

THE RISE OF THE NERDS? INTERDISCIPLINARY RESEARCH AND ARCHITECTURE

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Interdisciplinary Models and the Politics of Marginalization

Currently universities are abuzz with a call for more interdisciplinary, multidisciplinary, or transdisciplinary work. Many administrators in architecture are jumping on the bandwagon, seeing this as a way to increase the relevance of their programs on campus and to raise funds. After all, architects excel in bringing together disparate information to create works that are both functional and aesthetically sophisticated. They are potentially core contributors to this trend.

The models of interdisciplinary work that are being proposed in research universities are, however, very far from the models that have high value in architecture departments, and particularly in design. For architects, I argue, the *renaissance person* and *interpreter* have been the most prominent models. From Leonardo DaVinci, knowledgeable in many areas, to Peter Eisenman, translating ideas from deconstructivist philosophy into design proposals, these have been the archetypes of

this work. These models see inter-disciplinarity as embodied in a single individual.

In the current move to interdisciplinary work, it is the traditionally low-status faculty in the “support” areas such as building science or social factors who are in a position to actually take advantage of the more collaborative interdisciplinary initiatives coming from the natural and social sciences. Some will be mainly involved as *design consultants*, adding a designer’s view on the team. However, others may lead or be part of the core conceptualizing team in important research projects. Those most likely to do so are the *peripheral researchers*, capable of having high-level contacts across the university but remaining on the margins of architecture programs. Of course faculty more central to programs may do interdisciplinary work, architectural historians for example, but their work remains largely on the outside of the current problem and funding-based impetus for interdisciplinary research (Stieber, 2005).

This paper first outlines the current opportunities for interdisciplinary work then examines why architecture may not be in a position to

engage with this energy chiefly because of differences in values between the scientific research culture and architecture programs. The paper concludes that the clash of cultures of interdisciplinary work could cause confusion and competition in architecture programs as the traditional ugly ducklings of design schools become scientific swans. However, architecture programs can also embrace these differences and see them as a way of creating multiple paths to prominence in the field that has tended to be rather hierarchical in its educational programs at least, with design stars on the top of a steep pyramid, followed by those teaching history, theory and criticism. Social factors and building science folks, currently at the bottom of the pile, may well be able to use this renewed interest in their skills as a way to take a more central position in architectural thought and education and to promote more collaborative models of practice (Stevens, 1998).

The University Science-Based Position

Currently, university-level energy behind interdisciplinary work is typically coming from the hard sciences, increasingly forced by funding agencies to focus on important problems using teams of experts with different training. For example, the National Institutes of Health has created a "roadmap" document promoting interdisciplinary work in health (NIH 2007). Faculty working in these areas can produce significant academic publications and patents. This is a very different world to teaching-oriented professional programs; it is a world where faculty on average raise hundreds of thousands of dollars each per year and often support much of their own salaries. The

humanities focus of much of design teaching has insulated it from this world.

There are architecture faculty, however, who are capable of taking advantage of this interdisciplinary excitement to form significant collaborations. Faculty in so-called support areas have long worked on the margins between social sciences or natural sciences and architecture, typically trying to translate empirical research into information relevant for practice. From environmental psychology and social anthropology to materials science and lighting engineering, there is a cadre of such experts in architecture programs. Of course, many social factors or building science experts may not be in a position to lead teams or conceptualize problems but take a role as *design consultant*, providing input on the "designer" view or design options for larger interdisciplinary teams. While many such faculty have received funding in the past, their grants may have been primarily outreach or consulting style projects. Typically such outreach and applied grants are from local foundations, or more applied programs of federal agencies such as the Department of Housing and Urban Development or the Department of Transportation. These have not resulted in double blind refereed publications or significant patents, the essential currency of scientific research. They have not required being up to date with a deep body of research. These faculty may well contribute some architectural expertise to high-powered project teams but may remain on the margins of the science.

Those few faculty with the background to take lead intellectual roles in more basic

science projects funded by such agencies as the National Science Foundation, National Institutes of Health, or the Defense Advanced Research Projects Agency, are likely to be those seen as the most peripheral to design-focused programs. These are extremely competitive grants, with proposals easily 50-100 pages long, that require very sophisticated and detailed research conceptualization as opposed to design thinking. Conceptualizing such grants in an interdisciplinary way involves intensive collaborative work and significant investment in understanding other scientific disciplines and translating design work into terminology and conceptual frameworks comprehensible to scientists (both natural and social). Such researchers need to understand important questions and relevant methods in multiple fields. Leaders on these teams also need track records of being on time, on budget, and producing work of high quality with high impact among researchers. Faculty who can do this are the ones whispered about in the halls as not teaching "real" studios, publishing work that is too detailed and arcane, and not being loyal enough to the profession. If they take up the opportunities available across campus, they may well get kudos in those other departments but not at home. What results is likely a politics of marginalization where mainstream design faculty are marginalized in the university, because few publish, but interdisciplinary researchers are marginalized in architecture.

Of course many departments and programs will enjoy the tensions caused by difference, seeing a new role for their support faculty in making an important bridge between design and the university-wide pressures for scholarly production and significant research fund-raising. But in

others tensions will arise anew between faculty able to access the funding and prestige of the scientific research culture, and those who are not able to do so. Among those with some interdisciplinary interests, renaissance people and interpreters will be in one camp still within architecture programs, design consultants in a middle ground, and peripheral researchers may well find themselves even more on the edge or even outside of architecture as interdisciplinary hires in other fields.

