

DESIGN REVIEW /
CONTINUING RESEARCH

This chapter discusses how research in design education, the studio, and the jury can be formally established and rigorously pursued. It also identifies and briefly describes a number of research designs that may be of interest to design education.

I. NEED / ESTABLISHMENT, AND PURSUIT:

Design educators have been remiss in self-analysis and self-improvement. 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, e.g., ineffectiveness as team members, inability to develop innovative professional services, professional extinction, etc. Speaking from personal experience and that of numerous colleagues, one of the central factors in this professional idleness is that we have not been trained, even peripherally, in the nature and value of empirical inquiry and research methodologies. I believe this situation further polarizes the faculties of many schools regarding technical / theoretical orientation versus the `designer'. The studio teachers most often fall into the `designer' faction, and can often feel insecure in their ignorance of methods of scientific inquiry. Their tendency can be to over-react, and

begin speaking of just 'doing and not analyzing' architecture. Although Schön speaks at length of the value of the ad hoc research that occurs in the studio experience regarding both learning and teaching design, the generalizability of the results of these types of inquiry should also be of interest to the profession.²²¹ Without some experimental rigor, the results of these studies become very personal and often incontestable pieces of information.

Schools should develop an educational goal that envisions a student profile capable of 'crossing over'; design students and prospective design educators who can communicate their observations on teaching and learning design, as well as more rigorously explore the undulating borders between 'science and art'. Several years ago I would have seen this suggestion as potentially threatening in that it may in some mysterious way, begin to interfere with my ability to design, or that it would make me too self-conscious / self-aware, and thereby dilute my ability to teach design. I believe this is a prevalent attitude, and one that would be very difficult to get design educators to openly admit to. Rapid change in attitudes also exacerbates this situation in that many administrations demand more research and publication, and the architects, because they are untrained for this pursuit, become caught

in a 'Catch 22' of sorts. I believe this type of pressure will continue to increase especially in many state, land grant universities, and that it would benefit most design schools to offer 'update' classes for their faculty which discuss current trends in architectural research and research methodologies. Unlike most, I was fortunate enough to be able to return to school and work on this deficiency.

One value of research is its ability to coalesce resource (time, effort, money, minds), around a topic of concern. I believe that the research efforts of Dinham, Schon, K. Anthony, along with our own, will be helpful in establishing recognition of the need for this line of research: national surveys of faculty opinion, structured interviews, surveys of student opinion, protocol studies of juries, publication of hypotheses and findings, etc. All of these investigative tools serve to increase professional, faculty, administration, and student awareness of the problem. The realization that others are having similar problems may initiate discussion of what remedies have already been experimented with, and what possibilities remain untried.

Anthony's presence on the faculty at Illinois provides a good example of this in that they have initiated wide-ranging change in their methods of

design review, and change in faculty attitude toward juries appears nearly unanimous. Although her research focuses on the efficacy of existing jury formats, Illinois continues to fine-tune their review systems, and their pride in these innovations is apparent in their responses to our survey questionnaires.²²² One individual has made an impact. We may have this same opportunity here at UCLA as time passes, and we continue to publish. In our survey, two schools have mentioned significant student and faculty unrest regarding inequities in their methods of design review, and they are currently attempting to respond.²²³

Our national survey resulted in open invitations to film and analyze the juries of seven different design schools. If we can locate the funding, this could become a good example of how to increase interest and dialogue in this line of study. As we develop our methods of protocol analysis, we can enhance our `service' to these schools and perhaps inadvertently encourage them into research of their own concerning some facet of design education and review. Resources are frequently a question in the initial stages of `new' endeavors, and I guess we are no exception. Continuing publication may be the most effective way to overcome this problem. Other avenues would involve talking with and sending these

publications to various professional bodies that may share an interest in this line of study, i.e. AIA, EAAE (European Association for Architectural Education), ASLA, NAAB (National Architectural Accrediting Board), NCARB, etc. One interesting idea would be to persuade the NAAB, of the importance that each school develop their own explicit taxonomy of design educational goals. This in turn could then become an accreditation review point, and would certainly enhance dialogue among schools, (faculties, administration and students), as to their specific / regional emphases, etc. The NCARB may also become interested in dialogue of this sort in that they would be an integral participant in any discussion of 'excellence in design'.

