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Reconceptualizing Architectural Education for a More Diverse Future: Perceptions and Visions of Architectural Students

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This article argues that the field of architecture must engage diversity in two senses of the word simultaneously: both in terms of its demographic composition and in terms of the substantive domain of architecture. Increasing the participation of women and minorities in the field should also mean increasing the substantive domain of the profession, and vice versa. We substantiate this argument within the realm of architectural education through a research study involving nearly 650 students at six different architecture schools. The purpose of the study was to investigate the ways in which both the content and the form of architectural education might impede or support the progress of women and minority students. In particular, we focus on three aspects of the “hidden curriculum”: studio pedagogy; social dynamics; and ideals and expectations. We find that women and members of some ethnic groups (particularly African-Americans and Latinos) do tend to experience the social dynamics and pedagogical practices of their educational milieu differently, often more negatively, than their male or majority counterparts. Our findings also reveal that many women and minorities feel that their career goals may be mismatched with the profession as it is currently defined. To the extent that our school programs ignore the dynamics of the hidden curriculum, not only might we be turning away potentially talented students, but we might be crippling a profession that must operate in a rapidly changing cultural and economic context. In that regard, we believe that all students will benefit from a collective reassessment of architecture’s pedagogical conventions and of the definitional scope of the field.

Can this profession be saved? . . . The profession in the future will be more diverse and more fragmented than in the past.

—Thomas Fisher¹

Ultimately, only a profession that embraces diversity can be relevant to an increasingly diverse American society.

—John Morris Dixon²

IN THE FACE OF SIGNIFICANT SHIFTS IN THE GLOBAL ECONOMIC AND business climate, the architectural profession has increasingly been forced to confront the shape of its future. Thomas Fisher’s title article, “Can This Profession Be Saved?” in the February, 1994 issue of *Progressive Architecture* simply gave prominent voice to the questions many in the profession—and in architecture schools—had already been asking. Fisher’s own answer is that the profession will become more diverse in the manner and form of its practice.

Ostensibly, the second quotation—from John Dixon’s article, “A White Gentleman’s Profession?”—addresses quite a different aspect of architecture’s professional character, namely its lack of demographic diversity. His conclusion is that the profession’s membership must inevitably reflect the diversity of its client base.

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We contend that these two uses of the word diversity—one about the *substance demographic* of the professional role, the other about *demographic* composition—are in fact the two faces of the same coin. In other words, the two senses of diversity should not be conceived of as two distinct topics of conversation. Increasing the participation of women and minorities in the field should mean increasing the substantive domain of the profession and vice versa. More importantly, we believe that the future of the profession may well depend on its ability to embrace both of these aspects of diversity. In the end, diversity may mean survival for the field.

The argument that substantive and demographic diversity are inherently linked is neither new to architectural discourse nor unique to this field. For example, a report on the recent conference, “Women in the Public Sphere,” at the University of Pennsylvania, concludes that significant shifts in architectural education may prod the profession “to diversify its role and become more broadly relevant.”³ Similarly, in science and engineering, author Vivian Gornick concludes that “increasing diversity would not only create an environment where women would prosper, it would also stimulate creativity in science and engineering overall.”⁴

In this article, we intend to demonstrate the extent to which such an argument is substantiated within the realm of architectural education. The primary source of our analysis is a research study, funded by the National Endowment for the Arts, involving nearly 650 students at six different architecture schools across the United States. The purpose of the study was to investigate the ways in which both the content and form of architectural education might impede or support the progress of female and minority students. Central to this investigation is the concept of the hidden curriculum: “those unstated values, attitudes, and norms which stem tacitly from social relations of the school and classroom as well as the content of the course.”⁵ In particular, we focused on three aspects of the hidden curriculum:

1. Studio pedagogy. Virtually all architecture programs organize their curricula in terms of a “design studio as centerpoint” model, with a constellation of support courses required and/or available to augment the integrative activities assumed to take place in studio. Because of the predominating impact of studio, student experience of studio pedagogy is central to understanding their interpretations of architectural education. Given the studio tradition’s historical link to the master-apprentice model, this pedagogical format has been characterized as the “mystery-mastery” approach.⁶ The instructor has mastered the craft of architecture, yet the process by which the instructor arrives at this mastery remains a mystery. Unfortunately, this mode of teaching/learning may have a

differential impact on female and minority students; not only is the master nearly always a mister, but women may be less comfortable with a format that privileges persuasion over dialogue, and minority students may resent the Eurocentric design emphasis that “channels students into becoming custodians of the status quo.”⁷

2. Social dynamics. As we all recognize, the studio environment is a relatively unique learning and *social* environment compared to those in other disciplines and professional fields. Not only does it provide students with a designated work environment, it places them in extended one-on-one contact with faculty and in daily (and nightly) contact with a cohort of student peers. Because it often becomes an all-consuming environment, its social dynamics are likely to have a substantial impact on students’ experience of their educational milieu. Sexual harassment is an obvious example of overtly negative behavior; among undergraduates and graduate women (across fields), rates of harassment range from 31 to 61 percent.⁸ In addition, there are more diffuse aspects of social dynamics that may be experienced differentially: for example, the extent of casual conversation with faculty or other students, or a sense that there is a lack of sharing or unity among men, women, or both. Various authors have suggested that the presence of a “critical mass” of female faculty or students (and comparably for minorities) may foster a “comfort factor” that mitigates such negative dynamics,⁹ but to date, it remains unclear what compositional mix is sufficient to generate such a comfort factor.

3. Ideals and expectations. Any curriculum or pedagogical format inevitably privileges particular goals and values; it also conveys an impression, however diffuse, of future career roles. Thus, to the extent that female or minority students envision the practice of architecture as substantially different from the mainstream view promoted and maintained by school curricula, their lack of “success” in school may represent as much a clash of expectations as of a differential treatment in classes or social interaction. In contrast, a more *inclusive* curriculum content may provide students with an opportunity to see multiple points of view and to challenge Eurocentric or patriarchal orientations.¹⁰ Second, a more *flexible* curriculum structure may allow students to seek out skills compatible with their particular career aspirations.

The Context of the Study

To explore the potentially differential impact of the hidden curriculum, we selected six of the 104 accredited North American architecture schools (in 1992–1993) as sites both for the distribution of

an extensive questionnaire and for conducting focus interviews. On one level, we tried to have our sample schools proportionally reflect some of the national characteristics of professional architectural programs, specifically in terms of program type (B.Arch. and M.Arch.), institutional context (public or private), and geographic distribution. However, because we were also trying to compare different school climates and to gather an adequate number of responses from underrepresented groups (such as African-Americans), we found it necessary to draw a sample whose overall demographics are quite different from the overall National Architectural Accrediting Board (NAAB) population statistics. (See Tables 1 and 2 for a school-by-school comparison with NAAB data.)

At each school we surveyed approximately 20 percent of the students, for a total of 642 students. Although all school administrators were willing and sometimes very eager to cooperate, not all faculty and students were as obliging. Hence, the methods of distributing the questionnaires—and consequently the representativeness of the student sample—varied among institutions. At some schools, the student sample was representative in terms of class level and gender. In other schools in which a number of faculty would not participate, the sample was less representative of the full range of different types of students. Although we recognize the potential for bias in such distribution, we nevertheless felt it was important to gather material at institutions where not all faculty were receptive to the issues we were exploring.

The questionnaire itself was developed using precedents from surveys in other disciplines that addressed concerns similar to those of this study.¹¹ Hidden curriculum issues were addressed through question sets on students’ experience of their schools’ curriculum and pedagogy; social dynamics; and the students’ views on their ideal curriculum and studio pedagogy. In addition, students were asked to respond to basic demographic questions, self-assessments of their skills and abilities, and miscellaneous questions about their career goals and impressions of the profession.

In addition to the questionnaire, focus group interviews were conducted with fifteen to twenty-five students at each school. These interviews were designed to explore in considerable detail some of the issues addressed in the questionnaire, specifically the students’ visions and expectations of architecture and their perceptions of the social dynamics at their schools. The students were interviewed in same-sex groups of two to five, usually for forty-five minutes to an hour and a half.¹²

Before turning to the specific details of our analysis, we want to mention some general observations. First and most importantly, the responses to our survey questionnaire (corroborated through the

Table 1 National and Sample Demographics

School	Proportion of Students in B.S.: B.Arch.: M.Arch. Programs	Private: Public Institutions	Percentage of Women on Full-time Faculty	Percentage of Minorities on Full-time Faculty ^a	Percentage of African-American Students ^b	Percentage of Latino Students	Percentage of Asian-American Students	Percentage of Native American Students	Percentage of Internat'l Students	Percentage of Women Students
NAAB:										
104 schools	33:54:13	35:65	14 ^c	9	5	7	7	<1	7	29
Total sample	14:61:21 ^d	40:60			9	9	16	<1	6	42
School A	B.Arch.	Private	0	59	70	2	1	0	28	23
School B	B.S./M.Arch.	Private	8	4	2	4	20	1	9	47
School C	B.Arch/M.Arch.	Public	8	0	4	9	7	<1	4	23
School D	B.Arch.	Public	14	0	1	8	4	2	4	26
School E	B.S./M.Arch.	Public	25	6	3	0	6	0	3	28
School F	B.Arch.	Public	13	10	4	23	17	1	15	35

Source: NAAB, 1991 statistics.

