

Gender and Racial Bias in Design Juries

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This study assesses the participation and interaction of various participants in the design jury process, that is, male and female jurors, male and female students, and racial minority students. Several consistently biased practices and procedures in design juries are identified and statistically examined. The findings presented here have been distilled from one portion of an ongoing comprehensive investigation of the inner workings and educational efficacy of design juries in architectural education. Initial portions of the overall research program were conducted by Mark Frederickson and Marvin Adelson at the University of California, Los Angeles. Investigation of studio education and review processes continues under Frederickson's guidance at the University of Arizona.

THROUGH THEIR USE OF THE JURY SYSTEM, DESIGN EDUCATORS IN ARCHITECTURE, landscape architecture, interior design, and several studio arts share a fundamental method of evaluating design projects and rendering feedback to students concerning their performance and abilities. The jury is a core element in many of these design curricula and a critical educational vehicle in which students verbally and graphically present their design work to an assembly of design teachers, visiting professionals, and student peers. It is a forum for building and communicating ideas.

Although intrajury communications are often flawed, I believe design juries to be rich in educational potential.¹ After witnessing and participating in design reviews that were quite wonderful in their insight and thoughtful manner of communication, it became apparent to me that these few occasions deserved careful study, especially because most juries appeared rarely to operate at, or even near, their full potential. For the past four years, Marvin Adelson and I have been investigating both the potentials and the defects of jury environments in architectural design curricula. During the conceptual stages of our research, we initiated pilot studies as a means of ethnographically exploring the subject.² Early observations indicated that many problems seemed to be linked to interpersonal communications. One portion of this study revealed particularly destructive prejudicial behavior among and between jurors and students of different gender and race—biased conduct that likely discourages many of our most intelligent female and minority students from continuing on in school and the profession.

There have been several interesting studies on studio education and the processes of designing and learning to design,³ but our initial literature review revealed little formal research on design juries except that of Kathryn Anthony. Her studies of design juries break new ground by refusing to accept the jury as sacrosanct. Although our study focuses much of its effort on the dynamics of intrajury communications, Anthony's comparisons of faculty, student, and practitioner perceptions of the efficacy of the jury were helpful in establishing the need for more research in this area.⁴ Whereas Anthony's recommen-

dations focus on developing alternative jury formats, our research concentrates on methods of facilitating interpersonal communications among jury participants. Another researcher in the field of studio education is Chris Argyris. His vignettes of intrajury dialogue in the *Architecture Education Study* began to examine conflicting agendas between jurors and students in design juries.⁵ This work supports our observations that flawed communication among participants reduces the jury's educational effectiveness. Sarah Dinham examined the jury as a teaching technique, extending Donald Schön's concept of the 'reflective practitioner' to include 'reflective jurors' as well.⁶ Dinham encourages jurors to evaluate constantly the jury process and content in addition to the student work before them. Her suggestions helped direct our thinking toward examination of jury process and content.

Although this research did not address prejudice in juries, it helped establish general directives in our research regarding intrajury communications and participation. To improve understanding of communication in design juries and the prejudicial behavior that we observed in our pilot studies, we built on prior findings in contiguous fields of study, such as small, group behavior, leadership, management, and interpersonal communications. These disciplines contributed to our understanding of gender and racial bias in significant ways.

Research on small-group behavior and intergroup discrimination identifies prejudices and biases that are operant in many task-oriented groups, describing factors that influence group productivity and group relations and that result in inequitable participation rates for different group members. Several studies suggest that female participants in small groups often do not receive a fair hearing.⁷ Many of these studies emphasize the importance of leadership as a facilitator of task-oriented group behavior and constructive teamwork toward established goals. They suggest that all participants might benefit from leadership training, and that equitable participation of group members might be encouraged by effective leaders. Leadership is described as a complex concept that cannot be categorized into a collection of personality traits.⁸ Of the juries that we observed, 97 percent had identifiable leadership. The jury leader was usually the student presenter's studio teacher. This study focused part of its attention on the process and content of jury leadership. It is a phenomenon that involves relationships that associate the personal characteristics, needs, attitudes, and intentions of the leader, jury members, and student participants with the sociopolitical characteristics and educational philosophies of the school. When these factors change, leadership style and behavior should accommodate. Different situations require different leadership qualities.

Past research on women in leadership positions indicates that in business, politics, and elsewhere, leadership has been and still is largely a male domain.⁹ Several studies on gender bias have examined

sex-linked stereotypes, and they describe assumptions of women as passive, emotional, and submissive as self-fulfilling prophecies. Although no behavioral differences are detectable, it is men who often are perceived as independent, active, and leaders by our culture. This makes it increasingly difficult for women to resist the self-fulfilling prophecy fostered by such stereotypical expectations. Research indicates that in task-oriented groups, women do not exhibit such passivity, especially when their recollections and judgments are needed.¹⁰ Women are taking their place, with men, in contributing opinions and information.

Research on male-female interaction in small groups suggests that male group members exhibit subtle forms of resistance to a dominant presence of women and that men directed more task-oriented messages and negative reactions toward women than toward other men.¹¹ Men also engage in more interaction directed toward the group, whereas women appear to restrict their interactions with men in the group, eliciting more responses from and directing more responses to other women. These findings, among others, assisted us in developing our participation and prejudice variables concerning female juror leadership and verbal participation rates in the jury. They also helped us develop our intergender interruption variables, that is, male-to-female juror and female-to-male juror.

Past studies on racial prejudice examine inequitable participation in groups by various minorities and biased behavior common to task-oriented group process and procedures. Several of these studies focus on the process of stigmatization and discuss the effect of race, physical deformity, and disability on the amount and quality of interaction and assistance received from others.¹² Research indicates that Caucasian participants have a strong tendency to conceal negative racial attitudes. These studies helped explain some juror behavior we observed toward minority students. They also assisted us in developing several racial bias variables, such as verbal participation rates for minority participants in juries and frequency of interruptions of minority participants.

