ARCHITECTURE BEYOND BORDERS: PROVISIONAL LESSONS LEARNED FROM THE DEVELOPING WORLD

JOE DAHMEN
University of British Columbia

INTRODUCTION

Architects Without Borders, Architecture for Humanity, and similar groups attest to the growing desires of professional architects and their academic counterparts to produce positive change in the developing world. These well-intentioned efforts often employ environmental and economic sustainable design methodologies to provide more humane conditions in the regions of application. The most effective projects engage community participation in decision-making throughout projects (Arnstein 1969; Choguill 1996), which makes it more likely that designs are calibrated to local social and environmental conditions. Many accounts of environmental sustainability also note the need for an intimate knowledge of site and context to generate successful outcomes (Mang and Reed, 2012; Van der Ryn and Cowan, 1996). In contrast, many failed projects by NGOs and others operating in developing countries can be attributed to a top-down approach accompanied by a lack of adequate awareness of context and locally appropriate methods (Kleczkowski and Pibouleau, 1983). The likelihood of unforeseen consequences is exacerbated during an era of global practice, when intense project schedules, remote locations, and limited budgets make it difficult to fully comprehend the complex social and environmental relationships that characterize a particular site and culture, or to predict the unintended repercussions of actions on sites located across cultures.

However, as more of our working and communications processes migrate to digital and networked channels, the barriers to long distance service are diminished. How might a new generation of well-intentioned professionals and students engage remote places and cultures in issues of design and sustainability? This paper proposes a provisional methodology to incorporate synchronous communication tools with more traditional design methods to produce a more nuanced understanding of site conditions and context in projects set in the developing world. The paper responds to challenges encountered in a recent developing world design studio offered at the University of British Columbia School of Architecture and Landscape Architecture. The methodology developed could be embraced by western universities and design firms undertaking projects in the developing world and addresses the following areas:

· Approaches for utilizing online synchronous communication to enrich remote design processes, encourage community participation and enable nuanced understanding of local context

· The role of adaptable design approaches and responsive de-

Figure 1. Site and precedent analysis (source: *left*: Andrew Neumann and Niall Fergusen *right*: Cindy Hung and Josimar Dominguez, Open University of West Africa Studio, 2011)

cision-making capable of responding to the different uses of the project

· The role of frameworks for others to complete versus finished designs

This method has the potential to enable western universities and architecture firms to develop effective sustainable designs calibrated to local social and environmental conditions.

BACKGROUND AND CONTEXT

In the Fall 2011, the author co-taught a graduate-level design studio at the School of Architecture and Landscape Architecture at the University of British Columbia. The students in the studio developed conceptual design proposals for the Open University of West Africa, a project developed by a non-governmental organization (NGO) that aims to create a fully accredited online university. The Open University of West Africa will utilize open courseware and social media to increase educational and economic opportunities for students across West Africa. Primary course delivery is via internet, using educational components that build on synchronous interactive online courses developed at MIT, Carnegie Mellon, and the Open University UK (Young, 2005), with internet portals to be built throughout West Africa as the project reaches scale. The design studio at the University of British Columbia centered around the design of the physical campus of the university on the outskirts of Ouagadougou, Burkina Faso. Designing the central campus of an innovative networked university in one of the poorest and most rapidly developing regions of the world provided students with an opportunity to engage with the difficult task of developing socially and environmentally sustainable designs at a distance from a project site in the Global South

OPEN UNIVERSITY OF WEST AFRICA DESIGN STUDIO

Design studio description and methodology

During the design studio, twenty-four architecture and landscape architecture students collaborated to develop master plans, building designs, and internet access points for the proposed university. The studio was divided into three phases. During the first phase, students worked in interdisciplinary teams of two (one architect with one landscape architect) to research relevant architectural precedents and conduct comprehensive site analyses from print and online sources. Precedents studied were chosen for quality of design and relevance of subject (primarily educational facilities) in a range of contexts to provide a wide array of useful architectural approaches. These sources were augmented by site data collected on location by the author, who spent ten days at the site in the summer prior to the studio. The results of the Phase I research were documented in a book that was presented to the NGO (Fig. 1).

During Phase II, the same student teams of two worked in collaboration to develop a master plan, a detailed design of an individual
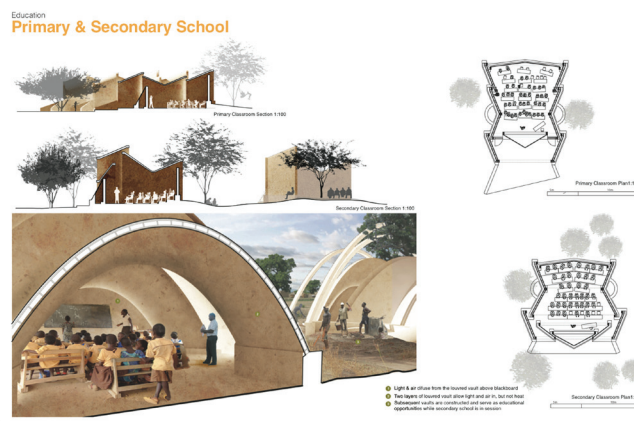
Figure 2. Design proposal for classroom building (source: Austin Hawkins, Ania Duran, Open University of West Africa Studio, 2011)

buildings and landscape on the campus (Fig. 2), or a prototype for a remote internet access portal (Fig. 3). Students conducted independent research on construction methodologies utilizing appropriate technologies together with local materials and labor. During Phase III, which took place in the final three weeks of the studio, the students and instructors analyzed the team projects and grouped them according to similarities. These individual projects were integrated to produce three comprehensive visions for the Open University of West Africa.