^a Includes African-Americans, Hispanics, Asian-Americans, and Native Americans.

^b Student figures include both full-time and part-time students at all program levels.

^c If full-time and part-time faculty are included, 17 percent of architectural faculty are women, and 14 percent are minorities.

^d Three percent of students in the sample were in M.A. programs in architecture.

Table 2 Comparison of survey sample to school demographics

School	Percentage of Women	Percentage of African-American Students	Percentage of Latino Students	Percentage of Asian-American Students	Percentage of Native American Students	Percentage of International Students	Percentage of Caucasian Students*	Total number of Students in Sample (number missing race/citizen code)
School A	23	70	2	1	0	28		
Sample A	36	74	2	2	0	19	0	58 (2)
School B	47	2	4	20	1	9		
Sample B	70	5	10	36	0	5	43	73 (1)
School C	23	4	9	7	<1	4		
Sample C	36	3	8	13	0	9	86	127 (2)
School D	26	1	8	4	2	4		
Sample D	31	0	5	7	0	6	81	116 (1)
School E	28	3	0	6	0	3		
Sample E	46	1	1	19	<1	3	72	123 (5)
School F	35	4	23	17	1	15		
Sample F	41	3	22	19	<1	3	47	145 (7)

* NAAB data not available on Caucasian students.

focus interviews) indicate a high degree of consistency among the entire sample of students as well as from school to school. In other words, differences among various groups of students or from school to school tend to be a matter of degrees of opinion—not totally opposing opinions. Second, due to the relatively low percentages of minorities at five of the six schools, as well as the uneven representation of minorities across all six schools, it was problematic to draw more than suggestive analyses from the responses of the various minority groups. Third, although interesting and useful comparisons can be drawn from almost all question sets in the survey, this article

focuses primarily on the three question sets pertaining to the hidden curriculum.¹³ (See Appendix 1.)

Curricular Emphases and Studio Pedagogy

When viewed as an overall pattern, the most significant aspect of student assessments of their own program is that the school's particular characteristics predominate over gender differentiation. In other words, male and female students "read" their school's curricu-

lar emphases in similar ways, a pattern of response that was interpreted through the analytical technique of multidimensional scaling (MDS).¹⁴ (See Appendix 2.) Indeed, of the thirty-five questions included in this segment of the questionnaire, only four questions yielded noticeable gender differences.

In contrast, very clear distinctions between each school's academic environment emerged from the questionnaire data, and, these qualitative distinctions were reinforced by the material from the focus interviews. Perhaps the easiest way to introduce the nature of these distinctions is to highlight some of the most consistently perceived characteristics; initially on a school-by-school basis and then by analyzing some of the most common patterns of distinctions among groups of schools.¹⁵

School A is a historically African-American institution, with a relatively high proportion of international students, a relatively low proportion of female students, no female faculty, and more than 50 percent minority faculty.¹⁶ Although its curriculum is, compared with the other five schools in the sample, by far the most responsive to social values and diversity, its pedagogical style appears to be relatively hierarchical; for example, faculty seem to rely primarily on the jury format and appear to be directive in their teaching style. In addition, students frequently characterize their relations as competitive, sometimes lacking a sense of the overall community.

School B is a private, prestigious institution, with a relatively high proportion of female students, but few female faculty. With the exception of Asian-Americans, it has few minority students. Academically, the students rate their nonarchitecture courses as relatively more challenging than the students in the other schools sampled. Social and environmental issues appear not to play a strong role in the curriculum. However, its pedagogical milieu is relatively nonhierarchical; and students characterize their relations in studio as noncompetitive and relatively supportive of a sense of community.

School C is situated at a public institution in a major city. Although it has average proportions of female and minority students, it has few female and no minority faculty. Academically, among the six sampled schools, students are most likely to rate the nonarchitecture courses as relatively less challenging; within the program, relatively little emphasis is given to either social or environmental factors. Pedagogically, the teaching style seems to be only moderately hierarchical; however, the studio atmosphere appears to be troubled by security problems, a lack of sense of community, and a highly competitive atmosphere.

School D is situated at a public institution. Several apparent paradoxes seem to be manifested in both its demographic and peda-

gogical milieu. Given its geographic location, it is perhaps surprising that it has few Latino students or other minorities. Although it does have an average number of female students and an average number of female faculty, it has no minority faculty. Although the academic program appears to emphasize environmental issues and projects for disadvantaged clients, other aspects of social relevance seem only moderately salient. Finally, its pedagogical style appears to be the most hierarchical of the six sampled schools.

School E is also situated within a public institution; it has both a low representation of minority students and faculty and an average number of female students; however, it does have a relatively high proportion of female faculty. In terms of its academic program, it tends to fall at neither extreme on any of the measured curricular emphases. In its teaching style, this program appears both moderately hierarchical and moderately competitive. Nevertheless, among the six schools, this one seems to engender the greatest sense of community in the studio environment.

School F, also at a public institution, has a large faculty and a large student body. Overall, its student population is the most ethnically mixed of the six schools, with a relatively large proportion of international, Asian-American, and Latino students. With respect to gender, it has a relatively large proportion of female students; and although it has an average number of female faculty, a relatively high number of them are tenured. Also, in comparison to the other sampled schools—except for the historically African-American school A, it has a relatively high percentage of minority faculty. Pedagogically, the program appears to offer a relatively strong emphasis on social and environmental issues, its teaching style is relatively nonhierarchical, and the students sense a relatively low degree of competition and a relatively strong sense of community.

In addition to the very particularized pedagogical milieus that emerge from the combination of the questionnaire and focus interview material, some more generalized observations can be made about patterns that emerge among the six schools. (See again Appendix 2.)

B.Arch. versus M.Arch. Programs

One potentially intriguing aspect of our analysis is that there appears to be a relatively high degree of commonality in the pedagogical milieus of the graduate programs (namely, schools B and E and to some extent school C, which was in the process of moving from a B.Arch. to M.Arch. system). Compared with the other schools in the sample, none of these schools ranked particularly high on any of the curricular emphases—either social, environmental, technical, or client-based—in the question sets. In contrast, the B.Arch.

schools tended to emphasize one or another—though typically not all—of these issues. In other words, it appears that the B.Arch. programs in this sample are geared toward particular professional constituencies. Whether this pattern would be borne out in a larger sample of schools obviously requires further research.

Gender and Perceived Pedagogical Milieus

Another consistent pattern is the apparent relationship between schools with relatively low gender diversity (among both faculty and students) and the presence of a sense of competitiveness, lack of community, and hierarchical instruction. More specifically, schools A and D were ranked in relatively more negative terms in all three respects. School C was seen as by far the most competitive and the one with the least sense of community; on the other hand, its instructional mode was viewed as only slightly less hierarchical than school E's. This rather clear pattern of relationships between degree of gender diversity and particular aspects of pedagogical milieu is highly suggestive. Although further research would be required to generalize such a relationship beyond these schools, this pattern does preview other aspects of gender differentiation that will emerge in our discussion of social dynamics and student ideals. In any event, regardless of the degree to which lack of gender diversity may be associated with particular pedagogical patterns, the effects of these patterns are clearly felt by both male and female students.

1. Sense of community. When a studio environment functions well and in supportive ways, both male and female students are highly appreciative of it. At school E, for example, a female student observed, "Whenever you need help, the people are always willing to stop what they're doing and help." In the same vein, a male student at the same school observed, "Within our studio, I see this kind of family, maybe with your close brother or sister . . . and we're all related in one kind of common ground or goal." In contrast, the lack of perceived community at school C is palpable. In one focus group with male students, the lack of cohesiveness among students at this school was noted with dismay. One student observed, "I had some old sketches pinned up on the wall . . . and somebody . . . took this pop or whatever and poured it. It's not a great feeling to know that you can't leave your stuff out and if you don't chain your board down it will probably be thrown over the staircase the next day."