Our post-jury questionnaires suggest that experience with bias in previous juries can cause participants to raise defenses before entering their next juries. Research in interpersonal communications examines the possible negative effects an overly biased or judgmental environment might have on learning and on an individual's openness to new experiences. This body of work defines and discusses the concepts of vulnerability, anxiety, threat, defensiveness, and incongruity in a way that allows us to identify these phenomena in our videotape protocol studies of juries. A large portion of this work is devoted to methods of enhancing communications through more effective listening techniques.¹³ Many studies in interpersonal communications are organized around methods of simplifying the working parts of face-

to-face communication. They break down the complexities of talk into easily recognized elements, that is, listening, questioning, reflection, advisement, interruptions, and disclosures.¹⁴ They describe many explicit and implicit ways in which we communicate with one another and help us recognize and anticipate impediments to effective communication. Research suggests specific ways of modifying undesirable behavior and mastering desirable methods of communication.

Methodology

The overall research project, of which this study on gender bias is one part, employs a multimodal (eclectic) research design, using ethnographic observation and survey data to generate post-factum hypotheses. Methods of observation included (1) videotape protocol studies of 112 juries across three U.S. design schools (these studies indicate that many different variables—interruptions, opinion polarization, idea building, advisement, questioning, jury kinesics and proxemics, sexual and racial bias, verbal participation rates, and so on—can combine to create less than desirable educational results) (see Tables 1 to 8 in Appendix II), (2) a national survey of forty-seven schools of design to assess faculty and administrative opinion concerning the strengths and weaknesses of design juries and any adjustments they may have experimented with in the jury format, (3) post-jury questionnaires of students filmed in our protocol videos that discuss, among other things, the efficacy of the jury as a learning experience (results of this survey suggest that the educational merit of juries can vary considerably, ranging from worthless to exceptionally informative), (4) unstructured interviews of architectural educators and students to assist us in developing an insider's image of their experiences in design juries, including interviews with foreign faculty and students regarding contemporary design review practices abroad, and (5) analytical and historical research regarding past uses and development of design juries and the relationship of the jury system to design education and the studio.

For our initial sites, we chose juries in three different architectural programs, which will be referred to as Schools 1, 2, and 3. School 1 is located in a highly urban setting and prominent external jurors are a common occurrence. It is a graduate program with highly selected research-oriented faculty. The students are also highly selected from urban areas and other countries. At the time of our study this school had nineteen full-time (one minority and four female) and thirteen part-time faculty. School 2 is located in a midsize city and often uses local practitioners as external jurors. It is an undergraduate program. The students are drawn from both rural and urban centers, and there is a moderately demanding selection process for admission

into the professional phase of the curriculum. This school has twenty-one full-time faculty (no minorities and one woman) and eleven part-time faculty. School 3 is located in an isolated rural setting. This program uses local external jurors but has also developed an active VIP guest program. It is an undergraduate program with highly selected faculty. Students, who undergo a rigorous professional-phase selection process, are drawn largely from the surrounding rural environment. This school has eighteen full-time faculty (no minorities and no women).

This multisite procedure was employed to strengthen inferences concerning similarities viewed across all three sites because ethnography is typically weak when results are generalized across diverse populations.¹⁵ The study of design review procedures across many different schools and regional contexts may add significance to our findings. Sampling of the students and jurors within the schools was not random; it was based primarily on the participants' willingness to be filmed. This is a potential area of invalidity, but the ethical issues involved were more important than attempting to develop a truly representative sample. We could not obtain the consent of all faculty and students in all programs. We filmed all levels of the design studio, basic design through graduate-level studios. We also filmed all types of design juries: seventeen preliminary, forty design development, thirty-nine final, and sixteen thesis juries. In each school we viewed as many different combinations of faculty and students as possible, including visiting jurors.

The qualitative analysis of our videotape data indicated that certain prejudicial practices and procedures appeared to be commonplace in the design juries that we observed. We then identified seventeen low-inference descriptor variables that enabled us to measure empirically hypotheses regarding apparently biased behaviors. We organized the variables into the following two categories:

1. Time, participation, and prejudice variables: These variables measure time and verbal participation observed for jurors and student presenters, including the student's initial presentation, the total duration of each jury, the total verbal participation allowed the student in each jury, the number of female jurors per jury, and the number of male jurors per jury. Time, participation, and prejudice variables help describe specific biased and inequitable procedures and practices in design juries.¹⁶ They are described in detail in Appendix I and in Tables 4 and 7 in Appendix II.
2. Content and Process Variables: These variables help describe intrajury communication strategies and procedures employed by the participants to convey and defend their ideas, and they

help measure incidences of collaborative idea building among jurors and student, rhetorical questions, juror interruptions, and juror protectionism. Protectionism occurs when a juror, usually the student's studio teacher, speaks for or through the student to address critical remarks made by other jurors. Content and process variables describe the inner workings and educational efficacy of juries. They can significantly affect the general ambience and educational outcomes of the jury process.¹⁷ They are described in detail in Appendix I and in Tables 5 and 6 in Appendix II.

Research in design education is still in its conceptual stages, often deriving theory from diverse fields of study. Inursion into this broad subject is therefore exploratory in nature and necessarily a bit clumsy. Combined with the experimentally messy nature of human behavior, especially in the emotionally charged arenas of design juries, this suggests that a qualitative, ethnographic inquiry would be appropriate. As the data base grows, so may the opportunities for more experimental research. This inclusive approach to the subject acknowledges that study of this multifaceted subject should be comprehensive to retain the possibility of using analogies and finding correlations among the many different aspects of the topic. Ethnography directed portions of the literature review and generated the following hypotheses regarding gender and racial bias: (1) that female jurors speak less frequently and for a shorter duration than their male colleagues (see Table 1), (2) that female students are interrupted more frequently by jurors than are male students and that juries of female students are of shorter duration than those of male students (see Table 2), (3) that African American students are interrupted more frequently than average and that they receive less substantive feedback from the jurors than do other students (see Table 3).

Results and Analysis

This section summarizes our findings concerning female and racial minority participation in design juries.

Female Juror Participation

We observed that female jurors receive less than their fair share of total juror commentary and speak for a shorter duration than male jurors. When jury leadership is female, female juror commentary and duration appear to increase. These observations are verifiable through comparison of the mean rates of female and male juror verbal participation and duration (seconds of "talk time") and through comparison

of female verbal participation and duration rates with male jury leadership (see Table 1).