Another method of developing research in design education could be through the creation of a central research center / data bank for research in design education. An organization of this sort would be involved in: 1) developing education training seminars for interested design educators. The curriculum of these seminars might follow some of the teacher sensitivity training and interpersonal communications exercises previously discussed.²²⁴ They could also include the study of tapes of selected jury and studio behavior, as well as in-class and or in-jury structured experiences including group and individual review and

critique of their performances on video. The curriculum would encourage the adoption / adaptation of a repertoire of situational teaching 'styles' with discussion of their appropriateness in a variety of circumstances. Effective leadership would also be discussed and practiced in small group and dyad situations; 2) developing 'update' seminars for design educators which discuss current research in architecture, research methodologies, and discussion of sources for and the requirements of publishing one's work. Develop relationships with various publishers of research concerning design education, pass this information on to those educators interested in publishing their work; 3) the center could become a facilitator of regional and national dialogue and study of the nature of design excellence, and profiles of excellent architectural educators and students. Perhaps the development of a multi-attribute utility matrix / questionnaire survey could initiate inquiry into a generic taxonomy of design educational goals; 4) the center could become a repository for research concerning design education, active in seeking relationships among the various research efforts, and active in facilitating communication among these various sources; 5) although this idea is undeveloped and full of problems, the creation of 'packaged' research projects, whose results can become part of a comprehensive research effort in design education, may have potential. This idea

responds to a hypothesis that architectural educators generally lack certain research skills and general orientation. If there existed a source of research ideas with pre-designed research methodologies, a faculty could review the various projects to see if any are of interest or are relevant to specific problems they are experiencing. The opportunity also exists that the design education research center and different faculty could design and analyze research projects which address problems distinctive to that school, class, individual or curriculum, etc. This collaborative research design could occur during the 'update' seminar sessions; 6) the center could also become a graduate program for prospective design educators, and would have its own unique curriculum and teaching practicums in place. The possibilities are numerous.

II. POTENTIAL RESEARCH DESIGNS:

Although the possibility for hybrid (quantitative - qualitative) research designs exists, many of the following suggestions for further research in this area recommend a behavioral and naturalistic orientation to their design. As mentioned, research in design education is still in its conceptual stages, and initial incursions into this field will necessarily be exploratory in nature. The complex behaviors that we have observed,

especially in the emotionally charged studio and jury, suggest that perhaps a qualitative / ethnographic approach to many of the following studies would be appropriate. As the data base for research in design education grows, so may the opportunities for more experimental research grow also. So much is happening that cannot be adequately described quantitatively, "... the credibility of research that is contextual, theoretically eclectic, and comparative is threatened by and grounded in factors different from those pertaining to experimentation and other forms of quantitative research".²²⁵

Little rigorous investigation has been initiated into the deficiencies of existing methods of design education. The result is a field of study with an abundance of potential for research. The following areas could be explored in more depth. For the sake of brevity, the research designs for only five of the following topics will be discussed in detail.

** Note: the following research designs assume the availability of time and financial resources.

Teaching and Learning:

Project I: "Excellent Educators": the identification and observation of

`excellent' design educators in the studio and jury environments, including a comparative study of these select individuals with a control group of design teachers. This line of research would be related to: developments in taxonomies of educational goals in higher education; the works of the AIA, Cuff and Adelson in defining design excellence and excellence in practice; the works of McKinnon and Barron in personality assessment research and the development of personality inventories and profiles for the `excellent architect'.

Design / Data Collection Methods: a national survey would assess the opinions of practitioners and design educators regarding the traits, personal characteristics, and teaching methods of excellent design educators. The survey would also ask participants to identify and describe individuals which they consider to be excellent educators. Multi-attribute utility matrices would be employed in this survey to facilitate the development of alternative `excellence profiles'. In-class observation of those educators identified as `excellent' would follow, and include non-participant video and notational protocol studies of their performance in the studio, juries, and any administrative tasks. Structured and non-structured interviews with these individuals, their colleagues and their students would be included as well as, background

studies of their childhood, schooling, professional experience, teacher training, and personality inventory measurements. One other possible research design option would be a comparative study of 'excellent' educators with a random sample of design educators as a control group. This portion of the study would compare their teaching methodologies, personality characteristics, backgrounds, and education. Based on the emerging contemporary and past profiles of excellence, historical research may reveal past examples of excellent design educators such as: Durand, Sloane, Sullivan, Gropius, and Itten. Part of the excellence criteria might become the number and quality of excellent students they helped educate.

