagogy. It was in this context that the split between practice and theory (Spreckelmeyer, *et al*., 1985), or studio and support courses (Anthony, 1991), occurred. As Groat (1993:261) characterizes the situation:

> *the studio, as the embodiment of "artistic knowledge," is frequently viewed as being in conflict with other pedagogical methods, most especially research. In other words, the non-studio courses are typically in the arena in which the empiricist or "scientific" tradition dominates ... On the other hand, studio courses most commonly embody ... a romantic vision of (a) free, autonomous, creative self.*

This condition is what was discovered in the pedagogical inquiry above, with *prima facie* evidence, that The Scientist pedagogy was hegemonic within support courses, and that The Cleric pedagogy was hegemonic within the studio setting. If we accept this structural condition as being true, then what has been the result?

Confusion in the Nature of What an Architect Is

This clear-cut split between the pedagogy of support courses and the pedagogy of studio results in students with different learning skills to potentially thrive in one part of the curriculum and struggle in another. Neither the Scientist nor the Cleric pedagogy adapts to students' learning needs; rather they are demanding of particular skills and a particular vision of those whom are capable of succeeding.[10] They share a commonality in viewing faculty as the linchpin of the instructional process who serve as gatekeepers in multiple ways: faculty parcel out nuggets of knowledge; faculty decide which applicants are "architectural" material and which are not; faculty do the evaluating of students. Instruction is viewed as a closed system with faculty at the hub. Faculty are the gatekeepers of "the truth," reflective of the pedagogues' formal styles.

Unfortunately, each pedagogy values a different type of knowledge because each operates within a different worldview. Because of this, there is no common ground on which proponents of these pedagogues can dialogue. Their spheres exist in parallel universes. Students are left with a confusing message regarding the nature of architecture: one with a split personality. Grasha (1996) suggests that the mixing of models results in conflicting assumptions of human nature creating uncertainty and

a lack of identity for students. Invariably this compels many students to feel the need to choose one over the other, and without question in the architecture community, the studio remains the "star" (e.g., Ahrentzen and Anthony, 1993). All one has to do is look at the student awards at each program or the awards given by professional journals to realize what is valued by the broader architectural community.

This perpetuation of the status quo is not hard to call into question: the architectural profession is adrift in a sea of unrest and poorly prepared to address the changing world. In the face of massive cultural, technological and economic changes, the architectural profession finds itself with an eroding client base, loss of professional turf, and a waning sense of professionalism (Fisher, 1994). As such changes occur, the reaction from academia has generally been to add curricular responses on to already crowded schedules (perhaps the latest example being CAD courses), resulting in even less potential for student reflection and curricular diversity. This, in turn, results in greater institutionalization of the pedagogues which have not prepared the architectural community to address such problems in the first place.[11] This is one of the problems with Symes' interpretation of the case approach — Symes views the case approach as embodying a new course rather than a fundamentally different pedagogy. Architectural educators must break out of the box; responses can no longer be curricular Band-Aids. A fundamental re-examination of pedagogical assumptions is critical.

TOWARD A PEDAGOGY OF PRACTICE

The Carnegie Report (Boyer and Mitgang, 1996) has called upon both practitioners and academics to become partners collaborating to develop new understanding aimed at making the health, safety, and welfare (all broadly construed) of communities better understood. The greatest difficulty to achieving this noble goal is the fundamental difference between practice and the discipline — their world views, and thus their agencies, are fundamentally different. For the most part, the academy is split between Scientist and Cleric pedagogues, both which adhere to the concept of generalizable truth, although of very different kinds. Practice conversely finds itself in the swamp of the contextual and the particular in an ever-changing world. It is these cultural, technological and economic changes which no doubt precipitated the rise in adoption of the Social Activist pedagogy. Architectural educators such as Sherry Ahrentzen and Linda Groat (1994), Thomas Dutton (1991) and Bradford Grant (1996) have illustrated how such issues as gender, socio-economic class, and race raise significant questions for the "hidden curriculum" in architectural education.[12] These leaders have brought to the forefront the notion that in architecture, "there is no physical environment that is not also a social environment, and vice-versa" (Proshansky, *et al.*, 1983:94). Practice is a social process, as Cuff said, and architects must become better versed at dialogical processes and this argues for a facilitating approach to teacher-student interaction.