2. Competitiveness. Many students express particularly strong concerns about the negative impact of competition and the faculty's role in promoting it. For example, a female student at school C observed, "I think that students are in effect pitted against each other in competition for whatever rewards there are. . . . It's like [profes-

sors] try to set up a hierarchy among the students . . . And they think that encourages people to do more work because if there's something to shoot for they'll do it." Similarly at school A, a female student described it this way: "It's very political. . . . It's like there's an individual competitiveness going on, and then there's a group competitiveness." On the other hand, some students viewed the role of competition in a more positive vein. The sentiments voiced by a male student from school D are typical: "I think it's a healthy competition. . . . Like you have a design going and everybody's trying to compete to get the best possible design." His male friend added, "You put in so much of your time and effort into the design, and just that pride in your work translates into competition."

3. Hierarchical teaching modes. Although many students express strongly positive feelings about the relationships they develop in studio with professors, other students express deep frustration with the mastery-mystery syndrome. A female student from school C puts it this way: "I thought I had a pretty good notion of what a professional education was . . . and that's to teach you how to be a responsible decision maker. . . . Instead I was like a cross between an apprentice and a disciple. You emulate me, you take my advice without necessarily understanding it. [I'm] always feeling there's some godlike figure who will reveal to you what's going on like some great master." Similarly, a male student from school A states that he dislikes "the system of design classes where you have a design professor and you're working under his tutelage really." This student would prefer working with two to four design professors so that the student would not be molded in a particular direction by the design professor.

The Social Dynamics of Architectural Education

Student perceptions of the social dynamics at their schools were elicited in both the questionnaire and the focus interviews. In the questionnaire, question sets dealt with the following three topics: experiences of unity and sharing among gender and ethnic groups, the frequency of discriminatory remarks and behavior by students, and the experience of negative or discriminatory remarks and behavior by faculty. In addition, these issues were also raised in the focus interviews.

Based on both of these sources, the most salient pattern of social behavior is a positive one. Happily, the evidence at all six schools is that the vast majority of students report a high level of unity and sharing among students. Just as importantly, most students report that purposefully discriminatory acts are relatively in-

frequent. Indeed, in response to many of the questions, there are no obvious or significant differences between gender or ethnic groups. On the other hand, in other questions, important gender and ethnic differences do emerge; in the remainder of this section, these differences are explored, first in terms of the particularities of individual school climates, and then as they pertain to social patterns in the schools more generally.

Gender Differences and School Climate

One of the most intriguing aspects of the analysis of social dynamics is the extent to which the particularities of a program environment may exacerbate gender-based social dynamics. In general, there appears to be a strong relationship between low gender diversity among faculty and/or students and higher levels of perceived negative behavior. This conclusion emerges through a combination of data analyses, including basic percentages and ranking of questionnaire responses, multidimensional scaling, and focus interview coding. (See Appendix 3.) The particular dynamics of each school's social context can be summarized as follows.

Schools B and E—the former with a high percentage of female students and the latter with a relatively high percentage of female faculty—are the two schools with the most consistently positive responses regarding both student and faculty interactions. This does not mean, however, that these schools are devoid of negative social dynamics; in focus interviews, both male and female students described a number of troubling incidents involving both faculty and students.

School F—with a somewhat high number of female students and an average number of female faculty—represents a slightly more problematic situation. Although the frequency of negative behaviors still appears to be relatively low, male and female students are in relatively less agreement about the discriminatory nature of student and faculty behaviors than at schools B and E.

On the other hand, there are multiple indexes of problematic relations at schools A, C, and D, all of which evidence a lower level of gender diversity. Female students at each of these schools perceived a consistently higher level of discrimination in both student and faculty behavior than did their male colleagues. This pattern is corroborated not only by the focus interviews, but also in the responses to a question set on “problems in continuing one’s architectural education.” Female students at these schools also reported a higher level of concern about the lack of contact with female faculty, the lack of faculty encouragement and discriminatory actions by a particular instructor.

The social dynamics at school D are reflected in the consistently large differences in female and male perceptions of discrimi-

nation. Although focus interviews revealed some examples of negative faculty behavior, female students’ primary concerns seem to focus on relations with their male peers. Because this is a B.Arch. program, most of the male students are of undergraduate age. As one female student puts it, “There are some young men in the studio who have what I think is testosterone poisoning. . . . They will get a stranglehold on the group and use. . . . male techniques of not listening to what the women say.” Similarly, another woman observes, “I still think a lot of the male students haven’t gotten over that whole old-boy network of architecture being male-dominated.”

In contrast, female students at school C seemed to find faculty behavior relatively more problematic than student behavior. In this case, the school’s administrator was seen as setting a harassing and discriminatory tone that appeared to encourage, or at least condone, negative faculty behavior. As one student put it, “I just think in general, [he] is probably the most intimidating, harassing, sexist [administrator] you could have. He, on a regular basis, berates, chides, intimidates his students.”

Overall Gender Differences: Relations with Faculty

Among the three question sets concerning social dynamics—unity/sharing, student behavior, and faculty behavior—the highest proportion of gender differences occurred in the faculty behavior segment.¹⁷ Perhaps most significantly, the question that elicited the largest and most consistent difference concerned the women’s perception that they have to outperform male students to be taken seriously by faculty. In some cases (that is, at schools C and D), the difference between averaged male/female responses amounted to a full point on a four-point scale. Moreover, this sensibility appears to be consistent with their responses to two related questions concerning the frequency of casual conversations with faculty and their sense of intimidation when asking faculty questions. Taken together, it suggests the extent to which female students feel that they are not taken seriously by at least some faculty.

The perception that women are frequently either ignored or dismissed is more than amply demonstrated in numerous comments from the female students. In one focus group, a student at school A described how her male design professor seemed purposefully to avoid entering the studio in the area where several female students were situated, despite there being a physical obstacle to entering where the male students were. A comparable observation is made by a student at school C about trying to elicit feedback from faculty: “I think women have to be more aggressive about getting some straight answers about. . . . what kind of problems are going on with their drawings or whatever. You get this kind of ‘oh yeah,

fine, fine,' and then you might get slammed a few weeks later." Another student at school C states, "I've worked in groups where if there were two guys and two girls, the professor would . . . assume that most of the work was done by the guys when in actuality most of the work was done by the women."

Such a pattern of dismissal and devaluing leads many women to conclude that there is a tacit double standard whereby male students are perceived by some faculty as inherently more architect-like. As yet another student at school C puts it, "I've seen a very strong double standard . . . A lot of men [students] do some kind of [lousy] work and not hear a word about it . . . just kind of look the part . . . but I can't get away with that." Even in the more hospitable school climates, some male students observe inequitable treatment; a student at school E gives this example: "I've had one male instructor once that seemed biased against female students. Like they would screw up on a problem and he'd come down on them real hard, and once I screwed up and he just kind of brushed it off."

Happily, at the more hospitable schools, consistently respectful interactions are also observed. One male student at school B puts it this way: "I found that some of the questions asked by some of the women . . . are far more interesting and worthwhile . . . The professors' responses have been straight to the point." Many female students at school B seem to concur; however, some also emphasize the importance of the relatively high percentage of female students in this dynamic: "Most of my classes have been . . . majority female and so . . . there's not much opportunity for sex discrimination." Even so, one woman at school B still feels that certain kinds of faculty interaction are closed to her: "There's just a difference in the way certain men interact with men. . . . I find that . . . detrimental in that it's possible for men to build a camaraderie with a professor that I can't."

In addition, and not surprisingly, female students are far more likely than male students to experience harassing behavior or sexist comments by faculty. Although the frequency of overtly obnoxious behavior may not be high, it is nonetheless disturbing and sometimes devastating when it does occur. One student at school D experienced a particularly painful incident: "I was taken aside into [the professor's] office in the presence of a graduate student. He told me that I hadn't completed the assignment . . . that if I didn't start playing the game by his 'rules,' he was going to have me kicked out . . . I had had a history of an abusive relationship when I was younger, and it brought back all kinds of bad memories. This particular professor has a history of treating students in this manner year after year after year." A more sexually charged example is given by a student at school C: "A certain young faculty member . . . was harassing me the

way he critiqued my work. . . . I found him constantly critiquing my attire in reference to my work, and somehow my attire should equal my work or my work should equal my attire." Fortunately, the female students in the more hospitable school climates are able to dismiss some incidents as anomalies. In the context of the focus interview, a student at school E was able to consider her experience as an isolated example: "We have a teacher from [a foreign country]. . . . He favors pretty women. He touched me today. . . . I was shocked the first time he made a comment about my voice and I just—I stopped talking to him."