Analysis: Our findings demonstrated that female jurors spoke approximately 29 percent less than they “deserved” across all juries studied. They spoke 59 percent less than deserved when jury leadership was male. Among other sociopsychological factors, this imbalance may be attributed to a general atmosphere of male domination. Female jurors speak less and are interrupted more when they are in the minority. Female jurors generally remain verbally withdrawn from the proceedings, especially when they comprise less than half the membership. When they do speak, their comments are shorter in duration, 25 percent less than male jurors’ comments. This may be because their male colleagues interrupt them more often or because they have become conditioned to or intimidated by male-dominated jury environments. Of course, there are spectacular exceptions to these observations, but generally female jurors appears to participate verbally significantly less than their male counterparts. The kinesic behavior of female jurors also appears to be slightly more defensive than that of their male colleagues.¹⁸ We observed that female jurors often tend to cluster their chairs together and locate themselves farther away from the student presenters than do their male colleagues. Unlike male jurors, female juror posture is usually more rigid, and they are less likely to stand, lean toward the student presenter when speaking, or turn and address the student audience.

When the jury leader was female, female verbal participation dramatically increased 350 percent from female verbal participation under male leadership. This may have occurred for several reasons: With female leadership, female jury membership doubles on the average. Our interviews indicate that female leaders are somewhat more active in recruiting female jurors. When male-to-female juror membership ratios approach 1:1, female verbal participation appears to increase as well. Perhaps women feel more confident or willing to express themselves publicly in a less male-dominant environment. Surprisingly, the duration of female juror remarks decreased with female jury leadership. This may have occurred because female leadership was observed only in preliminary juries, and not in the more lengthy thesis juries in which commentary is traditionally more drawn out and intricate. In many schools, thesis juries are considered more prestigious and more academically significant than developmental juries or the juries of nonsenior students. None of the thesis juries observed was led by a woman

We have observed in interruption-congested juries that though they averaged 60 percent more male than female jurors, male interruptions of female jurors occurred 30 percent more often than male

interruptions of male jurors. In the five juries with equal male-female membership or in the nine juries in which women predominated, these frequencies were reversed. Dominance of one gender in the jury may be associated with discrimination of the minority gender in frequency of interruptions.¹⁹

Out of fifty-two thesis and preliminary juries and 472 jurors observed at Schools 2 and 3, no female jurors were present (a nonstudent female audience member at School 3 spoke for fourteen seconds during one jury). Our data on female participation was gathered in sixty juries filmed in School 1. Each of these had at least one female juror present (mean attendance was 1.97). School 1 has rigorously recruited both female jurors and faculty members; whereas during our observations, School 2 had one full-time female faculty member, and School 3 had none. (Since our site visits, School 2 has hired one additional female faculty member.) School 2, unlike School 3, has access to female architects and landscape architects in its metropolitan area. Although School 1’s female representation is significantly more equitable with 2:3 female-to-male jury membership ratios, the actual verbal participation of female jurors lags behind that of their male colleagues.

Female Student Participation

Observations across all three schools suggest that female students receive more interruptions to their presentations than other students and that their juries are briefer than average. Observations were tested by comparing mean interruptions and jury duration of female students with the means for all juries (see Table 2).

Analysis: Interruptions to female students’ verbal presentations were 1.4 times more numerous than the average for male students. Total jury time for female students averaged 12 percent less than total jury time for all students ($\alpha = .05$). The interruptions to the female student presentations suggest a condescending attitude toward the design efforts of female students. Less total jury time may therefore reflect this patronizing stance toward female students by the males who dominated the juries, as female students averaged only 30 percent of all juries observed. We have also observed that female students often appear more acquiescent to critical juror remarks, becoming openly defensive less frequently than the males. Female students also receive 30 percent fewer rhetorical questions than males. This may be due in part to their apparent acquiescence to direct criticism.

Across the three schools, female student participation appears mixed. Only two common cross-school trends appeared in our analysis. In all three schools, interruptions to female student presentations were dramatically higher than interruptions to male students in the

same schools (School 1 = 1.20 times more, School 2 = 1.50 times more, and School 3 = 5.35 times more interruptions to female student presentations). All three schools averaged approximately a 30:70 female to male student ratio in the juries observed.

School 3's jury performance with female students appeared consistently biased in our sample; female student presentation time was 0.73 times that of the male student average (5.05 to 6.86 minutes); female total jury time was 0.79 times the male student average; incidence of idea building in female student juries was 0.83 times that for males; female students were asked rhetorical questions 1.20 times more often; total interruptions occurred 1.27 times more often in juries of female students; and as previously mentioned, there were 5.35 times more interruptions to female student presentations. In School 3, incidence of protectionism was 0.53 times less for female students. We did not observe overt hostility between jurors and female students, but we did notice a condescending attitude, for example, lower expectations and a coddling sort of atmosphere. The female students at School 3 appeared outwardly docile during their juries. They showed little defensiveness or anger. Portions of this behavior may relate to the fact that School 3 had no female faculty at the time of our study.

The sample size for School 2 was small (N=12), although the figures were consistent with our field observations. Unlike School 3, School 2's jury environment appeared at times to be overly nurturing of the students, especially with the women. Female students received 1.10 times more total time in their juries, 1.54 times more real questions, and 0.29 times fewer total interruptions, they were protected by the jurors 0.60 times more frequently, and they received 2.25 times more rhetorical questions than did their male counterparts. School 1 was as consistently disrespectful of male students as of female ones except on two measures: Female students were protected 1.25 times more frequently than male students, and female students were asked 0.65 times fewer rhetorical questions.

Minority Participation

In 112 juries observed across three schools, we only observed one racial minority jury member. This was a male Hispanic American guest juror who attended a School 2 thesis jury. Student minority representation in our sample appears to reflect many inequities inherent in our society. Hispanic American students were underrepresented in all three schools relative to their local populations. African American students were underrepresented in Schools 2 and 3, but Asian American student representation was significantly higher than their population percentages in all three schools. The minority representation in the juries that we observed closely approximates the schoolwide figures: In School 1, 35 percent of the students we observed were minority members; in School 2, 17 percent; and in School 3, 20 percent. During our study, School 1

had the only racial minority faculty member of all three schools. It has also been most successful at recruiting a more equitable representation of the various minority groups throughout the student body.