With that said, these authors have also brought to light that architecture cannot be viewed from one point of view, as that perspective may obscure as much as it enlightens. Rather a repertoire of perspectives needs to be called into play in practice. This is the danger of the Social Activist pedagogy: that one perspective may receive so much attention that it obscures equally as valid points of view. The Social Activist pedagogy is dialogical but with persuasion, and perhaps in the extreme coercion, as the processes which are stressed.[13] This is because Social Activists have a fervent political agenda with a desired outcome. But as Cuff (1991:96) eloquently stated, in practice, "decisions do not derive from an overall vision of what ought to be; instead those decisions help to construct an overall vision." Architecture requires a constructive approach, one which recognizes diversity but is focused primarily on creating a sense of identity.

Opportunities and Dangers in the Swamp

If the discipline and the profession are to work together there must be some basis of agreement. Here it is argued that the discipline should critically engage the agency of practice and develop epistemological, methodological, and pedagogical stances consistent with it. Above is outlined a peda-

gogy of the Practitioner which seems to embody the same critical assumptions others have suggested practice possesses (e.g., Cuff, 1991; Gutman, 1988; Polkinghorne, 1992; Shibley and Schneekloth, 1995). The Practitioner pedagogy shares with practice the assumption that understanding of a socially-constructed world is multi-valent. This point is critical, for it suggests a democratic and consensual approach to the consideration of the other three pedagogues rather than the assertion of correctness — whether that be related to a type of knowledge or a value position — found in the pedagogues of The Scientist, The Social Activist and The Cleric. What is valued by The Practitioner is not necessarily what is "right," but what works. This is a much more murky proposition and reflects the "swamp-like" nature practice is often portrayed as possessing (e.g., Farbstein and Kantrowitz, 1991; Kernohan, 1991; Schön, 1984).

Pragmatic accommodation. This murkiness does provide opportunities for accommodation and assimilation rather than ostracism. For instance, in a curriculum with the agency of The Practitioner pedagogy, other teaching methods may be used because of the concept of equifinality found in practice — that there are myriad ways to achieve a solution. However, such methods must be used with extreme caution, for again, methods embody epistemological assumptions. Therefore curricula utilizing contradictory methods must continuously stress both the type of knowledge the overarching pedagogy values (integrated substantive and procedural knowledge) and the nature of student-teacher interactions (dynamic, socially-constructed relationship, involving multiple perspectives within a systemic world), otherwise the same incoherence in the nature of architecture cited above will continue to be the result.

Certainly the Social Activist methods can be easily accommodated, sharing the facilitating nature of the Practitioner, but the knowledge they value is different. Since, eventually, The Practitioner pedagogy states that our understandings are socially-constructed amongst multiple perspectives, illustration of such varied perspectives may make some sense. One could see several classes in a curriculum each being taught within the Social Activist pedagogy but each with a different perspective. It may also be possible that even the Scientist could have a place. Since The Practitioner calls upon substantive knowledge, in certain cases one may feel The Scientist methods may be most efficient at developing that knowledge (of course in the Practitioner pedagogy, such knowledge would not be considered complete until acted and reflected upon in reflective inquiry). Both of these possibilities require a developmental theory of learning to be adopted.[14] To illustrate, perhaps it is felt that students come into higher education enculturated in formal student-teacher interactions and that style's focus on "truth." Because of this it is felt that students must be incrementally exposed to the dynamic, negotiable and systemic world of the Practitioner. This could result in early use of Scientist methods (the most familiar for most students) to be used to disseminate substantive knowledge and Social Activist methods to provide an introduction to the facilitating student-teacher type interaction (but with the comforting notion of "what's right"). Sequences within curricula would need to balance classes between teachers using the Scientist and those espousing the Social Activist methods as eventually balance achieved by negotiating multiple aspects and perspectives is what is sought by The Practitioner pedagogy. As students move through such an incremental system, eventually the overarching pedagogy, with its related teaching styles and methods, must become internally consistent or the student will leave the system engulfed in confusion and incoherence.

Pratfalls of The Practitioner. There resonate pragmatic overtones to the Practitioner pedagogy wherein achievement of goals hold dominion over ideals. This is why ethics debates loom large in the world of practice. One could see the Social Activist — bringing the concepts of ethics and values to the fore — and the Scientist — bringing data which cannot be ignored — working in tandem to be effective counterweights to potential demons within the pedagogy of the Practitioner. Perhaps this again raises the possibility that Scientist and Social Activist methods are most appropriate in core courses, laying the foundation of multiple perspectives and systemic thinking which need to be critically engaged in advanced studies which adopt the entirety of the Practitioner pedagogy.