Threats to Validity: selection of schools in the survey would ideally be random, although participation is problematic. Stratified or other patterned sampling techniques may alternatively be used. Observer bias is often a problem in observational and interview collection. Fatigue and boredom must be avoided, all observers should be highly trained in same methods, and results should be triangulated with observations and conclusions of others. The effects of the camera and non-participant observers in studio and jury settings are a factor, although their intrusive qualities have been shown to diminish with exposure time.

Conclusions / Application: this research would concern itself with developing a more comprehensive mutual language for design educators. It would encourage reflection on personal technique, weaknesses and strengths. It would enable us to better identify effective design teaching methodologies, and allow us to more accurately predict success as design educators. It would help us develop effective design teacher training programs, by providing operative and productive models to learn from.

Other Possible Teaching and Learning Research:

** the identification and comparative study of the effects of various student learning 'styles' on the quality of subsequent design work and academic performance in support classes as well.

** a comparative study on curriculum structures and how well support course material is integrated into the students' design work.

** a study of the effects of pre-jury studio environments and teaching styles on the quality of subsequent student presentations as perceived by the jurors and the student.

** comparative study on the relative effects of having 'due dates' twenty-four hours prior to the review. What are the effects of design juries on

the physical and mental health of the students?

Teaching and Teacher Training:

Project II. "Educator Research Skills": a study on the research skills of design educators; What training and level of ability and interest in research do most design educators possess? This question relates to an earlier discussion on the correlation between lack of teacher research skills and the lack of research in design education. Although all research in design education certainly does not need to be done by design educators, it is reasonable to assume that those centrally involved in an endeavor would likely be most interested in improving it or their performance in it.

The need and purpose for this line of study would be related to a number of works in education, higher education, and research methodology, e.g., Dewey, Illich, Piaget, Rogers, Veblen, etc. Contemporary literature on the efficacy of the design studio and its relationship to the rest of the curriculum could also be of interest, e.g., Schön, Argyris, Rapoport, Beckley, Hurtt, and Bowser.²²⁶

Design / Data Collection Methods: the design would include a survey of required or optional course work in research methods in undergraduate and graduate design curriculums as well as, a survey of design educators and their past training in research methods, the current state of their research skills, and record of past publications. The survey could review each school's faculty-hiring policies, attitudes toward research, demonstrated research skills, and collective publication record. A literature search of relevant research journals, would reveal examples of 'rigorous' research effort in design education, and structured interviews with these authors regarding their past training and experience in research, could contribute to this study. The study could also survey educators in professions with 'exceptional' research histories, e.g., medicine and engineering. Their curricula and hiring policies could then be compared with those in design schools.

One final, long-term, experimental phase of this project could study the effects of research-training seminars on faculty research interest, effort, publication, and application in their course syllabuses. Pre-test assessments of the research skills and experience of design faculty in several randomly chosen schools, would be followed by a seminar-like treatment program in research methods. This would then be followed

by a long-term assessment of treatment effect. Increases in research involvement, publication, significant change in school's curriculum regarding research skills for students, changes in course work material as a product of research efforts would all be recorded. These observations could then be compared with those of randomly selected control groups.

Threats to Validity: selection of schools should be random, although participation could be problematic. Surveys could also occur at AIA, ACOSA, ASLA, and EDRA conventions, but this type of sample could present some selection problems since those that attend conventions may be more active and research oriented. Although unlikely, observer bias could occur in the structured interview process, and it may also taint the interpretation of the historical survey data, or the definition and identification of 'rigorous' research effort. Although the questionnaires have not had the benefit of past field testing, pre-survey pilot studies could give us a better feel for their effectiveness, thereby reducing instrumentation bias. There could be testing effects as well, although the pre-treatment review of skills and interests could remain relatively non-interactive.

History, maturation, and mortality are all possible threats to validity, especially in the final treatment phase of the study. The length of time required to observe change in the faculty's research skills and interest is ripe with the potential for error. Many other factors could intervene and affect a subject's skill and attitude levels, with both control and experimental groups. Treatment diffusion could also occur in that professionally speaking, design education is a relatively 'small world', and discussion of an experiment of this sort and scale would likely occur.