Overall Gender Differences: Relations among Students

In many respects, male and female students perceive the dynamics of their social behavior in similar terms. However, there are two key areas of difference. First, female students are relatively more inclined to perceive both a higher level of unity/sharing (among women as a group and among men as a group) and a lesser degree of mutual isolation among architecture students.

Second, as in the case of relations with faculty, female students are also more likely to experience perceived harassment or sexist remarks from their fellow students. This perspective is well supported by women's comments in the focus interviews. In particular, women from all schools cited numerous examples of intentionally negative behaviors on the part of their male colleagues. A student at school C gave this example: "I've seen some male students really go over the line with female students. . . . they would just lay their hands where it [sic] doesn't. . . . I mean the female would turn around and slap them around but that's it. It's kind of sad that the males would feel they can do that."

Moreover, we also observed during the focus interviews that some female students are disinclined to label less offensive behavior from their peers as harassment. Nevertheless, they will often and readily acknowledge the discomfort they feel in the male-dominated social milieu of the studio. For example, a student at school E describes this incident: "Somebody walked by me and said something like, 'hey cutie,' and this was like after a lot of these. I just turned around and said, 'my name is not cutie.' I've had a lot of experiences where you happen to get belittled because it's easy to belittle you because you're not a guy."

Racial/Ethnic Differences and School Climate

As noted earlier, the combination of relatively low percentages of minorities at five of the six schools and the uneven representation of minority groups across the six schools makes it problematic to draw firm conclusions about the level of perceived racial harmony

on a school-by-school basis. Nevertheless, at the five Caucasian-dominant schools, the combined responses of all racial groups to questions about racial harmony suggest that those schools experiencing difficulties with gender issues in social dynamics also tend to experience difficulties with ethnic issues in social dynamics. Specifically, schools B and E reflect the lowest levels of perceived disharmony, school F an intermediate level, and schools C and D the greatest disharmony.¹⁸ This general trend is also largely confirmed when the combined responses of the various minority groups are analyzed on a school-by-school basis.¹⁹ Again, schools B and E are perceived by minorities as relatively more hospitable, and schools C and D as somewhat less hospitable.

Within this context, school F (by far the most ethnically diverse school in our sample) represents a particularly intriguing example. Although the combined responses of the several minority groups suggest that the school is perceived as less hospitable than schools B and E (and more comparable to schools C and D), other analyses hint at mitigating relationships. For example, the difference between Caucasian and minority responses is the smallest among all of the five Caucasian-dominant schools. In other words, the Caucasian and minority groups appear to be experiencing and reading their social environment in similar ways. Unfortunately, there is not enough commentary on ethnic relations in the focus interviews to draw a clear picture of the social dynamics which may in fact be quite variable across different cohorts of students. On the one hand, one student comments positively about the rich diversity in the architecture studios: "I think the professors try to keep [discrimination] in check or everyone's kind of on the same level maybe 'cause there is such a diversity there." On the other hand, one African-American student comments about her sense of isolation: "It's not harassing at all. It's kind of isolating. I think that a lot of people in [design studio] have a lot of things in common that I don't have in common with them." However, she then adds, "I don't want this to come across sounding negative. . . . It's really a strong support group."

As a historically black institution, school A represents quite a different example of social dynamics. On the positive side, the overall student response suggests a high level of perceived unity and sharing, but this seems somewhat clouded by the perception that there are divisions among the almost entirely black student body along nationality or regional distinctions. One student described the social dynamics as "segregated": "I think in terms of the Caribbean faction, the American faction, and the international faction. I think our backgrounds divide us, and there really isn't any push . . . to encourage us to meld together and celebrate our differences. . . . You see people forming alliances . . . clearly along cultural and ethnic lines in this

school." Later in the interview, she applied the word *cliques* to describe this situation. Interestingly, a finer-grained analysis of the survey question responses, suggests that it is the African-Americans (U.S. citizens) who appear to be more sensitive to these social groupings than either the other minority groups or international students.

Finally, we also reviewed the response patterns of each ethnic group to the racial harmony questions across the five Caucasian-dominant schools. On this basis, it appears that the Asian-American, international, and Caucasian students tend to perceive the occurrence of racial harmony somewhat comparably, Latino students are relatively less positive, and African Americans are the least positive about the social dynamics that they encounter. Specifically, although African-American students seem to encounter overtly racist remarks very infrequently, they are much less comfortable with the more subtle social dynamics. Particularly troubling from a pedagogical perspective, a substantial number across the five Caucasian-dominant schools (43 percent) believe that students of color must outperform Caucasian students to be taken seriously, compared to a range of 6 to 15 percent for each of the other ethnic groups. These results not only seem indicative of the larger landscape of racial inequities in this country, but they underscore the basis for the extremely low representation of African-Americans in the profession generally.

Visions of Architectural Education

The largest and most consistent differences between male and female students emerge when they are asked to indicate the ideals that they hold regarding architectural education. Indeed, regardless of the influence of their current school affiliation, male and female students from all six schools seem to value the various programmatic areas rather differently. (See Appendix 4.) In addition, though harder to assess with our data base, characteristically different assessments of programmatic emphases seem also to be associated with variations in racial/ethnic background.²⁰ This is a point of great potential significance: The more consistently variations in assessments of curricular emphases are associated with gender and racial distinctions, the more difficult it will be to attract women and minorities to the field without a reconceptualization of its content and scope.

Gender Differences in Curricular and Pedagogical Ideals

In general, the most consistent differences between male and female students' visions of architectural education have to do with either social relevance and advocacy issues or with evaluative pedagogical practices. With respect to the former, female students were more

likely than male students to value the following: sociocultural and psychological concerns, environmentally responsible design and building, community design work, and design projects of social relevance or benefit to the disadvantaged. Moreover, female students placed more value on including the contributions of women and minority architects over those of “star” architects by a wide margin; in contrast, not only did the male students place comparatively less emphasis on these items, but they evaluated the relative significance of the women’s, minorities’, and “star” contributions more similarly.

With regard to pedagogical practices, the female students tended particularly to value alternatives to traditional studio pedagogy and practices that might contribute to less subjective grading. Although the majority of all students voiced support for alternatives to the jury format and were likewise disinclined to see the jury as the predominant method of evaluation, a greater proportion of women strongly supported these views. Similarly, women were more inclined to view the teacher as a facilitator and were less inclined to see him or her as a master designer. As for grading criteria, women were likewise relatively more adamant in their desire for grading criteria to be more clearly articulated and for progress and dedication to be major criteria for evaluating student work.

A third area in which some gender differentiation emerged is in the realm of traditional programmatic components. Specifically, female students tended to give greater value to both architectural history and historic preservation. Interestingly, women’s relatively greater interest in history appears to be consistent with their greater interest in architectural exemplars (whether from women, minority, or “star” architects). The comments of one female student from school B seem to give voice to such a perspective: “There’s not much study of what’s already existing. They really make you drag things out of your own head, and most of the time it isn’t there yet. It’s just a very difficult learning process.” On the other hand, in other areas of the traditional curriculum—such as studio, technology, computers, professional practice—no consistent gender patterns emerged.

Racial/Ethnic Differences in Curricular and Pedagogical Ideals

As is the case with gender differentiation, the primary areas of differentiation among the various racial/ethnic groups are social issues and pedagogical practices. With regard to social issues, African-American students tend consistently to be most concerned about including social factors both in studio projects and the curriculum as a whole. Latino and international students also tend to place relatively strong emphasis on these issues, whereas Caucasian and Asian-American students are relatively less concerned. This pattern of response is consistent across a variety of questions that asked stu-

dents to evaluate the importance of design projects of social relevance, design projects related to the disadvantaged, working closely with clients/users, sociocultural concerns, community design work, and advocacy skills. In a similar vein, but perhaps even more telling is the tendency of African-American, Latino, and international students to emphasize strongly issues of social relevance over artistic/formal expression; Asian-American students expressed slightly stronger concern for social relevance in comparison to Caucasian students, who rated the two issues equivalently.

With respect to pedagogical issues, the patterns of response are somewhat less dramatic and less consistent across the various racial/ethnic groups. Among the several groups, African-American students appear to be most consistently concerned with modifications in certain pedagogical practices, including: formal collaboration in studio, use of group reviews, progress and dedication as major criteria for evaluation, and the use of more clearly articulated criteria for student work. Asian-American students appear to be most concerned about incorporating group review processes and emphasizing the importance of progress and dedication in grading. International and Latino students express particular concern for instructors’ accepting diverse ways of thinking about design projects and for the use of formal collaboration in studio. Caucasian students seem consistently the least concerned about incorporating some of these pedagogical practices, with the exception of emphasizing clearly articulated criteria for grading.