African American Student Participation

Our observations indicate that African American students experience more interruptions to their verbal presentations and more overall interruptions during their juries than the average for all other students. We also observed that they receive less than average amounts of verbal participation time in their juries. These observations are verifiable through simple statistical analysis of the mean incidence of the above three variables (see Table 3).

Analysis: African American students were interrupted 2.9 times more than the average for all other students. Interruptions of African American students during their verbal presentations occurred 1.5 times more frequently than the average for all other students. Verbal participation time for African American students was 18 percent less than average for all other students. T-tests on the interruption means rendered these specific findings statistically insignificant ($p > .05$). Although all other mean comparisons for African American students were statistically significant according to our t-tests, the small sample size indicates that further research is needed. Our observations, survey data, interviews, and personal experience as jurors suggest that this is an authentic problem that needs further examination. We are continuing to increase our sample size of minority participants in juries.

Our observations suggest that there is a self-conscious attitude toward certain minority students. It is as if the jury is so conscious of the possibility of discrimination that they walk on eggshells. The jury seems less relaxed, although its commentary is less openly critical of the students' designs. Remarks appear to be couched in a diplomatic genre that renders them condescending and at times insipid. Jurors tend to speak in simplified terms and interrupt the students with gentle prompting. It may therefore be possible that this tense and rather unnatural atmosphere encourages more interruptions, allowing less time for students to participate in the proceedings.

Recommendations

Encouraging dialogue, motivation, and trust with students is crucial in the success of the studio and the juries. Unlike the studio, juries compress an enormous range of information and emotion into a twenty- or thirty-minute ordeal, allowing little time to develop trusting relationships. In such critical moments, it is important that jurors and educators possess a repertoire of well-established communication,

leadership, and idea-building skills, as well as knowledge of the effects of their personality and style on others.²⁰ Instruction in these skills should be part of an educator's graduate education or professional updating. We recommend that graduate schools in the design professions try devoting portions of their curricula to teacher training. This instruction might be available to both active and prospective design educators and administrators and might include seminars and course work in four areas: leadership, interpersonal communications, educational goals, and research skills. The newly developed interdisciplinary PhD program in Design and Planning Research at the University of Arizona will include just such a program for prospective design educators.

We are developing a detailed report on methods of facilitating the jury process. It is based on the findings of our overall study on design juries and discusses the development of a graduate teacher-training program in more depth.²¹ This section outlines recommendations relevant to bias in design juries.

Leadership

Research in group behavior and management shows that effective leadership enhances productivity in task-oriented groups.²² Our observations indicate this to be the case for design juries as well. Group facilitation training should be part of the training of design educators. Jury leaders would be expected to help set style, content, and purpose and to ensure more productive outcomes through the promotion of constructive juror and student behavior. Leaders should focus on the jury process, continually clarify juror and student remarks, and dispel ambiguity in the dialogue. They need to recognize defensive attitudes and encourage equitable participation. In one six-hour segment in our record, the jurors consistently interrupted the student presentations after an average of only two and one-half minutes. In another twenty-five-minute jury for a minority student, we recorded more than sixty intrajury interruptions, that is, juror-to-student, juror-to-juror, and student-to-juror. These interruptions divert the jury and create animosity and rivalry for the floor.

Leadership also can be viewed as a collective phenomenon, its efficacy depending on participation from all members in a group.²³ We might surmise, then, that the more members of a jury that are aware of and sensitive to critical leadership issues, the smoother and more efficient the jury. Although there should be a designated leader, the leader's task would be less demanding and could be less authoritarian if all participants were more sensitive and responsive to group dynamics and more practiced in facilitating group process. We believe that gender and racial bias are not always isolated individual behaviors and that schoolwide attitudes and neglect can promote or discourage prejudicial behavior. Minority groups in two schools of our study have experienced tensions with specific studio teachers (in one school

an African American group and in the other a group of female students). The issues concerned the efficacy of and possible racial and gender bias in methods of design education. Although the faculty and administration have met with these students in an attempt to improve the problems, inattentive and inactive administrative leadership failed to anticipate the problems before schoolwide action by the students. Leaders in these two schools were not active in listening and in developing trust among administration, teachers, and students.

Students and faculty can feel alienated from their counterparts and from the goals and organizational intentions of the school. Administrative leaders should learn to identify and empathize with those who have become alienated from the system and to envision and implement a mutually productive fit between them and the organization. Many management training programs address similar bias issues and should become a part of any design educator training effort. Development programs should address the complexities of intraschool politics and the individual's (student and faculty) struggle to understand and adapt his or her personal needs and skills to the organizational intentions of the school.²⁴ Our study revealed inequitable representation of minority groups as faculty and jurors. Schoolwide leadership should examine these imbalances and develop means of encouraging the participation of minority faculty, jurors, and students in our schools and our profession.

Interpersonal Communications

Gender and racial bias can encourage defensive postures toward juries. Course work in interpersonal communications should be grounded in mutually respectful approaches that emphasize the importance of listening as well as processing and presenting feedback.²⁵ Only in the kind of nonthreatening environment that such behavior helps create can students or jurors safely explore, evaluate, and incorporate new experiences into their self-concepts. As defenses fall, the truth becomes increasingly apparent, and opportunities for learning and sharing ideas can be recognized and accepted. If these messages have been sincerely communicated and our natural tendencies to judge and evaluate have been appropriately disciplined and subdued, the entire atmosphere of the jury can alter dramatically. Our observations suggest that prejudicial behavior in juries can be unconscious and habitual. Unfortunately, a potentially productive jury environment can be severely hampered by only one or two careless or thoughtless participants. The need for self-awareness and constructive feedback among our colleagues is therefore urgent.