Conclusions / Application: most of our design schools and design faculty feel great pressure to become actively involved in research and publication. It may be that many are not actively involved in research due to a lack of appropriate skills and prior exposure to past and present research efforts. If positive correlations could be developed between faculty research training and subsequent research and publication records, our design schools may then consider initiating periodic 'update' seminars for faculty and students.

Other Possible Research:

** a study of the effects of jury leadership training on the educational impact of the jury as perceived by the student.

** a comparative study of the effects of structured group interpersonal communication and sensitivity training for teachers on student learning and the quality of their students' work.

Educational Goals:

Project III. "Admissions Procedures": a study of the admissions procedures in various schools of design, and any `success' profiles they may have developed for incoming students. This would include a correlation study of the relative predictabilities of psychometric testing and existing admissions procedures in selecting for the above mentioned student `success' profiles. This study would incorporate a literature review of past and present admissions procedures in higher education, and in schools of architecture.²²⁷ A review of studies in personality assessment, creativity, and psychometric testing dimensions would also be included.²²⁸

Design & Data Collection Methods: a national survey of schools of design would discuss their current admissions strategies, and the relative weights given to each review criterion. The survey would also examine inadequacies of current admissions practices, and would request ideas for improvement, as well as inquire into each school's

educational goals. A survey of current admissions procedures in other professional schools, such as in medicine, law could also be included.

The study would include random selection of incoming design students, and the psychometric measurement of each with a battery of tests including: Myers-Briggs, Minnesota Multiphasic, Lifo: life orientations, Firo: three-dimensional, learning style, Barron's figure-preference test, etc. This would be followed by a review of each subject's admissions review results, i.e., personal interviews, GPA, GRE/SAT, portfolio, statement of purpose, and letters of reference. This information would be triangulated with structured interviews and non-participant observation of the admissions reviewers regarding the process and content of their discussions during the selection process.

A records review of each student's academic performance in both design and support courses, along with interviews with each student's teachers and advisors regarding their academic performance and growth during their tenure at the school would also be incorporated in this study. This would be followed by a correlation study of the relative predictabilities of each psychometric and academic dimension considered in selecting for the school's excellence profiles. Subsequent

regression analysis could also be made for the different dimensions and different excellence profiles.

Threats to Validity: selection, although random, is from one school and therefore the results would need replication in a number of different schools where the students, faculty, curriculums, school philosophies, physical settings for tests and observation, may vary. History, maturation, and mortality are all a concern in that this study is long-term and there is great possibility that contextual events could significantly alter the students and faculty. Diffusion of treatment may also threaten validity since design schools are small academic communities, where envy and rivalry could occur among control and experimental groups.

Conclusions / Application: a study of this sort can have side benefits in that it may force some schools to collectively develop more explicit definitions of student and design excellence. It could help select students with pre-dispositions to succeed in a particular school's academic environment. One possible hypothesis of this study is that current admissions procedures may deselect for non-conforming / divergent thinking. Perhaps other measurements might provide more insight into the personality and cognitive dimensions of the excellent student, the

excellent designer, and the excellent architect - it may be that all contain fundamental points of divergence from one another.

Other Possible Research:

** the development of a framework of educational intentions for design education, including the cognitive, affective, and psychomotor domains of learning.

** a survey of design schools regarding their attempts at developing explicit design educational goals.

** a survey of the specific educational goals of various design schools coupled with a comparison of the quality of their student design work for instance, the School of Architecture at Oklahoma State University has focused their efforts on developing students into exceptional designer / practitioners with a great deal of success.

Jury Efficacy:

Project IV. "The Real World and Design Juries?": how accurately do design juries approximate professional experiences in most real-world review situations? This project would include literary review of fundamental educational philosophy regarding the theoretical versus application dialogue, e.g., Schön, Argyris, Dewey, Illich, etc. This review

would also include Anthony and Dinham's discussions of the efficacy of design juries, as well as the ongoing debate concerning the efficacy of the design studio as an educational tool, e.g., Rapoport, Beckley, Bowser, etc.

Design & Data Collection Methods: would include a survey of a random sample of practitioners regarding their school's design review system, and their impressions of how accurately this system approximated their experiences with design review in the professional world, (including a description of their real-world experiences). The survey would also include the following questions: Should design schools make an effort to approximate real-world situations? What are your impressions of the educational efficacy of design juries in school?; What are your suggestions for improving design juries in our schools, or for developing alternative methods of design review? The study would also include structured interviews with design educators with extensive experience in private practice regarding their impressions of these same questions, as well as questions regarding special logistical or educational problems schools may have regarding their attempts to approximate real-world situations.