Probably the only pedagogy incompatible with the Practitioner is The Cleric, the former emphasizing critical inquiry and the latter, indoctrination. Yet as was mentioned, the Practitioner is the espoused

pedagogy of the studio while the Cleric is often times the pedagogy-in-use. If these are fundamentally opposed positions which, if the analysis in this paper is reasonable, they are, this incomparability between the two raises serious questions as to the pedagogical effectiveness of many studios.

There are numerous hurdles to implementing the pedagogy of the Practitioner. Institutionalized, curricular rigidities in regard to lengths of semesters, classes and the like make the facilitating Practitioner pedagogy extraordinarily difficult, due to its often time-consuming nature. The whole model of education would need to shift from parceling out knowledge to encouraging learning. The academy would need to take co-responsibility with students for learning. Evaluation would need to shift from issues of access to issues of success. Faculty would no longer be the centerpiece of education but co-equals with students and would have responsibility for creating places of learning. All of these run counter to the dominating Scientist pedagogy on which higher education's curricular structures are predicated as well as counter to the Cleric pedagogy found in the "ghost of the atelier" which haunts much of architectural education. However, if we are serious about having an educational system which prepares students for architectural practice, that system must be based on the ontological foundations found in practice. This would set the groundwork which would result in architectural design contributing to the enrichening of community life in a less serendipitous, and more critically informed fashion.

CONCLUSION

Boyer and Mitgang (1996) challenged educators and professionals to view architectural education as being "about fostering the learning habits needed for the discovery, integration, application, and sharing of knowledge over a lifetime" (p. xvi). In light of the discussion above, this can be seen as being a question with answers from multiple viewpoints. By critically engaging various teaching methods, it became possible to peel back the surface of each and reveal patterns of hidden teaching styles, reflecting important assumptions regarding what is valued and the nature of human interactions. These three items together informed a taxonomy of four identifiable pedagogies: the pedagogues of The Scientist, The Social Activist, The Practitioner and The Cleric.

Each pedagogy operates at some level within architectural education, with the Scientist hegemonic in the support courses and the Cleric dominant in the studio. Because of their predominance, many of their assumptions have become institutionalized. These assumptions are greatly at odds with those held in practice and it should be little wonder why so many professionals feel as though graduating students have neither the knowledge nor process skills necessary for architectural practice (Boyer and Mitgang, 1996). Similarly, the pedagogical differences within sections of the curriculum create an unhealthy antagonism amongst faculty, greatly constraining the dialogue necessary to enhance the community's substantive and procedural knowledge-base as well as its vision.

With such pedagogical assumptions exposed, it becomes possible to discuss intent, vision and to articulate overall purpose and specific goals (e.g., regarding evaluation, teaching method, etc.) of each. Rather than accepting the presuppositions which currently dominate our class and curriculum structures, this paper articulates a desire for the ontological underpinnings of practice to drive our system of architectural education. What architects need to know and how they will come to know it should be rooted in a world understood as being meaningful; that meaning is individually and collectively constructed, and that architecture within such a world requires a practice of reflective inquiry. This is the reality of the practitioner's world. This does not mean that the academy necessarily follows practice. On the contrary, if the academy would have the same agency as the practice they could play at the margins and actually provide leadership for the architectural community. In the current situation, practice and the discipline do not have an effective dialogue and cannot, for there is no basis of agreement.

The taxonomy of four pedagogues presented here is hoped to serve as a vehicle for students, faculty, practitioners and others to foster a dialogue regarding architectural education. We should aim to be

coherent in what we say, in what we teach and in what we practice. This is certainly not the case today and one can understand the difficulty practice and academia have in communicating if one views the dialogue ontologically — practice and academia (as institutionalized) see the world fundamentally differently. The pedagogy of the Practitioner may serve as a means to bridge this gap. Academia would need to reconsider their approach to teaching, as already discussed, but it should be clearly noted that research, and its epistemological foundation, also would need a shift in world view. Rather than conforming to the inadequacies of the traditional pedagogical structure, the professional schools should assert their own vision, their own agency, their own pedagogy.[15]

NOTES

1. The five organizations are the American Institute of Architects, the Association of Collegiate Schools of Architecture, the American Institute of Architecture Students, the National Council of Architectural Registration Boards, and the National Architectural Accrediting Board, Inc.