Methods, Goals, and Accountability

Juries are a principle educational and evaluative tool for the studio classes that form the core of most design curricula. The strengths and

weaknesses of studios are reflected in student performance in the juries. Because design can be a bewildering experience, the enigmatic quality of the process often provokes intense debate concerning what constitutes good design and good designing. The lack of accountability inherent in this dialogue allows many irresponsible comments to go unchecked or unclarified and many design processes and products to go unexplained, thereby confusing students and making rational discussion difficult. We believe that as studio instruction, the design process, and methods of evaluating design become more explicit, teacher, juror, and student accountability will increase while the incidence of bias may diminish. As educational outcomes and student-teacher performance guidelines become increasingly clear, discussible, and rational, the opportunity for prejudicial behavior and the biased evaluation of the work and ideas of others may be lessened.²⁶ The opportunity for emotional, unsubstantiated, and irresponsible comments is reduced as the performance expectations of all participants draw nearer to one another.

We recommend that seminars on studio instruction examine more explicit methods of teaching, discussing, and learning design.²⁷ These seminars should encourage discussion of the organizational and generative power of design-ordering systems, rigorous methods of concept getting and form generation, studio-related criticism and theory exercises, typology studies that also discuss alternative design methodologies, analytical diagramming techniques, presentation strategies, and valuative and generative shape grammars.²⁸

Research in verbal communications emphasizes the need for thorough representation strategy development and preparation.²⁹ Ill-prepared and inexplicit student verbal presentations also cause communications problems that often escalate into juror frustration and a breakdown in intrajury communication. Fewer than 50 percent of the students surveyed felt that they had adequately prepared their verbal presentation and defense. Fewer than 50 percent outlined their presentations before the jury, and fewer than 10 percent practiced their presentation aloud. These statistics provide a dismal image of our schools' attitudes toward nonvisual design communications.

Research Skills

Design educators have been remiss in self-analysis and self-improvement.³⁰ Unlike educators in many other professions, we employ teaching methodologies that are little changed since the turn of the century. This reflects an indolent attitude, and one that may be contributing to many of the design professions' current laments. A central factor in this professional passiveness is that we have not been trained in research design and methods. Although Schön speaks at length of the value of the ad hoc research that occurs in the studio experience re-

garding both learning and teaching design, the generalizability of the results of these types of inquiry also should be of interest to the profession.³¹ Without some experimental rigor, the results of these studies become very personal and often incontestable pieces of information.

One value of research is its ability to coalesce resources (time, effort, money, minds) around a topic of concern. We believe that the research efforts of Argyris, Dinham, Schön, and Anthony, along with our own, will be helpful in encouraging the recognition of the need for this line of research. National surveys of faculty opinion, structured interviews, surveys of student opinion, protocol studies of juries and the studio, publication of hypotheses and findings—these investigative tools serve to increase professional, faculty, administration, and student awareness of a problem. Bias and prejudice have been formally studied in other fields for years. We might have suspected similar predicaments in design education, but were unable or unwilling to identify, observe, define, and analyze them. We have not been formally trained to examine our own behavior, performance, and professional effectiveness. The realization that others are having similar problems should initiate discussion of which remedies have already been experimented with and which possibilities remain untried. We may have become complacent in our ignorance.

These issues ultimately transcend the jury and the studio, and begin to reflect general attitudes toward diversity and equality in the profession. Thoughtless, egocentric, and biased conduct in juries alienates many bright and eager students, and unfortunately, it also socializes others into this same counterproductive behavior. Disrespect can be learned and carried on into the profession, and we believe that juries can be symptomatic of this misbehavior. The jury is potentially a wonderful educational tool, and it could become a vehicle for realigning our professional attitudes and methods of communication. Shall we promote and maintain conceit and exclusivity, or can we envision and develop an aggressively diverse, collaborative, and just professional body that is more reflective of the changing profile and needs of the society in which we live? I suggest that this sort of fundamental change might begin in juries and in our studios.

Acknowledgments

I would like to thank the schools that participated in our study. Their willingness to share information and openly address potentially embarrassing issue speaks well of their educational intentions and resolve toward self-improvement. I would also like to thank Dr. Marvin Adelson with the Graduate School of Architecture and Urban Planning at UCLA for his guidance throughout our study on design juries.

Appendix I

Summary and Definitions of Variables

The qualitative analysis of our videotape data indicated that certain prejudicial practices and procedures appeared to be commonplace in the design juries that we observed. We then identified seventeen low-inference descriptor variables that enabled us to measure and empirically examine our hypotheses regarding apparently biased behaviors. We have organized the variables into the following two categories:

Time, Participation, and Prejudice Variables: The following are measures of time and verbal participation observed for jurors and student presenters. They help describe specific biased procedures and practices in design juries¹⁶ (see Tables 4 and 7 in Appendix II).

Stime: The time allowed for each student's initial verbal presentation.

Tottime: The total duration of each jury observed, including the student verbal presentation.

Stalk: The total verbal participation allowed the student in each jury, including student presentation time. This figure represents the ratio of student speaking time to the total time of the jury.

Femj: The number of female jurors per jury.

Malej: The number of male jurors per jury.

Fdeserve: The ratio of speaking time taken by female jurors to their proportional representation on each jury.

$$Fdeserve = \frac{(\text{seconds of female juror talk} \div \text{seconds of male} + \text{female juror talk})}{(\text{number of female jurors} + \text{total number of jurors})}$$

Fdurat: The average duration of female juror statements in each jury observed, measured in seconds.

Mdurat: The average duration of male juror statements in each jury observed, measured in seconds.

Srace: The race of the student in each jury observed, for example, Caucasian, Hispanic American, African American, Asian American, Indian American.

Content and Process Variables: The following variables help describe intrajury communication strategies and procedures employed by the participants to convey and defend their ideas. They help describe the inner workings and educational efficacy of juries. They can significantly affect the general ambience and educational outcomes of the jury process¹⁷ (see Tables 5 and 6 in Appendix II).

Ib: The incidence of collaborative idea building among jurors and the student. In many productive juries, the idea-generating portion of this phenomenon originated from the student's initial design intentions. Ideas were then used as a springboard for more complex concepts, or were used to generate alternative proposals.

Real: The incidence of nonrhetorical questioning of the student, with interest displayed in the student's knowledge and thought processes, that is, nonfunctionally oriented questioning of the student, for example, "Please describe your decision priorities relevant to this site development scheme," versus "Why aren't your drawings all oriented to the North?"

