# Networks, Architecture and Architectural Education

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The expansion of computer networks is changing the conditions under which architects operate. As connections between far-flung locations make the world smaller, these connections accelerate the distribution of ideas, facilitate flexibility in work habits and influence changes in settlement. These changes are forcing traditional architectural practices to adapt while at the same time opening up opportunities for non-traditional architectural design. Architects can use these changes as a way to strengthen their role in society. Architecture schools can seize this opportunity to shape the direction of real, unrealized and even purely virtual design. The key to finding the direction for our profession is to look at its traditional strengths and find how they mesh with the new conditions.

## I. Sense of Place: Identity within a global culture

One large threat from the increased ease of transmitting information is the danger of homogeneity. Whether from missionary or capitalistic motives, richer countries have shaped developing countries not only by funding development but also by dominating broadcast radio, cinema, television and most recently the Internet. The allure of Western material culture is promulgated by advertising: MacDonalds, Levi's and International style towers are now ubiquitous symbols of a convenient & comfortable lifestyle. The nearly instantaneous link between places increases the possibility of remote influences, gradually making everywhere in cyberspace more similar.

The danger of homogenization comes from the face that poorly applied universal solutions can't solve every situation. For example: in the third world, the International Style carries a promise of prosperity and progress which cannot be fulfilled when applied with disregard to local infrastructure, climate, customs or building traditions.

Architects can take the lead in fighting cultural imperialism and the superficial blending of cultures by championing the sense of place. By celebrating the unique qualities of a people in a specific locale, there is an opportunity to provide distinction within the numbing flood of corporate marketing. What will save us from disorienting anomie in a modernizing world will be the cultivation of genuine critical regionalism both on and off the Internet superhighway.

Whether the Internet remains a viable domain for individual voices or whether it follows radio and television in becoming dominated by well-funded organizations, there will still be a need for a strong voice which expresses why one place is NOT the same as another. Each community has an opportunity and perhaps a responsibility to express what it knows best to the rest of the world: aspects of its culture which are unique. Every culture has something special to be shared whether it be the living national treasures of Japan or the splendor of the

US's Pacific Northwest forests. Since architectural designers are trained to understand how form accommodates life, we can express the essence of a culture either in built form or in its computer mediated equivalent. The Internet's ability to bring universal band-aids to every culture can be a clarion call for design which addresses the unique aspects of social patterns, economic constraints and climatic conditions. The architect's domain has always been tailoring a delightful solution for a particular problem.

## II. Physical Design: development of new typologies

In the traditional realm of the built environment, architects can lead in developing new urban patterns and building types allowed by new technology. As Internet communication frees us from the 9-5 commute, architects have the chance to rethink planning in a way which reduces traffic and increases community.

At the scale of cities, telecommuting can provide new vitality to small towns by linking their inhabitants to the service economy. Proximity to natural amenities becomes more feasible as the need to be close to urban centers for employment decreases. Televillages provide a way for people to interact with people by choice rather than by necessity. (Campbell 1995) Co-operative living can be an antidote to the anonymity of intense immersion in computer mediated environments. Smaller scale communities may be less efficient in terms of centralized dispersion of resources but they also have the potential to bring together people united by the goal of self-sufficiency at a scale which may be possible to accomplish. (See Danish co-housing projects)

At the scale of the building, a new typology of a telecommuting center is emerging to provide shared temporary workspace for the home worker on the road. By providing resources such as conference rooms, support services, specialized output and telecommunications equipment, these business centers can provide an intermediate place between the home office and a distant headquarters. Corporations are finding real-estate savings by providing or sharing these satellite offices outside of the expensive city centers. (Gurstein 1995)

At the scale of interiors, non-territorial workspaces which allow traveling workers to move to appropriate environments for different kinds of work result in cost savings within precious headquarter office space. In developing new types of shared office space, architects must balance the need to accommodate organizational hierarchy with the need to maximize space efficiency. The new workplace must gracefully accommodate high-tech equipment and new ways of working while maintaining or increasing productivity and morale.

## III. New types of practice: International collaboration

In addition to having new types to work on, architects will have to create new ways of working which address the changing marketplace. Better communication has both positive and negative results: more chance for global joint ventures and more chance for stiff global competition. While video-conferencing and groupwork applications make it easier to work anywhere on a remote project with the best specialists available, it also makes it easier for clients to exploit the cheapest labor on the planet.

Developing countries provide an opportunity for designers to shape urban and regional growth, but require both sensitivity and savvy. In Asia, business relationships traditionally predicated on extended face-to-face interactions are being shaken up by new possibilities. Both Westerners bringing in complex legal documents and former Communists flaunting tradition for a quick profit bring confusion to business practice. In places like China, cultural mores are constantly challenged as business deals are made between people with different ground rules. American design firms work on speculation to capture long-term contracts while their Chinese clients sometimes enjoy the benefits without understanding the implied obligation. In this uncertain environment, the only certainty is that those most adaptable will endure.

Even without the additional layer of culture to negotiate, remote participants in group efforts have to learn new ways to work together. Computer technology provides a way to manage and coordinate the volume of information involved in a shared building design and construction project. Going beyond CAD visualization and production tools, architects can use database and project management software to plan, monitor and correct resource and personnel allocations. The additional layer of company intranets or collaborative wide-area networks allows sharing and modification of this information with clients, builders, consultants and design partners.