2. The Expert and Personal teaching styles, which embody notions of the type of knowledge which is to be transferred, parallel those argued by Tzamir and Churchman (1989).

3. These pedagogues are not meant to convey a closed system. As one identifies other types of student-teacher interactions and/or other types of transacted knowledge, the matrix could expand or shift to accommodate such discoveries. The effort here is to suggest that the teaching styles discussed by Grasha are better understood as reflecting two distinct dimensions of pedagogy which are embodied within particular teaching techniques.

4. These metaphors, like teaching styles, are not thought to be mutually exclusive nor exhaustive, rather they are presented to stimulate a different and what I believe is a more useful manner of critically engaging issues of pedagogy.

5. I suggest this because of anecdotal evidence. However, I should note that this does not appear to be the case when looking through the course syllabi volumes edited by Bizios (1991, 1994, 1998). I suggest that the reason for this is that the faculty which do submit to Bizios' publications are interested in expressing their creativity, not their following of the status quo. Thus I would still contend that in most support classes in most architecture curricula, the Scientist approach dominates.

6. Such gross typifications may be completely offbase but are based upon each program's philosophy statement in McCommon (1994).

7. As found in many other professional schools such as law, business and medicine.

8. This "cleansing" concept is important because it reifies the belief that previously held knowledge limits creativity and innovation. It also reflects a fundamental disjuncture with the possible rationale offered earlier for the Scientist model to predominate support courses. If the knowledge in support courses is viewed as limiting creativity, then why deposit such knowledge?

9. Cappleman and Jordan's (1993) book on beginning design problems is interesting to analyze pedagogically. Arguably at least 50 percent of the projects could be said to espouse the Cleric pedagogy.

10. The notion of "gate-keeping" and its incongruence with the changing face of culture is well-addressed in Ahrentzen and Anthony (1993).

11. See Crysler (1995) for an excellent discussion of the relationship between time demands and institutionalization.

12. Ahrentzen and Groat (1994) define the hidden curriculum as "those tacit values, norms and attitudes embedded in the social milieu of the course or studio which shape and determine the course content as well as the process or method of instruction and learning of that content."

13. This potential problem has been discussed by Thomas (1997).

14. Theories of learning are particularly important to one's conceptual teaching base, but were unfortunately beyond the scope of this paper. Such theories, when overlaid with the conceptual framework of Tables 2 and 3, would no doubt provide fascinating discoveries of "ray areas" currently obscured by this initial framework. Similarly, theories of truth, which were just briefly touched upon here, also deserve greater attention.

15. This is why the works of Dutton (1996), Crysler (1995), Mayo (1991), Anthony (1991), Ahrentzen and Groat (1994) are to be applauded: for their willingness to expose the buried assumptions within architectural pedagogy — "the hidden curriculum." If architectural educators are to move effectively in response to the charge of the Carnegie Report, these inductive and deductive efforts at explicating the underlying values and beliefs of our pedagogues are indeed, quite necessary.

REFERENCES

Ahrentzen S, Anthony K (1993) Sex, stars and studios: A look at gendered educational practices in architecture. *Journal of Architectural Education* 47(1):11-29.

Ahrentzen S, Groat L (1994) Uncovering the hidden curriculum in architectural education for women and minorities. Final Report to the National Endowment for the Arts.

Anthony K (1991) *Design juries on trial: The renaissance of the design studio*. New York: Van Nostrand Reinhold.

Barnes L, Christensen CR, Hansen A (1994) *Teaching and the case method* (third edition). Boston: Harvard Business School Press.

Bizios G (Ed.) (1991) *Architecture reading lists and course outlines*, Volumes 1 and 2. Chapel Hill, NC: Eno River Press.

Bizios G (Ed.) (1994) *Architecture reading lists and course outlines*, Volume 3. Chapel Hill, NC: Eno River Press.

Bizios G (Ed.) (1998) *Architecture reading lists and course outlines*, Volume 4. Chapel Hill, NC: Eno River Press.

Bognar B (1985) In D Seamon and R Mugerauer (Eds.), *Dwelling, place and environment: Towards a phenomenology of person and world*. New York: Columbia University Press.

Bosworth FH, Jones RC (1932) *A study of architectural schools*. New York: Scribner and Sons.

Boyer E, Mitgang L (1996) *Building community: A new future for architecture education and practice*. Princeton, NJ: Carnegie Foundation for the Advancement of Teaching.