Student Ideals for Architectural Education

Although the previous discussion outlines specific areas of gender and racial differentiation in students’ visions of architecture, the focus group interviews nevertheless revealed that many students are similarly attracted and deterred by particular aspects of architectural education. For example, two of the most frequently mentioned pleasures of the field are its interdisciplinary breadth and its potential for creative expression. In one focus interview at school E, the students’ discussion of what they most enjoy in architectural education elucidated these aspects well. The first student commented, “It’s the creative side of it [that] is the most positive part about it. It’s just really stimulating and exciting.” A second student introduced the interdisciplinary theme: “The thing I like about it is it’s so general and encompasses a wide range of disciplines, everything from math and structures to philosophy and art.” A third student followed this theme: “I feel like it can fulfill a number of areas and really use my resources to the most extent. . . . You’ve got the technical side; you’ve got the artistic side; you’ve got sociology theory type courses. It’s just really fulfilling.”

Despite the pleasures that accrue from both interdisciplinarity and creative expression, many students identified what might be considered the flip side of these two qualities. In the case of architecture's interdisciplinarity, a number of students pointed out the irony of feeling isolated from contacts with other departments and programs in their universities. As one of the students from school E put it; "[The field] is still pretty influenced within itself and that's all you focus on is architecture but it seems like it could be integrative to other disciplines." A student from school F spoke poignantly about what he senses he is missing in his college experience: "I've kind of missed the outside, like with other majors they have where you're conversing with more people more of the time instead of just sitting at your desk and working on your own project all the time." Many students see this isolation as an unfortunate but inevitable consequence of the enormous time commitment and charette mentality in studio. One student at school F described the pressure imposed by her studio professor: "He . . . lectured to us for three hours on how . . . people should be in the studio all weekend even if you don't have a project. You should live, breathe architecture." The social and competitive pressure of this time commitment is also recognized by a student from school D: "You can see everybody just working. If you see somebody sitting down at one place and not getting up, you feel like you should do the same thing, but then you can't. I just get like, I want to just kick them out, go home." Although it is certainly true that many students—male and female—are troubled by this aspect of architecture, there is some indication that female students may feel troubled by these conditions more acutely. Indeed, at five of the six sampled schools, female students were more inclined than males to agree with the questionnaire statement, "Design studios are too time-consuming."

With respect to architecture's potential for creative expression, many students voiced concern about the subjectivity with which their creative output is evaluated. One student at school C voiced her frustration this way: "[What bothers me] is the lack of clear goals of the people that are teaching you as to what they expect you to learn. They don't seem to have those goals in this school, and then of course you don't have the goal yourself. You don't have a vision yourself as to what you're out to achieve because they can't translate that to you." Not surprisingly, these comments quickly lead into a group discussion of the emphasis on negative criticism in the jury format and particularly the extent to which students feel caught between faculty arguments. The student from school C continued, "It's a very, very subjective field, and one person's opinion is different than another person's, and it depends on who respects who." A few students, including one from school

A, were ready to question the whole jury format: "A lot of times it's just open season on students. . . . You gain nothing from just totally being bombarded time and time again by negative criticism. It's not a building process." Clearly, the subjective and often negatively charged nature of architectural critiques is a problem perceived by many students, but our questionnaire data are also consistent with previous research that found gender and racial differentiation in the jury process. Specifically, Mark Paul Frederickson has documented substantial bias in both the quality and quantity of jury commentary for both female and minority students.²¹ Similarly, Kathryn Anthony reports a relatively lower level of satisfaction among women with architectural education in general and juries in particular.²²

Satisfaction with Architecture as a Discipline and Career Choice

In the end, a central question for this research is the following: To what extent does a student's experience of architectural education affect his or her commitment to architecture as a long-term career goal, and how might student satisfaction be differentially experienced by gender or racial/ethnic groups? In our questionnaire, we posed two questions regarding students' satisfaction with architecture: To what extent are you satisfied with your choice of architecture as a major or educational choice? To what extent are you satisfied with your choice of architecture as a career?

Overall, the vast majority of students are either very or somewhat satisfied with architecture as a major, but somewhat less satisfied with architecture as a career. With regard to gender differences, overall, female and male students seem to be equally as satisfied with architecture as a major, but, female students are relatively less satisfied with architecture as a career. The exception to this general pattern is that among international and Asian-American students, women are much less satisfied with architecture as both a discipline and a career than their male counterparts. This generally lower level of satisfaction among women appears to be consistent with anecdotal evidence that there is a high level of attrition of women as they move into their careers. Indeed, the results of a recent *Progressive Architecture* survey, suggests that women are more likely to consider alternative careers in college, internship, or their early years of practice, whereas men are more likely to consider alternatives after ten years in practice.²³

Our analysis of racial/ethnic patterns of satisfaction, although apparently straightforward in and of itself, suggests a more compli-

cated situation when overlaid with the gender analyses. Specifically, we find that international students appear to be most satisfied with architecture as both a major and a career choice and that Asian-Americans are the least satisfied. The other three groups—Caucasians, African-Americans, and Latinos—are relatively comparable and fall in between the other two. This pattern is further confirmed by other data that show that 49 percent of Asian-Americans and only 15 percent of international students have seriously considered another career option. At this point, however, it is difficult to assess: the reasons for the heightened satisfaction of international students and the relative displeasure of Asian-American students; and the relationship between this ethnic pattern and the substantial differences between the genders within both of these ethnic groups. Various aspects of the hidden curriculum may be influential, but we have not yet been able to examine fully these relationships due to the confounding effects of race/ethnicity and school variables.

Gender Patterns: Career Goals

In both the questionnaire and the focus interviews, we posed a number of questions relating to students' motivations for entering architecture and their future career goals. Here again, there emerged subtle but suggestive patterns of differences. Clearly, there are many factors that seem equally to motivate male and female students (for example, opportunity to be creative, opportunity for intellectual challenge), but even though all students seem not particularly concerned about fame, status/prestige, or high income, women are even less motivated by these goals than men. In addition, female students express greater interest in participating in community action, a point consistent with their higher level of concern for incorporating social issues in the curriculum. On the other hand, they express relatively less interest in creating new knowledge and doing research, a result that does not clearly relate to other gender differences.

To assess their career goals, students were asked to rate a variety of specific architecture-related career options and—in response to an open-ended question—to identify alternative careers to which they had contemplated switching. Taken together, analyses of these responses suggest that female students were relatively more inclined to consider working for an advocacy or nonprofit firm; interior design; employment in a government agency; business fields (including finance, economics, or marketing); and other specific fields, including historic preservation and programming/evaluation. An interesting synthesis of these goals is expressed by a female student from school E: "I lived in DC and hated that city so much. It was all buildings . . . and there's no people involved. . . . it's really de-

pressing seeing homeless people . . . I also saw a lot of old dilapidated buildings . . . that got me into ideas like adaptive reuse. I think that's the main thing that got me into architecture." Similarly, another woman at school E said, "I'm pretty sure I'd like to work for a private consultant. I don't know that there's always a good understanding of how building environments affect people who live in communities. . . . I think I would probably be doing more public involvement at the urban design level."

In contrast, men were relatively more likely to choose working in a small architectural practice or working alone in practice. They were also slightly less likely to contemplate career switches; when they did, the men were slightly more inclined to switch to law or theater-film-entertainment fields. The picture that emerges here is that male students are indeed relatively more inclined to pursue the "traditional" model of an architect in independent practice, whereas female students appear to express a wider range of possibilities and to be more open to alternative or less traditional architectural roles.

These differences may be due to a variety of circumstances. For one, women have traditionally been socialized to value service over control, a tendency that seems to be substantiated in another portion of our questionnaire. In the students' self-assessment of skills, women saw themselves as more cooperative, more able to understand others, and less competitive than men. Second, although some women may indeed want to "make it" in male-defined professional terms, others may seek to avoid the discrimination that they expect to find by opting for nontraditional professional roles.

Racial/Citizenship Patterns: Career Goals

The most salient differences among the racial groups' motivations for entering architecture are reflected in two broad areas of concern: financial and security incentives and social impact. With respect to financial and security issues, African-American and Caucasian students expressed very different, almost opposing, responses. More specifically, African-Americans were far more likely to consider it important or essential to choose a career with high income potential, job security, and a wide availability of jobs. The responses of the other three racial groups fell in a more variable pattern between these two extremes. Second, African-American students—and to a somewhat lesser extent Latino students—were also most likely to be motivated by the potential social impact of architecture. Specifically, they tended to express a greater desire for a career in which they could make a difference, participation in community action, the opportunity to solve important social problems and work for change, and the opportunity to help people. The themes of social relevance and potential impact on society are well represented in the

comments from a number of students at school A. In a focus interview, one student began by saying, "I think I'd like to do public buildings, housing, stuff like that. Something that can affect people, hopefully in a good way." His fellow student chimed in, "In reality, I guess I want to get in a position that's prominent enough where I can get a position in the AIA where I can have some sort of effect on the way people think about black architects. I got a real problem with people's conception of what we do or whether or not we even exist. I think I'm going to try to make some changes socially." As a black student at school F put it: "I want to make a difference and change things I saw when I grew up."