If architects can understand and master the groupwork process then they have a chance of regaining some lost authority in the design build process. Groupwork requires both technical and social facilitation and the person controlling these factors is arranging how members of the team can interact. For example, levels of access must be created so that architects can change the base drawings while engineers must work around these changes and clients can only browse and leave notes. In addition to controlling who sees and edits WHAT information, there are decisions of who talks to whom and how the project is represented.

While the mechanics of computer-mediated communication are not complicated, it involves controlling selective distribution of project information which can involve many of factors.

The collaborative process works best when members of the group have defined roles and tasks and there is a procedural framework for the task coordination and evaluation. As generalists, architects are the best trained to have an overview of the whole design and construction process, so are the natural negotiators.

## IV. New types of practice: virtual design

We finally have enough real estate in which all architecture students may design without hazard of lawsuits from leaking skylights, failing beams or material cost overruns. Architects may choose to design fantasy worlds rather than bricks and mortar.

Architectural training provides some natural advantages for the design of virtual environments: the factors which make a real environment hospitable also can make a virtual one pleasant. While there is not an absolute imperative for virtual worlds to have any connection to what exists in the real world, as an interim measure these connections can make fantasy worlds more comprehensible. Thus traditional design for wayfinding,

accommodation of user needs and composition based on historic precedents all have value in designing visionary places.

While traditionally the profession has been about the engagement of people in built environments, there is a new need to provide support for virtual communities through spatial organization. This offshoot of the traditional profession requires learning of computer technology rather than building technology, but involves a similar imposition of legible order on human activity.

## V. Schools and the changing profession

Schools can choose whether to address the new realm of virtual architecture: they must choose an emphasis. With the expansion of distance learning through global networks, students have the freedom to learn wherever and however they wish. Universities must identify and capitalize on unique resources to find a specialized niche. With the ACSA initiative to change all professional architecture degrees to be awarded at the Masters level, education splits into a generalist pre-Arch bachelor's degree and a more elite Master's degree.

While from an educational efficiency viewpoint the 4 year + 2 year model may suffer, it does provide the opportunity to expand architectural awareness. Non-architects who are educated about the benefits of design become sophisticated clients and civic supporters. For the basic curriculum, digital media makes it easier to share, integrate and publish the best teaching resources for wide distribution, bringing up less privileged regions. With some infusion of technology, students in remote areas can not only access world resources, but also have the opportunity to tell their own story.

With the enhancement of available content material, schools can concentrate on teaching learning and design processes. Schools can draw on a shared body of self-access materials, preparing students with learning strategies and attitudes to take advantage of their enriched environment. In parallel to setting up an efficient culture of self-learning, schools can emphasize face-to-face mutual learning and cultivate the human interaction skills which are critical to the design profession. Reduction of repetitive delivery of concepts or skills can leave more opportunity for individual or small group desk design crits in which teachers combine Socratic questioning with demonstrations of tacit knowledge through sketching. (Schoen 1987)

Greater relevancy of education can come from increased use of group projects which require the meta-planning, coordination, task management and application of theoretical concepts. Internet communication can increase interaction with professionals and community groups, reducing the isolation of academia criticized in the Boyer-Mitgang report.

At the advanced level, each school has the chance and some obligation to make its most valuable and useful resources accessible. Each place brings together a unique community of scholars which can provide specific areas of specialty based on either its location or its interests. It makes sense that a school like U of Oregon sitting amid beautiful forests and toxic paper mills develop a specialty in environmentally conscious design. It makes sense that schools based in college towns might shape the development of similar small towns. Rather than shackle students to a parochial viewpoint, schools can act as centers which

coalesce the scholarship in specific areas of interests. Due transitory lifestyles, specialties may travel with individuals rather than staying with institutions. Through Internet connections, schools can now attract and involve far-flung individuals who will infuse it with contradictory viewpoints. To learn from these divergent viewpoints, students need multicultural education so that they will hear different points of view and they need cognitive training so they can analyze and synthesize.

For survival's sake, schools along with the rest of the Internet community have to figure out how to get financial return when publishing valuable ideas and information. The unique holdings of a university are likely to include rare books, dissertations, measured drawings as well as the kind of community dialogue it fosters. Perhaps rather than the commercial schemes for metering information or providing temporary fee-based information loans, schools can find their own ways to share and profit simultaneously. Schools have a potentially huge audience as technological change increases the need for life-long learning. Schools need to maintain the cache attached to the diploma at the end of a rigorous course of study while addressing this growing need for adult education. If professional schools can draw on older students who return for retraining, then they can create a new marketplace of ideas and increase the relevance of entry level education. Schools can supplement traditional degrees with short courses and asynchronous Internet-based panel discussions. The school can maintain quality in traditional ways such as screening instructors and participants. By reaching out to older students, alumni as well as potential full-time students, schools can play a fuller role in society and therefore more garner more resources.

## Conclusion

Computer networks are infiltrating many aspects of daily life. The architectural profession can take advantage of these changes by creating new specialties and by extending its realm of expertise. Teachers and administrators need to prepare designers for this new realm and they need to examine how the university itself can benefit from technological changes. Each school can contribute to a world-wide educational network by developing specialized content which reflects the unique urban, cultural and geographic conditions which make up its sense of place. How to most effectively deliver this content in the technological age remains a creative challenge.

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