Rhet: The incidence of rhetorical questions asked of the student by the jurors. The emphasis is placed on juror "telling" disguised as rhetorical questioning.

Isp: The number of juror interruptions to the student's initial introductory statements in each jury observed.

Its: The number of total juror interruptions of the student in each jury observed.

Itotal: The total number of interruptions that occur in each jury observed, that is, student-to-juror, juror-to-student, and juror-to-juror.

Protect: The incidence of juror "protectionism" per jury. Protectionism occurs when a juror, usually the student's studio teacher, speaks for or through the student to address critical remarks made by other jurors.

Note: Due to the variation in types of jury taped at each school, all of these variables have been translated into "value per minute" except *Stalk* which is a percentage per jury value.

Appendix II

Table I Verbal Participation of Female and Male Jurors (Mean Values)

	Duration of Female Juror Comments (Fdurat)	Duration of Male Juror Comments (Mdurat)	Female Juror Verbal Participation (Fdeserve)
All Juries (N=112)	29.10 (p<.05)	38.50 (p<.05)	.290 (p<.05)
Male led (N=70)	37.95 (p<.05)	39.21 (p<.05)	.589 (p<.05)
Female led (N=42)	25.10 (p<.05)	37.30 (p<.05)	.160 (p<.05)

Table 2 Verbal Participation and Interruptions of Female and Male Students

	Interruptions to Student Introduction (Isp)	Total Duration of Each Jury (Tottime)
All Students (N=112)	0.61 (p<.05)	19.60
Female (N=34)	0.76 (p<.05)	17.50 (p<.05)
Male (N=78)	0.54 (p<.05)	20.61 (p<.05)

Table 3 Verbal Participation and Interruptions of African American Students (Mean Values)

	<i>Student Verbal Participation (Stalk)</i>	<i>Total Interruptions of Student (Isp)</i>	<i>Interruptions to Student (Its)</i>
African American (N=007)	0.86 (p>.05 / H ₀ accepted)	4.14 (p<.05)	.423 (p<.05)
All Others (N=105)	0.59 (p>.05 / H ₀ accepted)	1.45 (p<.05)	.507 (p<.05)

Table 4 Time and Participation Variables

	<i>Mean</i>	<i>School 1</i>	<i>School 2</i>	<i>School 3</i>
Student's Initial Presentation Time (Stime)	5.8 min.	4.8	9.2	6.4
Total Duration of Each Jury (Totime)	19.6 min.	15.9	32.1	21.6
Ratio of Preceding Two Variables (Stime/totime)	.297	.300	.290	.290
Total Student Verbal Participation (Stalk)	.500	.460	.460	.570
Total No. of Jurors per Jury (Femj+Malej)	7.0 jurors	5.2	5.5	10.2

Table 5 Content Variables

	<i>Mean</i>	<i>School 1</i>	<i>School 2</i>	<i>School 3</i>
Collaborative Idea Building per Min. (Ib)	.14	.08	.10	.25
Nonrhetorical Questions per Min. (Real)	.19	.10	.14	.32
Rhetorical Questions per Min. (Rhet)	.05	.08	.02	.03

Table 6 Process Variables

	<i>Mean</i>	<i>School 1</i>	<i>School 2</i>	<i>School 3</i>
Interruptions to Student Introduction per Min. (Isp)	.03	.06	.007	.003
Total Interruptions of Student per Min. (Its)	.08	.15	.04	.02
Total Interruptions per Min. (Itotal)	.17	.31	.11	.05
Protectionism per Min. (Protect)	.04	.04	.06	.02

Table 7 Gender Participation and Prejudice Variables

	<i>Mean</i>	<i>School 1</i>	<i>School 2</i>	<i>School 3</i>
Female Jurors per Jury (Femj)	1.07	1.97	.00	.00
Male Jurors per Jury (Malej)	5.90	3.20	5.50	10.20
Female Jury Leadership (Femlead)	.375	.70	.00	.00
Female Juror Verbal Participation per Jury (Fdeserve)	-.294/jury	-.285	.00	-.021
Duration Male Juror Comments (Mdurat)	38.49 sec.	44.33	48.17	.725
Duration Female Juror Comments (Fdurat)	29.11 sec.	29.51	.00	.12

Table 8 Cross-School Data on Female Students (Femst) in the study

	<i>Mean</i>	<i>School 1</i>	<i>School 2</i>	<i>School 3</i>
Percentage of Female Students per School (% female)	.304	.333	.250	.275
Student's Initial Presentation Time (Stime)	5.8 min.	5.0	9.0	5.0
Total Duration of Each Jury (Totime)	19.6 min.	14.6	34.0	18.2
Collaborative Idea-Building per Min. (Ib)	.15	.08	.10	.22
Nonrhetorical Questions per Min. (Real)	.19	.09	.19	.35
Rhetorical Questions per Min. (Rhet)	.05	.05	.03	.04
Interruptions to Student Introduction per School (Isp)	.06	.10	.00	.03
Total Interruptions per Min. (Itotal)	.20/school	.22	.17	.17
Protectionism per Min. (Protect)	.01/school	.01	.00	.00

Table 9 Cross-School Data on Minority Groups (Srace) in the Study

	Mean	School 1	School 2	School 3
Caucasian	.73/school	.67	.83	.80
African American	.06/school	.10	.00	.03
Asian American	.20/school	.22	.17	.17
Hispanic American	.01/school	.01	.00	.00

Notes

1. Mark Paul Frederickson, "Design Juries: A Study in Lines of Communication," *JAE* 43 (2) (Winter 1990): 22–27; Mark Paul Frederickson and Marvin Adelson, national survey questionnaire concerning contemporary use of the design jury system in U.S. schools of design; conducted at seventeen schools of design in the United States and at UCLA, Graduate School of Architecture and Urban Planning (1989–90); Mark Paul Frederickson, results of a post-jury questionnaire survey circulated to students who were also videotaped; Survey interviews concerning contemporary use of the design jury system abroad, conducted at the University of California, Graduate School of Architecture and Urban Planning (1989–90); Post-jury student questionnaires; conducted at University of California, Graduate School of Architecture and Urban Planning (1989); videotape protocol study of design juries; research conducted at three U.S. universities (1989–90), tapes T18-3.