With respect to specific career paths, it appears that minority students, like women, are more inclined to consider nontraditional career paths. Almost 60 percent of Latino students and almost 50 percent of Asian-American students have considered switching to nonarchitectural careers. For the former, fine arts and business are most commonly cited as alternatives, whereas for the latter, business and engineering are most common. Although African-American students are no more likely than Caucasian students to consider career switches, their choices of architecturally related careers are less traditional. Specifically, African-American students express a greater interest in larger (rather than small) firms, private consulting, research, and employment with a government agency. When they do consider a switch from architecture, law is by far the most frequent choice; communications and engineering are comparably attractive additional alternatives. In contrast, very few international students (15 percent) express an interest in alternative career choices.²⁴

Architectural Education for a More Diverse Profession

What characteristics would make architectural programs more hospitable environments for both demographic and substantive diversity? Although there are clearly no formulas, no easy answers, we can nevertheless draw some tentative conclusions based on our recent research.

1. Critical mass and the comfort factor. Earlier, we alluded to previous research that suggests the importance of establishing a "critical mass" for mitigating the negative dynamics of sexual/racial harassment. Based on a variety of indicators, our own research suggests that this is indeed true. Among the six schools that we sampled, it appears that a critical mass of either female faculty or students (or sometimes in combination) can substantially affect the social and pedagogical environment. In our survey, the three schools that demonstrated a relatively hospitable environment for

women each had a combined female faculty/student proportion of 25 percent; those where gender bias seemed more pronounced had relatively less. Needless to say, whether the 25 percent figure would represent a consistent threshold for a larger sample of schools requires further research. Establishing a "comfort factor" for minority students remains even more problematic; given the differential distribution of minority groups in the schools that we sampled, this again requires further investigation.

2. Rethinking pedagogical practices. Our research identified a number of aspects of architectural pedagogy that concern and trouble many students—male, female, members of various ethnic groups alike. Indeed, many of these concerns—for example, the perceived subjectivity of critiques and grading or the overwhelming time commitment of studio classes—are well documented in previous research and analyses.²⁵ Our research, however, demonstrates through a variety of measures the extent to which such concerns are more acutely perceived by female and minority students. Clearly, if architectural education is to become more receptive to nontraditional students, many of its pedagogical conventions need to be reconsidered. We do not mean to suggest throwing the proverbial baby out with the bath water; but clearly we must expand our repertoire of teaching practices and become more responsive to differential learning styles. In fact, a number of architectural educators have proposed and experimented with a variety of pedagogical practices.²⁶ For example, Kathryn Anthony's book on design juries includes a full chapter on alternative models that catalogs the experiments of numerous faculty around the United States. Similarly, a recent *JAE* article by Sherry Ahrentzen and Kathryn Anthony includes specific checklists for faculty to assess the extent to which their teaching practices may be inappropriately gendered.

3. Expanding the substantive scope of the field. The extent to which the substantive scope of the field reflects the expectations and ideals of female and minority students has in the past remained relatively unexplored compared to issues of harassment and differential teaching practices. Our findings reveal, with great consistency, the extent to which many female and minority (particularly African-American) students feel that their career goals may be mismatched with the "profession" as it is currently defined in typical school curricula. In particular, female and minority students tend to place relatively more emphasis on the human side and social impact of the field. Significantly, it is precisely these interests and skills that many observers believe are the key to ensuring viability and growth in today's business and institutional climates.²⁷ To the extent that our school programs ignore this dynamic, not only might we be turning away potentially talented students and future professionals, but

we might also be crippling a profession that must operate in a rapidly changing cultural and economic context.

Looking to the Future

What steps can concerned faculty and administrators take at their institutions to promote the sort of broad-based and multifaceted changes that we are advocating? Two caveats come immediately to mind.

First and most importantly, the essential interconnectedness of the various aspects of the hidden curriculum—social dynamics, pedagogical practices, and curricular emphases—means that the process of change can and should be open to many active participants. Those who are best capable of instituting and promoting change in pedagogical practices can do so while others are actively recruiting a more diverse student population and while faculty committees are reconsidering the program's curriculum. Of course, the downside of this interconnectedness is that no one change will provide the easy fix, but then rarely are significant challenges overcome by unidimensional solutions.

Second, because each school is situated in a unique institutional context and influenced by its own regional demographics, programmatic change must follow from a careful self-assessment of the school's particular circumstances. The complex and variegated profiles of the six schools included in this study amply demonstrate the great variety of ways in which the dynamics of the hidden curriculum may be played out. Interested readers may want to match their own school against the set of school profiles presented here. That may provide a starting part for engaging the issues, but ultimately each school may want to undertake a more thorough self-assessment. Our own experience suggests that employing an array of investigative tools is extremely helpful—some to identify broad trends across the range of student groupings, and others to plumb the depths of students' perceptions, feelings, and goals. Whatever the starting point, the important thing is to actually get started.

In the end, we firmly believe that *all* students—not just women and minorities—will inevitably benefit from our collective reassessment of our pedagogical conventions and the definitional scope of our field. Even more, the future of the profession may depend on our taking on this challenge.

Acknowledgments

First and foremost, we want to acknowledge the willingness, even eagerness, of the six schools, which shall remain anonymous, to par-

ticipate in this study. The schools welcomed us, and a few were exceptionally helpful in arranging courses in which to interview and distribute our questionnaire. Talking to the more than one hundred students was a particular pleasure, and we are grateful for the time they took out of their busy schedules to reflect on their experiences and expectations of their education.

We were assisted by a number of people in the course of this project. In particular, Wendy Meister, who has worked with us on a previous study, was indispensable in conducting pilot tests, brainstorming ideas, developing coding frames, and reviewing an early draft of this article. We also appreciate both Wendy's and Linda Day's assistance in conducting interviews. Gowri Betrabet, Nathan Hanson, and Pankaj Duggal came to our aid in the coding and inputting of the data, and Gowri, Laxmi Ramasubramanian, Atiya Mahmood, Wassim Jabi, and Dina Battisto were enormously important in undertaking the statistical analyses on the computer. Dina, in particular, was also indispensable in coding the enormous volume of focus interview transcripts. We also wish to thank Bob Greenstreet for his comments on an early draft of this article.

Appendix 1

The entire eight-page questionnaire is copyrighted by Sherry Ahrentzen and Linda Groat. The three question sets that are the primary focus of this article are reproduced below.

Curricular Emphases and Studio Pedagogy

Two groups of questions queried students on their perceptions of their school's program. Students were asked to respond by using a four-point scale: quite often, somewhat frequently, only occasionally, or not at all. The first group asked the students to indicate the extent to which the following statements reflected the architectural program at their school:

In general, architecture courses are more difficult than courses in the humanities and social sciences

In general, architecture courses are more difficult than courses in the physical and natural sciences

Architecture classes (lectures, seminars) are too time-consuming. Design studios are too time-consuming

Students in design studio are too aggressive and competitive.