Value Differences

It is very difficult to overstate the differences in values between the dominant research culture and the values underlying the science-based move to interdisciplinary work compared with the mainstream of typical design schools, focused on teaching the next generation of professionals. There are a number of key dimensions of difference.

Publications are viewed quite differently in design and elsewhere. In the sciences and social sciences, double blind peer reviewed work or possibly authored books, are the main route for promotion. In contrast, many architecture faculty never produce such publications and even fewer do so with the consistency expected in high-cost research. Rather they produce design work, commentaries, edited collections, and research with a broadly humanistic bent—all good things, but not papers that help accumulate knowledge about key, fundable, problems. In fact, the scholarly production of each group may well be invisible to the other.

Teaching is seen as a peripheral issue in the research university, as the relative ease in finding

adjunct teachers versus adjunct researchers shows the difference in the markets. In contrast, architectural programs spend a great deal of time and energy defending a relatively unique and time-consuming teaching approach and developing elaborate criteria for judging their peers as design teachers. Lombardi et al. explain the wider university perspective, pointing out in their annual report on top research universities why researchers are so sought out.

"Research university competition for faculty is about research, not about teaching. Much confusion and rhetoric attaches to this view, as observers of university life argue about the relative merits of teaching and research. For our purposes, this argument is beside the point. The issue is not whether teaching or research has more intrinsic value, but whether teaching talent is more plentiful than research talent.

"Research talent and productivity is much less available and much less predictable than teaching talent, and this difference determines the university's focus on research rather than teaching in the acquisition and management of faculty. Although teaching requires skill, knowledge, creativity, and commitment, this is not the issue.

"... research talent is scarce.

"As time goes on, even with the most careful screening, the proportion of a cohort of promising faculty who remain productive in research will decline. A few will not produce nationally competitive research at all; many will produce well for six to eight years and then cease to compete at national levels. Others will create sustained and productive research programs and will maintain their vitality and competitiveness

over a career of thirty or more years. By contrast, in any given cohort of faculty hired by a research university, all but a very few will teach effectively, and many will teach superbly for the thirty or more years of their careers." (Lombardi et al. 2001, 12; also Forsyth and Crewe 2006).

Of course, architecture programs may feel that finding good directors of design and coordinators of studio programs is a great challenge, and that there is stiff competition for star designers. But the market for researchers is tight. Further, funding for researchers goes to universities while architectural fees go to private firms so that a star researcher may be able to basically self fund, while a star architect will be a net cost (even if making a great deal in a private firm). Certainly, medical doctors have something of the same issue with clinical practice, but universities have been better at capturing some of these fees. And stars in the humanities and social sciences are parts of programs that receive very significant tuition revenue.

Finally, the *motivations* for careers are quite different between architecture and the natural-science-based or even social-science research culture. Many research-oriented faculty work at universities because they can create new knowledge, outside of the biases of governments or corporations. They train others like themselves. Those in the natural sciences have options to work for high-paying corporations; those in the policy area could have the stability of government work or the excitement of politics. However, they have chosen universities as places to take intellectual risks. In contrast, many in design

choose academic routes for quite different reasons. Some are researchers or scholars producing publications or scholarly design work. But many choose the academic route because they sincerely want to teach a new generation of professionals; in order to make higher-status contacts for their professional practice (the “Prestigious U-based architect”); or to create a lifestyle that is not as frenetic or unpredictable as professional practice and with the added benefit of health and pension plans, sabbaticals and travel funds, flexible hours. In a field where professional practice can be very competitive this can seem attractive. This is quite far from the research culture and means there are few design faculty who will have the desire or motivation to do science-based interdisciplinary research work. It just isn’t what they signed up to do.

How will Architecture Respond?

It should seem obvious that the interdisciplinary research turn has complex implications for programs in architecture. Even those who are best positioned to take advantage or it—those in support areas—may not be able to. Some will have moved too far from research into application. Some will be too far from the natural sciences—even the social sciences have been unevenly incorporated into this trend. The traditional forms of inter-disciplinarity—renaissance people and interpreters—will still exist, but are unlikely work as an integral part of funded teams.

Of course, not all universities are following this research-money based track. Most European systems have assessments focused on citations—at least somewhat more open

to valuing unfunded (interdisciplinary) work in the social sciences and humanities. Others are interested in awards, though rarely in design. Some universities are melding inter-disciplinarity with service or engagement, and architecture can participate in such activities as a stronger partner. However, the marginality of the social architecture tradition, the tradition with the strongest interest in public engagement, may limit this participation somewhat.

Overall, this interdisciplinary move has the potential to have an extremely positive effect on architecture programs. It may well erase some of the more pernicious aspects of the status hierarchy in architecture departments, showing different paths to excellence, rather as is already available in landscape architecture and planning (Crewe and Forsyth 2003). It could deepen scholarly work while demonstrating how excellence can be achieved through collaboration. However, it is also likely that renaissance people and interpreters will be unwilling to give up their centrality as models for interdisciplinary work in design, igniting new conflicts. It may well be that the successful interdisciplinary scholars move into allied fields, keeping architecture departments firmly focused on a traditional view of design and increasingly marginalized in universities. The opportunities are great but so also are the risks.

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