2. Mark Paul Frederickson, *Design Juries: A Study in Lines of Communication*, unpublished dissertation (University of California, Graduate School of Architecture and Urban Planning, Marvin Adelson, Committee Chair May 1991); and "Design Juries: A Study in Lines of Communication," 22–27.

3. Chris Argyris, *Reasoning, Learning and Action* (San Francisco: Jossey-Bass, 1974); Chris Argyris and Donald Schön, *Theory in Practice: Increasing Professional Effectiveness* (San Francisco: Jossey-Bass, 1974); Donald Schön, *The Design Studio* (London: RIBA Publications for RIBA Building Industry Trust, 1985); Donald Schön, "The Architecture Studio as an Exemplar of Education for Reflection in Action," *Journal of Architectural Education*, 38 (1) (Fall 1984): 2–9; Donald Schön, *Educating the Reflective Practitioner* (San Francisco: Jossey-Bass, 1987).

4. Among Kathryn Anthony's publications, see *Design Juries on Trial: The Renaissance of the Design Studio* (New York: Van Nostrand Reinhold, 1991); "Private Reactions to Public Criticism," *Journal of Architectural Education* 40 (3), (Spring 1987): 2–11; *The Influence of the Jury System on Architectural Education*, paper presented at the Southeast Regional Conference of the Association of Collegiate Schools of Architecture (ACSA), University of Puerto Rico, Oct. 1988; "Tips on How to Make Your Education and Design Juries Less Stressful," *ALIAS News*, 3 (4) (Apr. 1989); "Judging Juries: A Comparative Study of Student and Faculty Reactions to Design Juries in Architectural Education," in *Debate & Dialogue: Architectural Design & Pedagogy*, proceedings of the 77th annual meeting of the ACSA (Washington, D.C.: ACSA, 1989), pp. 3–12. Also see the research of Sarah Dinham, "Architectural Education: Is Jury Criticism a Valid Teaching Technique?" *Architectural Record* (Nov. 1986): 51–53; "Teaching as Design: Theory, Research and Implications for Design Teaching," *Design Studies*, 10 (2), (Apr. 1989): 22–26; "Architectural Education: The Possibilities for Research on Architecture Teaching," *Architectural Record* (Apr. 1987): 42–43; Sarah Dinham and F. Stritter, "Professional Education," in *Handbook of Research on Teaching*, 3d ed., ed. W. Wittrack (New York: Macmillan, 1986): 67–84.

5. Chris Argyris, "Teaching and Learning in Design Settings," Consortium of East Coast Schools of Architecture: The Papers of *Architecture Education Study*, Vol. 1 (New York: Andrew W. Mellon Foundation, (1981), pp. 551–660.

6. Sarah Dinham, "Architectural Education: Is Jury Criticism a Valuable Teaching Technique?" *Architectural Record* (November 1987) pp. 51–53; Schön, *Educating the Reflective Practitioner*.

7. W.J. Gordon, *Synectics: The Development of Creative Capacity* (New York: Harper, 1961); G. Prince, *The Practice of Creativity* (New York: Collier Books, Macmillan, 1972).

8. F. Fiedler and E. Potter, "Dynamics of Leadership Effectiveness," in H. Blumberg, P. Hare, and K. Davies, eds., *Small Groups and Social Interaction* (New York: Wiley & Sons, 1983), pp. 226–31; C. Schneier and J. Goktepe, "Issues in Emergent Leadership: The Contingency Model of Leadership, Leader Sex, and Leader Behavior," in H. Blumberg, P. Hare, and K. Davies, eds., *Small Groups and Social Interaction*, pp. 161–69; Gordon, *Synectics*; Fiedler, L. Mahar, and M. Chemers, *Improving Leadership Effectiveness: The Leadership Match Concept* (New York: Wiley & Sons, 1976).

9. E. Hollander, "Women and Leadership," in H. Blumberg, P. Hare, and K. Davies, eds., *Small Groups and Social Interaction*, pp. 187–95; Paul Hare, *Creativity in Small Groups* (Beverly Hills: Sage, 1982); S. Moscovici and G. Paicheler, "Minority or Majority Influences: Social Change, Compliance, and Conversion," in H. Blumberg, P. Hare, and K. Davies, eds., *Small Groups and Social Interaction*, pp. 64–79.

10. C. Nemeth, "Sex Differences and Decision Making in Juries," in H. Blumberg, P. Hare, and K. Davies, eds., *Small Groups and Social Interaction*, pp. 124–35.

11. E. Mabry, "Some Theoretical Implications of Female and Male Interaction in Unstructured Small Groups," *Small Group Behavior*, 20 (4), (Nov. 1989): 536–50.

12. I. Katz, "The Process of Stigmatization," in H. Blumberg, P. Hare, and K. Davies, eds., *Small Groups and Social Interaction*, pp. 34–51.

13. C. Rogers, "Personal Thoughts on Teaching and Learning," in S. Koch, ed., *Freedom to Learn: A View of What Education Might Be*, ed. (Columbus, Ohio: Merrill, 1969), pp. 56–79; C. Rogers, "Communication: Its Blocking and Its Facilitation," *Etc.: A Review of General Semantics*, Vol. 9 (Winter 1952): 83–88; Joseph Luft, *Of Human Interaction* (Palo Alto, Calif.: National Press Books, 1969); S. Culbert and J. McDonough, *Radical Management* (New York: Free Press, 1985); S. Culbert and J. McDonough, *The Invisible War* (New York: Wiley & Sons, 1980); S. Culbert and J. McDonough, *The Organization Trap* (New York: Basic Books, 1974).

14. G. Goodman and G. Esterly, *The Talk Book: The Intimate Science of Communicating in Close Relationships* (Emmaus, Pa: Rodale Press, 1988); R. Itskowitz, M. Alon, and H. Strauss, "Increasing Sensitivity in Teachers toward Pupils' Behavior by Means of Structured Sensitivity Training," *Small Group Behavior* Vol. 20:3, (1989): 302–19.