Architecture courses emphasize social values and/or political actions

Architecture courses emphasize environmentally responsible building and design

Architecture courses emphasize the techniques/process of building production
 Students have little input into the structure of courses (e.g., choice of projects)
 Contributions of women architects are presented and spoken about
 Contributions of architects of various ethnicities are presented and spoken about
 Contributions of "star" or prominent architects are presented and spoken about
 Architectural instruction encourages students to question prevailing views and/or to challenge alleged experts
 The second group of questions asked students to indicate the extent to which the following experiences pertained to the design studios at their school:

- Formal collaboration among students on design project
- Informal collaboration among students on design project
- Atmosphere of mutual respect among students
- Confidence that personal belongings in studio won't be ripped off
- Confidence that ideas and design in studio won't be ripped off
- Disturbing music played in studio
- Sense of community among all students in studio
- Instructors accept diverse ways of thinking about problem or design project
- Instructors encourage students' independent thinking
- Design projects emphasized issues of social relevance
- Design projects related to disadvantaged people or to different cultures
- Students worked closely with clients, prospective clients, and/or user
- An emphasis was placed on artistic expression and/or formal design
- An emphasis was placed on decision-making skills and/or rationale for design
- Faculty considered group review a better vehicle for learning than individual desk crit
- Jury was the predominant method of evaluation
- Alternatives to jury evaluation format occurred
- Self- and/or peer evaluation was used in assigning grades
- The criteria used for evaluation were clearly articulated
- Progress and dedication were the major criteria for evaluation
- The teacher acted primarily as a facilitator
- The teacher acted primarily as a master designer with students as apprentices

Social Dynamics

Three groups of questions were included under this category. In the first, students were asked to respond to a set of statements regarding their experiences in their program, using a four-point scale: strongly agree, somewhat agree, somewhat disagree, strongly disagree. The statements were:

- Architectural students relatively isolated from each other
- A great deal of unity and sharing among students of all races and nationalities
- A great deal of unity and sharing strictly along race or nationality lines
- A great deal of unity and sharing among men
- A great deal of unity and sharing among women
- A great deal of unity and sharing among men and women
- A safe climate for discussions about race
- A safe climate for discussions about gender
- A safe climate for discussions about anything bothering you

The second group asked students to indicate on a four-point scale (from "quite often" to "not at all") how often the following experiences with students had occurred in their program:

- Another student was nasty, rude, humiliating, or hostile to you
- Another student took credit for your work
- Another student made negative remarks to you about your becoming an architect or pursuing a career in architecture
- Another student sexually harassed you or made unwanted sexual advances
- Another student made sexist remarks in your presence
- Another student made racist remarks in your presence
- Another student made derogatory remarks against gays and lesbians in your presence

The third group asked students to indicate on a four-point scale (from "quite often" to "not at all") how often the following experiences with faculty had happened to them in their program:

- Casual conversations with faculty
- Feeling intimidated when asking faculty a question
- Faculty respect students
- A female student has to outperform male students to be taken seriously by faculty
- A student of color has to outperform Caucasian students to be taken seriously by faculty
- An instructor was nasty, rude, humiliating, or hostile to you
- An instructor took credit for your work
- An instructor made negative remarks to you about your becoming an architect or pursuing a career in architecture

- An instructor sexually harassed you or made unwanted sexual advances
- An instructor made sexist remarks in your presence
- An instructor made racist remarks in your presence
- An instructor made derogatory remarks against gays or lesbians in your presence
- An instructor discriminated against you

The Ideal Studio and Curriculum

Two groups of questions addressed this topic. In both, students responded using a four-point scale: "essential," "somewhat important," "minimally important," "not at all." In the first, students were asked what they would emphasize in an ideal studio:

- Formal collaboration among students on design project
- Informal collaboration among students on design project
- Instructor accepts diverse ways of thinking about problem or design project
- Instructor encourages students' independent thinking
- Design projects emphasize issues of social relevance
- Design projects related to disadvantaged people or to different cultures
- Students work closely with clients, prospective clients, and/or user
- An emphasis placed on artistic expression and/or formal design
- An emphasis placed on decision-making skills and/or rationale for design
- Faculty considers group review better vehicle for learning than individual desk crits
- Jury is the predominant method of evaluation
- Alternatives to jury evaluation format occur
- Self- and/or peer evaluation are used in assigning grades
- Criteria used for evaluation are clearly articulated
- Progress and dedication are major criteria for evaluation
- Teacher acts primarily as facilitator
- Teacher acts primarily as master designer with student as apprentice

The second group of questions asked students what they would emphasize in their ideal curriculum:

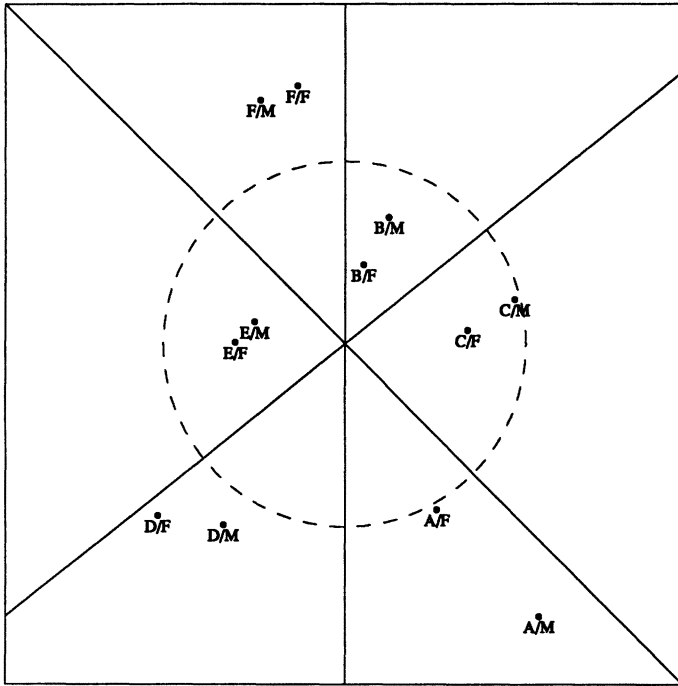
- Design studio
- Urban design and analysis
- Architectural history
- Historic preservation
- Theory and criticism
- Structures, technology, and environmental systems
- Professional practice and management

- Drawing and graphic presentation
- Computer applications (e.g., CAD)
- Sociocultural and/or psychological concerns
- Programming
- Environmentally responsible design and building
- Collaboration with students on design projects
- Community design work
- Advocacy skills
- Verbal communication and presentation skills
- Student input into structure of course (e.g., choice of topics, projects)
- Contributions of female architects are presented and spoken about
- Contributions of architects of various ethnicities are presented and spoken about
- Contributions of "star" or prominent architects are presented and spoken about
- Personal experiences of students are valued
- Disciplinary boundaries are broken down
- Students are encouraged to specialize
- Students are encouraged to question prevailing views and/or to challenge alleged experts

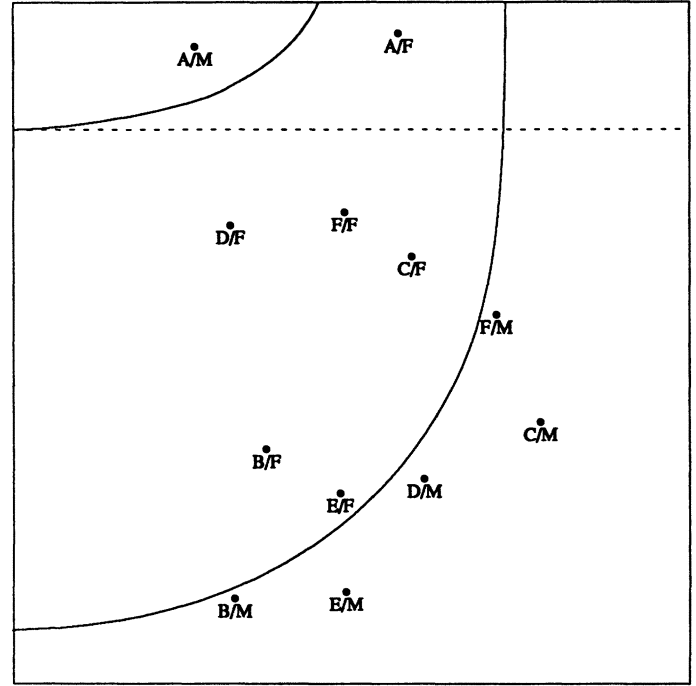
Appendix 2

When viewed as an overall pattern, male and female students have relatively similar assessments of their architectural programs; in other words, male and female students "read" their school's curricular emphases in similar ways. This response pattern is graphically illustrated by the multidimensional scaling analysis shown in Figure 1. Points in proximity represent relative similarity in assessment; conversely, points that are farther apart represent a greater dissimilarity in assessment. Radiating lines have been drawn into the plot to illustrate the clear differentiation among schools. In all cases, male and female respondents at each school are closer to one another than to respondents from the other schools.

A further interpretation of this pattern is more speculative. In general, points at the center of such plots indicate a higher degree of comparability or commonality with one another; whereas points at the periphery suggest more particularity of differentiation from the other points (schools). The clustering of several points toward the center of the plot suggests that these schools are relatively more comparable to one another. In this light, it is interesting to note that schools B and E are the graduate programs; school C is in transi-



1. Student assessments of their curricula, analyzed by school and gender. The schools (A–F) are designated by the first letter in each sequence; genders are designated by the second letter in each sequence.



2. Student assessments of social dynamics analyzed by school and gender. The schools (A–F) are designated by the first letter in each sequence; genders are designated by the second letter in each sequence.

tion to a graduate program; and the other three schools are B.Arch. programs. This pattern of relationships suggests that the undergraduate programs may be more tailored to particular or local constituencies, whereas the graduate programs are more comparable to one another.