Burrell G, Morgan G (1979) *Sociological paradigms and organizational analysis*. London: Heinemann Educational Books.

Buttimer A (1993) *Geography and the human spirit*. Baltimore, MD: Johns Hopkins University Press.

Cappleman O, Jordan MJ (1993) *Foundations in architecture*. New York: Van Nostrand Reinhold.

Cohen JL (1987) Architectural research in France. *Journal of Architectural Education* 40(2):10-11.

Crow ML (1980) Teaching as an interactive process. In KE Eble (Ed.), *Improving teaching styles*. San Francisco, CA: Jossey-Bass.

Crow ML (1980) Teaching as an interactive process. In KE Eble (Ed.), *Improving teaching styles*. San Francisco, CA: Jossey-Bass.Crowe N, Hurtt S (1986) Visual notes and the acquisition of architectural knowledge. *Journal of Architectural Education* 39(3):6-16.

Crysler G (1995) Critical pedagogy and architectural education. *Journal of Architectural Education* 48(4):208-21.

Cuff D (1989) The social art of design at the office and the academy. *Journal of Architectural and Planning Research* 6(3):186-203.

Cuff D (1991) *Architecture: The story of practice*. Cambridge, MA: MIT Press.

Dill W (1997) Review of building community: A new future for architectural education and practice. *Change* 29(March/April):48-53.

Dutton T (1991) The hidden curriculum and the design studio: Toward a critical studio pedagogy. In T Dutton (Ed.), *Voices in architectural education: Cultural politics and pedagogy*. New York: Bergin and Garvey.

Dutton T, Mann LH (Eds.) (1996) *Reconstructing architecture: Critical discourses and social practice*. Minneapolis: University of Minnesota Press.

Farbstein J, Kantrowitz M (1991) Design research in the swamp: Toward a new paradigm. In E Zube and GT Moore (Eds.), *Advances in environment, behavior and design*, Volume 3. New York: Plenum.

Fay B (1987) *Critical social science: Liberation and its limits*. Ithaca, NY: Cornell University Press.

Fisher T (1994) Can this profession be saved? *Progressive Architecture* 75(2):44-49.

Forester J (1985) Designing: Making sense together in practical conversations. *Journal of Architectural Education* 38(3):14-20.

Friere P (1970) *Pedagogy of the oppressed*. New York: Herder and Herder.

Goldschmidt G (1989) Problem representation versus domain of solution in architectural design teaching. *Journal of Architectural and Planning Research* 6(3):204-215.

Grant B (1996) Accommodation and resistance: The built environment and the African American experience. In T Dutton and L Hurst Mann (Eds.), *Reconstructing architecture: Critical discourses and social practice*. Minneapolis, MN: University of Minnesota Press.

Grasha A (1996) *Teaching with style.* Pittsburgh, PA: Alliance.

Graves M (1975) The Swedish connection. *Journal of Architectural Education* 29(1).

Groat L (1993) Reconceptualizing architectural education: The necessity for a culturalist paradigm. In T Donnais, T Boddy, and E Kayari (Eds.), *Architecture and culture: International research symposium proceedings.* Ottawa, Ontario: Carleton University, School of Architecture.

Guba E, Lincoln Y (1994) Competing paradigms in qualitative research. In N Denzin and Y Lincoln (Eds.), *Handbook of qualitative research*. Thousand Oaks, CA: Sage.

Gutman R (1988) *Architectural practice: A critical view*. Princeton, NJ: Princeton Architectural Press.

Kantrowitz M (1997) A case in common: Approaches in research, practice and design education. A workshop at the 28th Annual Environmental Design Research Association Conference, May. Montréal, Quebec, Canada.

Kernohan D (1991) "Einstein's theory" of environment-behavior research: A commentary on research utilization. In E Zube and GT Moore (Eds.), *Advances in environment, behavior and design*, Volume 3. New York: Plenum.

Mann Hurst L (1996) Subverting the avant-garde: Critical theory's real strategy. In T Dutton and L Hurst Mann (Eds.), *Reconstructing architecture: Critical discourses and social practice*. Minneapolis, MN: University of Minnesota Press.

Mayo J (1991) Dilemmas of architectural education in the academic political economy. In T Dutton (Ed.), *Voices in architectural education: Cultural politics and pedagogy*. New York: Bergin and Garvey.

Mayo J (1996) The manifestation of politics in architectural practice. *Journal of Architectural Education* 50(2):76-88.