15. T. Cook and D. Campbell, *Quasi-Experimentation: Design and Analysis Issues for Field Settings* (Chicago: McNally, 1979); J. Lofland and L. Lofland, *Analyzing Social Settings* (Belmont, Calif.: Wadsworth, 1984); J. Goetz and M. LeCompte, *Ethnography and Qualitative Design in Educational Research* (San Diego: Academic Press, 1984); S. Heath, *Ways with Words* (London: Cambridge University Press, 1986).

16. Frederickson, *Design Juries: A Study in Lines of Communication*, 22–27.

17. Ibid.

18. A. Mehrabian, *Silent Messages: Implicit Communication of Emotion and Attitudes*, 2d ed. (Belmont, Calif.: Wadsworth, 1981).

19. Hollander, "Women and Leadership," 187–195; Gordon, *Synectics: The Development of Creative Capacity*.

20. W.J. McKeachie, "Implications of Cognitive Psychology for College Teaching," in *New Directions for Teaching and Learning*, ed. W.J. McKeachie (London: Jossey-Bass, 1980), pp. 11–16; J. Larkin, J. Heller, and J. Greeno, "Instruc-

tional Implications of Research on Problem Solving," in W.J. McKeachie, ed., *New Directions for Teaching and Learning* (London: Jossey-Bass Publishers, 1980), pp. 73–81; D. Norman, "What Goes on in the Mind of the Learner," in W.J. McKeachie, ed., *New Directions for Teaching and Learning*, pp. 47–54; R. Snow and P. Peterson, "Recognizing Differences in Student Aptitudes," in W.J. McKeachie, ed., *New Directions for Teaching and Learning*, pp. 26–35.

21. Mark Paul Frederickson and Marvin Adelson, "Design Juries: the Facilitation of Intra-Jury Communication" (work in progress).

22. W. Lifton, *Groups: Facilitating Individual Growth and Social Change* (New York: John Wiley & Sons, 1972); W. Lassey, "Dimensions of Leadership," in W. Lassey and R. Fernandez, eds., *Leadership and Social Change*, (La Jolla, Calif.: University Associates, 1976), pp. 10–16; D. McGregor, "An Analysis of Leadership," in Lassey and Fernandez, eds., *Leadership and Social Change*, pp. 16–25; F. Fiedler, *A Theory of Leadership Effectiveness* (New York: McGraw-Hill, 1967).

23. J. Spotts, "The Problem of Leadership: A Look at Some Recent Findings of Behavioral Science Research," in Lassey and Fernandez, eds., *Leadership and Social Change*, pp. 44–64; Culbert and McDonough, *Radical Management*; K. Blanchard and P. Hersey, *Situational Leadership Model (SL II)* (San Diego, Calif.: Center for Leadership Studies, 1988); K. Blanchard and P. Hersey, *Management of Organizational Behavior: Utilizing Human Resources*, 4th ed. (Englewood Cliffs, N. J.: Prentice Hall, 1982); R. Tannenbaum and W. Schmidt, "How to Choose a Leadership Pattern," in Lassey and Fernandez, eds., *Leadership and Social Change*, pp. 25–44; F. Fiedler, "The Trouble with Leadership Training Is That It Doesn't Train Leaders," in Lassey and Fernandez, eds., *Leadership and Social Change*, pp. 238–47.

24. Culbert and McDonough, *Radical Management*; Blanchard and Hersey, *Management of Organizational Behavior*.

25. Goodman and Esterly, *The Talk Book: The Intimate Science of Communicating in Close Relationships*; Itskowitz, Alon, and Strauss, "Increasing Sensitivity in Teachers Toward Pupils' Behavior by Means of Structured Sensitivity Training," 302–319; Culbert and McDonough, *Radical Management*; Rogers, "Personal Thoughts on Teaching and Learning" 56–79; Rogers, "Communication"; Its Blocking and Its Facilitation," 83–88; Joseph Luft, *Group Processes: An Introduction to*

Group Dynamics, 2d ed. (Palo Alto: National Press Books, 1970); Joseph Luft, unpublished material from lecture on "Johari Window" at Anderson School of Management, UCLA, spring 1990.

26. D. Krathwohl, B. Bloom, and B. Masia, *Taxonomy of Educational Objectives, Books 1 & 2* (New York: Longman, 1964); H. Taifel, "Experiments in Inter-group Discrimination," in H. Blumberg, P. Hare, and K. Davies, eds., *Small Groups and Social Interaction*, pp. 80–92.

27. Edward White, *Introduction to Architectural Programming* (Tucson, Ariz.: Architectural Media, Ltd. 1972); Edward White, *Ordering Systems: An Introduction to Architectural Design* (Tucson, Ariz.: Architectural Media, 1976); Edward White, *Presentation Strategies* (Tucson, Ariz.: Architectural Media, 1977); Dinham, "Teaching as Design: Theory, Research and Implications for Design Teaching," 22–26.

28. George Stiny, "Introduction to Shape and Shape Grammars," *Environment and Planning B*, 7 (1980): 343–351; Lionel March and George Stiny, "Spatial Systems in Architecture and Design: Some History and Logic," *Planning and Design* 12 (1985): 31–53; Terry Knight, "The Forty-one Steps," *Environment and Planning B* 8(3) (1981): 97–114.

29. J. Wallick and R. Nelson, *Making Effective Presentations* (London: Scott-Foresman., 1990) M. Keys, "Speaking on Course: Before You Speak," *Executive Communications* (Feb. 1988): 23–30; M. Keys, "Reset Your Communication Radar," *Executive Communications* (Oct. 1988):16–24; M. Keys, "Speaking on Course: Adjusting to Your Audience," *Executive Communications* (May 1988): 21–27; M. Keys, "Try Verbal Drafting for Your Next Speech," *Executive Communications* (Jan. 1988): 9–14; Mehrabian, *Silent Messages: Implicit Communication of Emotion and Attitudes*.

30. Dinham, "Architectural Education: Possibilities for Research on Architecture Teaching," 42–43; Anthony, "Private Reactions to Public Criticism," 2–11.

31. Schön, *Educating the Reflective Practitioner*; Dinham, "Teaching as Design: Theory, Research and Implications for Design Teaching," 22–26; "Architectural Education: Possibilities for Research on Architectural Teaching," 42–43; Dinham and Stritter, "Professional Education," 67–84.