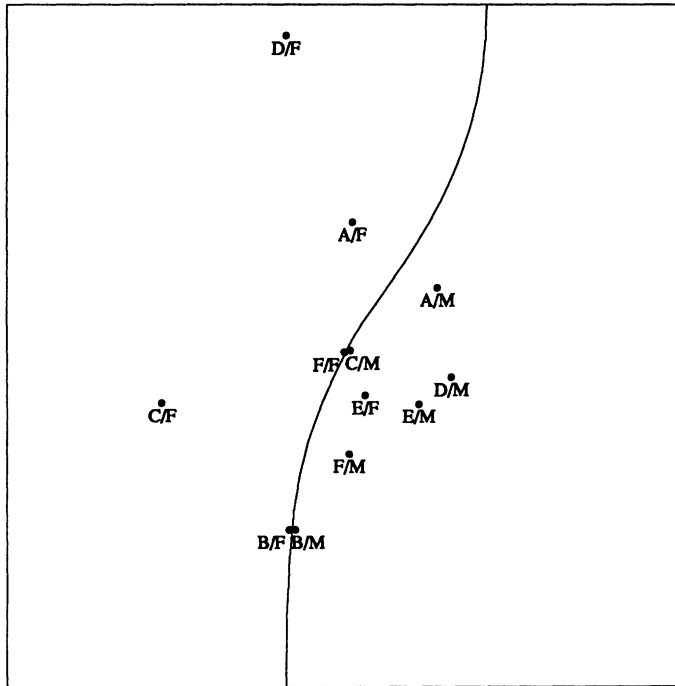
Appendix 3

Compared to their assessments of academic curricula, the students' evaluations of their schools' social dynamics evidence considerably more gender differentiation. In Figure 2, a dotted line has been drawn to highlight two somewhat overlapping zones: one predominantly female and one predominantly male. This partial regionalization suggests that the degree of gender differentiation in regard to social dynamics is somewhat variable. In one instance—that of school E's women—the regional pattern is violated; in two cases, male and female respondents straddle the two regions. Moreover, the variation in distances between male and female students'

responses for each school suggests that social dynamics at the several schools are rather different. For example, the relationships between male and female assessments are quite close for schools B (the school with by far the highest percentage of female students) and E (the school with by far the highest percentage of female faculty). In contrast, the relationships between male and female responses are quite distant for schools C and D (both of which are characterized by relatively more sexist actions and relatively low student and faculty gender diversity).

Appendix 4

In Figure 3, solid lines are drawn to demarcate the female from the male regions; a dotted line further demarcates the responses of the students from the historically black institution. That the student responses can be so distinctly differentiated along gender and ethnic lines (with no response point out of place) suggests that there is a consistently strong pattern of gender/ethnic differentiation across



3. Student assessments of their ideal academic program analyzed by school and gender. The schools (A–F) are designated by the first letter in each sequence; genders are designated by the second letter in each sequence.

all six schools. Further analyses on a school-by-school basis also tends to bear this out.

Notes

1. Thomas Fisher, "Can This Profession Be Saved?" *Progressive Architecture*, (Feb. 1994): 44–49, 84.
2. John Morris Dixon, "A White Gentleman's Profession?" *Progressive Architecture* (Nov. 1994): 54–61.
3. Abby Bussel, "Challenging Historic 'Truths,'" *Progressive Architecture*, (June 1995): 69–70.
4. Dianne Jenkins, "Changing the Culture for Women in Science and Engineering," *Women in Higher Education* 4/6 (June 1995):8.
5. Thomas A. Dutton, "The Hidden Curriculum and the Design Studio," in Thomas A. Dutton, ed. *Voices in Architectural Education* (New York: Bergin and Garvey, 1991), p. 167.
6. Chris Argyris, "Teaching and Learning in Design Settings," in Consortium of East Coast Schools of Architecture, *Architectural Education Study, vol. 1: The Papers* (New York: Andrew W. Mellon Foundation, 1981).
7. Brad Grant, "Cultural Invisibility: The African American Experience in Architectural Education," in T. Dutton, ed., *Voices in Architectural Education*, p. 151.

8. Julie Kuhn Ehrhart and Bernice R. Sandler, *Looking for More than a Few Good Women in Traditionally Male Fields* (Washington, DC: American Association of Colleges, 1987).

9. Ibid.

10. Grant, "Cultural Invisibility"; and Karen Kingsley, "Gender Issues in Teaching Architectural History," *JAE*, 41/2(Winter 1988): 21–25.

11. Jean D. Manis, et al., *An Analysis of Factors Affecting Choice of Majors in Science, Mathematics, and Engineering at the University of Michigan*, Research Report 23 (Ann Arbor: University of Michigan Center for the Education of Women, July 1989); Alexander W. Astin, William S. Korn, and Eric L. Dey, *The American Freshman: National Norms for Fall 1989* (Los Angeles: Higher Education Research Institute, 1990); and Nancy M. Hewitt and Elaine Seymour, *Factors Contributing to High Attrition Rates among Science, Mathematics, and Engineering Undergraduate Majors*, unpublished document (Boulder: Ethnography and Assessment Research, Bureau of Sociological Research, University of Colorado, 1991).

12. Because of time constraints at two schools, some student interviews were conducted on the telephone individually.

13. Additional question sets were incorporated into the questionnaire, primarily to explore potential correlations between student perceptions of the hidden curriculum and other potentially relevant characteristics and perceptions. These additional questionnaire items included basic demographic data; self-assessment of skills and career aspirations; occurrence of setbacks in pursuing an architectural education; perceptions of trends in the profession; and financial, employment, and family background.

14. Multidimensional scaling is a type of statistical analysis that is based on geometric, rather than linear, interpretations of data. In other words, the relationships among the data are represented as multidimensional, rather than unidimensional. MDS generates a spatial representation in which the distance between points reflects the relative similarity or dissimilarity among the data points (objects, respondent groups, etc.).

15. To conduct the comparative analyses of schools (for this and other question sets discussed later in the article), two techniques were typically employed. First, schools were compared on specific questions in terms of the percentage of respondents answering "quite often" or "somewhat frequently" (that is, the two higher points on the four-point scale). Second, the six schools were also ranked based on the average numerical score for each question. In the vast majority of cases, both analytical techniques yielded the same results; in other cases, only slight variations occurred.

16. Our assessment of "relatively high" and "relatively low" refers to the national average of female and minority students and faculty in architectural programs. As of 1991, 14 percent of full-time faculty were women, and 9 percent were minorities. Also, 29 percent of architectural students were women, 20 percent were American minorities, and 7 percent were international students.

17. When we assert that there are overall gender differences on a particular questionnaire item, we are basing that statement on the fact that there are differential response patterns both in the overall data (the six schools combined) and in the data from at least four of the six individual schools.

18. This question was analyzed by comparing the percentages of students at each school who responded "quite often" or "somewhat frequently" to questions about perceived racial harmony.

19. The minority groups' responses were analyzed both by percentages of students who responded "quite often" or "somewhat frequently" and by calculating numerically the average score for each question in the racial harmony set.

20. As the notations in Appendix 4 indicate, the students at school A (the

historically black institution), could be interpreted as representing a “region” distinct from the students from the Caucasian-dominant schools. Although the school A women can also be seen as grouped with the other female students, the school A men (predominantly black) are most dissimilar to (at greatest distance from) the male students at Caucasian-dominant schools. Further analysis and research is necessary to identify the nature of and basis for this difference.

21. Mark Paul Frederickson, “Gender and Racial Bias in Design Juries,” *JAE* 47/1 (Sept. 1993):39–49.

22. Kathryn Anthony, *Design Juries on Trial: The Renaissance of the Design Studio* (New York: Van Nostrand Reinhold, 1991).

23. Philip Arcidi, “Reader Poll: Alternatives to Traditional Practice,” *Progressive Architecture* (Oct. 1990):59–61.

24. We are still in the process of trying to assess why some career switches appear relatively more attractive to different ethnic groups. This entails comparing the career questions data with the students’ self-assessment of skills from another part of the questionnaire. These analyses are ongoing.

25. For example, Anthony, *Design Juries on Trial*; and Frederickson, “Gender and Racial Bias.”

26. In addition to the already cited works by Anthony, Dutton, and Frederickson, see also Sherry Ahrentzen and Kathryn Anthony, “Sex, Stars, and Studios: A Look at Gendered Educational Practices in Architecture,” *JAE* 47/1 (Sept. 1993):11–29.

27. “Leaders Must Take Risks to Assure School’s Survival,” *Women in Higher Education* 4/6 (June 1995):1–2.