McCommons R (Ed.) (1994) *Guide to architecture schools*, Fifth edition. Washington, DC: ACSA.

Moody S (1997) Architectural programming: Service learning from a diverse client base. In S Ahrentzen and J McCoy (Eds.), *Designing for diversity*. Washington, DC: ACSA.

Morganthaler H (1995) Chronology versus system: Unleashing the creative potential of architectural history. *Journal of Architectural Education* 48(4):218-226.

Neuman WL (1997) *Social research methods: Qualitative and quantitative approaches*. Needham Heights, MA: Allyn and Bacon.

Pepper S (1942) *World hypotheses*. Berkeley: University of California Press.

Perez-Gomez A (1982) Architecture as drawing. *Journal of Architectural Education* 36(2):2-7.

Perez-Gomez A (1987) Architecture as embodied knowledge. *Journal of Architectural Education* 40(2):57-58.

Polkinghorne D (1992) Postmodern epistemology of practice. In S Kvale (Ed.), *Psychology and postmodernism.* Newbury Park, CA: Sage.

Pressman A (1997) A case in common: Approaches in research, practice and design education. A workshop at the 28th Annual Environmental Design Research Association Conference, May. Montréal, Quebec, Canada.

Proshansky H, Fabian A, Kaminoft R (1983) Place-identity: Physical world socialization of the self. *Journal of Environmental Psychology* 3(1):57-83.

Rapoport A (1984) Architectural education: There is an urgent need to reduce or eliminate the dominance of the studio. *Architectural Record* 172(12):100-103.

Rapoport A (1995) On the nature of design. *Practices* 3/4:32-43.

Rapoport A (1996) Class lecture, February 6, 1996, University of Wisconsin-Milwaukee.

Rittel H (1971) Some principles for the design of an educational system for design. *Journal of Architectural Education* 25(2):16-26.

Schön D (1983) *The reflective practitioner*. New York: Basic Books.

Schön D (1984) The architectural studio as an exemplar of education for reflection-in-action. *Journal of Architectural Education* 38(1):2-9.

Schön D (1987) *Educating the reflective practitioner*. San Francisco: Jossey-Bass.

Schön D (1995) The new scholarship requires a new epistemology. *Change* November/December:27-34.

Seidel A (1981) Teaching environment and behavior: Have we reached the design studios? *Journal of Architectural Education* 34:8-13.

Schneekloth L, Shibley R (1995) *Placemaking: The art and practice of building communities*. New York: Wiley and Sons.

Sholle D (1992) Authority on the left: Critical pedagogy, postmodernism, and vital strategies. *Cultural Studies* 6(2):272-3.

Speckelmeyer K, Domer D, Carswell JW (1985) Measuring curricular orientation in architectural education. *Journal of Architectural and Planning Research* 2(2):99-114.

Symes M, Marmot A (1985) The social context of design: A case problem approach. *Journal of Architectural Education* 38(4):27-31.

Thomas B (1997) Culture, merchandise or just light entertainment? New architecture at the millennium. *Journal of Architectural Education* 50(4):254-264.

Treib M (1987) An island in the riptide toward dissolution. *Journal of Architectural Education* 40(2):78-79.

Tzamir Y, Churchman A (1989) An ethical perspective on knowledge in architectural education. *Journal of Architectural and Planning Research* 6(3):227-239.

Ward A (1996) The suppression of the social in design: Architecture as war. In T Dutton and L Hurst Mann (Eds.), *Reconstructing architecture: Critical discourses and social practice*. Minneapolis: University of Minnesota Press.

Watson D (1993) The research/design studio: A modest proposal to improve education and practice. *Proceedings of the 81st Annual ACSA Meeting.* Washington, DC: ACSA.

Additional information may be obtained by writing directly to the author at the Interdisciplinary Design Institute, Washington State University at Spokane, 668 North Riverpoint Blvd., Box B, Spokane, Washington 99202-1662, USA.

AUTOBIOGRAPHICAL SKETCH

Keith Diaz Moore is a nationally-certified architect and researcher interested in the design and performance of life care environments, particularly elderly care settings. Currently both his research and his teaching are focused on issues of critical architectural practice. As a faculty member at the Interdisciplinary Design Institute, Keith teaches graduate design and seminar courses focusing on socio-cultural issues and stresses how designers may act as advocates for social change.

Manuscript revisions completed 29 June 2000.