Threats to Validity: selection, although random, is a problem for most of this type of survey-oriented research. Participation on surveys is problematic, and one might anticipate bias in that perhaps only those with extreme opinions or those particularly motivated in a certain direction may feel the inclination to take the time to respond. Observer effects could be a problem during the structured interviews if methods or settings varied a great deal, or if the interviewer was fatigued, bored, or personally at odds with the subject. History and cross-group comparison is always a problem in that external / contextual variance from school to school must be assumed, described and analyzed. This would include construct effects and the variance in meaning and interpretation of different constructs from school to school and region to region.

Conclusions / Application: one of the fundamental arguments of 'pro-jury' opinion is that juries approximate real-world situations, and therefore better prepare the student. This study generates a sample of professional opinion and experience, and assists in the determination of need for change, or for continued research.

Other Possible Research:

** A comparison of the design work and student learning of juried versus non-juried design students.

** A study of the effects of non-jury formats during the first year studios on the quality of student design work in subsequent years.

** A study of student, audience and juror perception of jury efficacy, including post-jury evaluations one day and one week following the jury.

Presentation and Jury Format:

Project V. "Presentation Seminars": a study of the effects of a presentation strategies seminar on subsequent student presentations as perceived by the jurors and by the student. The study would include a review of presentation strategies in management and in interpersonal communications literature, i.e. Goodman, White, Keys, Mehrabian, Rogers, and Birdwhistell.²²⁹

Design & Data Collection Methods: non-participant notational and video protocol studies of a random sample of student verbal presentations in design juries would be employed. This would include post-jury / pre-treatment survey questionnaires and structured interviews with students and relevant studio faculty concerning the amount and nature of their preparation for the verbal portion of their presentations. The treatment

would include the administration of two or three, one-hour seminars on presentation strategies to a random sample of design students within one studio. Post-treatment observation of student presentations in subsequent design juries over the next semester or two to observe if effects of treatment are lasting would follow. The same post-jury surveys and interviews would then be administered, along with comparison of the treatment group with a randomly selected control group as well as, 'before and after' treatment comparisons in the experimental group.

Threats to Validity: diffusion of treatment is a problem in such a close knit community as that found in a design school and studio. Ethical problems arise as well. If the seminars have a beneficial effect, all other willing students should also be exposed to the same treatment. Selection bias is a threat to external validity, and the experiment should be given to students in different studios, different years of study, and in different schools as well. History, maturation, mortality are always potential problems in this sort of study. Many things could happen to a student to alter his or her attitude and work habits. For example, an unusually difficult jury or argument with studio critic could cause a student to assume a more defensive posture in subsequent juries.

Conclusions / Application: our research and post-jury student questionnaires indicate that pre-jury preparation for the verbal presentation and defense of the students' projects rarely occurs between student and critic, student and student, or even with the student alone. This study would assist in further establishing the need for such tutorials, and also in beginning to establish the efficacy of these and other tutorial designs. Subsequent studies could vary the tutorial / seminar format and content.

Other Possible Research:

** A comparative study of the educational efficacy of preliminary versus final juries achieved through evaluation of subsequent design work quality and learning as perceived by students, jurors, and design critics.

** A comparative protocol study of the interpersonal communication dynamics between preliminary and final juries.

** A study of the impact of omitting final juries on the quality of student design work and perceived learning.

** A study on the effects of 'pre-qualifying' design projects for admittance into a jury. This study would monitor the effects of pre-qualifying, on juror performance and also on the quality of the learning experience of audience and of the students.

** A study of the effects of the exclusive use of student jurors during the first year studios on the quality of student design work and learning in subsequent years.

** A study of the impact of requiring the student audience to write critiques of all of their colleagues' projects and presentations on subsequent performance in design and theory classes.

** A comparative survey of student and juror opinions regarding the quality of the learning experience in juries employing graphic facilitation techniques versus traditional jury formats.

** A study on the effects of 'VIP' guests or participants on the proceedings of the jury and the student's learning experience.

** A comparative study on the effects of various spatial configurations on jury proceedings, i.e. seating, room, table, presentation, and audience configurations.