Figure 3. Open University of West Africa master plan (source: Sophie Macneil and Jessica Gingell, Open University of West Africa Studio, 2011)

Design studio objectives

Although the proposals produced by the students were provided to the client, the studio was exploratory rather than instrumental, questioning core assumptions about the project generally, as well as sustainability in the context of social and economic circumstances unique to Burkina Faso. Special attention was paid to design and construction methods capable of meeting the unique challenges of the social, economic, and climatic contexts using materials and expertise native

to the region. In particular, the instructors emphasized the need for holistic sustainable designs capable of utilizing passive building and landscape technology in conjunction with locally available natural construction materials, and comprehensive plans for water conservation and storm water management. For example, students were encouraged to explore the use of thin-shelled compressive vaulted structures constructed from compressed earth tiles fabricated from site soils and the structural analysis methods pertaining to them (Fig. 2) due to their promise on a similar project recently completed in South Africa (Ramage et al, 2010). Students generally were encouraged to envision affordable design and constructible solutions, maintainable over time and within the financial means locally available.
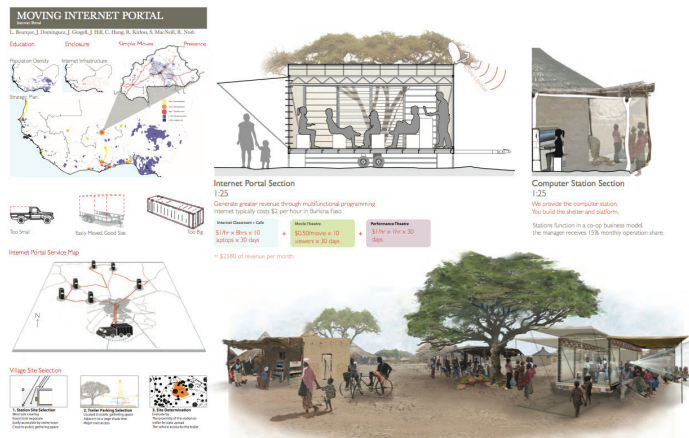

Figure 4. Mobile Internet Portal (source: Josimar Dominguez and Cindy Hung, Open University of West Africa Studio, 2011

UNFULFILLED AMBITIONS AND UNINTENDED RESULTS

The three comprehensive designs produced by the student teams were motivated by a collective desire to develop ecologically responsive design solutions capable of bringing positive change to West Africa. All of the proposals were characterized by a profound respect for the local context and sensitivity toward local environmental conditions, and a desire make these concerns operative in the design process. Students were generally committed and put in long hours to resolve designs to a high level. However, a lack of reliable information about the microclimates on site and local cultural context made the overall approach problematic within the context of the studio.

The cultural rift between the studio and site of the project was the most obvious challenge facing the students. It is hard to imagine two regions more culturally or climatically distinct than West Africa and Western Canada. It was not possible for students to visit the site during the course of the semester or before due to the 10,000 kilometers separating the two regions, which exacerbated the difficulties. Information about the site from personal contacts in the region, when available, was sometimes unreliable, limiting students to information that could be gleaned from print and online sources in the form of films, books, and anthropological studies,

and generalized climatic data. While this information is relevant at the macro scale, these sources often fell short of providing the kind of information necessary to generate a genuine understanding of the local site conditions. Visits from a well-regarded professional office engaged in a similar project in a neighboring African country suggests that the lack of reliable local data is not limited to academic projects. The office was also struggling with a lack of information about similar questions related to local culture and environment, and acknowledged the difficulty that the incomplete knowledge of site and context presented for design development.

The difficulty of accessing reliable data about the site was especially problematic given the sustainable ambitions of the studio. Most contemporary notions of sustainability suggest that an intimate knowledge of place is a precondition for architecture projects to fulfill their ecological potential in architecture, (Mang and Reed, 2012) as well as landscape architecture, (McHarg, 1969) and even agriculture (Orr, 1992). As Sim Van der Ryn and Stuart Cowan point out, an intimate knowledge of place and local construction techniques make it possible to for architects to apply local materials to best possible environmental effect (Van der Ryn and Cowan, 1996). In the studio, students' desires to develop contextually sensitive designs was unaccompanied by the intricate site-specific knowledge required to do so in a rigorous way. This combination resulted in well-meaning attempts to operate in a kind of imagined vernacular and incomplete understanding of actual climatic and cultural factors.

Advancing with general knowledge of the region did produce some informed speculation on how regional techniques might be applied locally. Less successful designs attempted to evoke a kind of generalized village structure using traditional materials and methods. In these designs, the logic which determined the placement of buildings and other design decisions was all but unidentifiable. The well-meaning but misguided attempt to design from a "native" perspective is the worst of both worlds: operating at a cultural and physical distance from the site so great as to render any real understanding of cultural difference negligible, such schemes produce a kind of unintended parody of precisely the same traditional African village structures that they attempt to respect. The difficulty of accessing reliable information about local microclimates that influence environmental performance was evident from the scenes depicted in student renderings, which in some cases had little to do with the actual conditions at the site.

The studio sought to design a sustainalbe campus for a university that uses online synchronous communication tools to deliver course content to university students dispersed across West Africa. The challenges encountered en route to this objective led to what in retrospect was an obvious question: could the some of the same tools be used effectively to address the challenges of developing sustainable designs for the university itself? Current thinking about online learning suggests that pedagogies that blend remote and face to face interactions are most effective. Is it possible that a blended model that makes use of remote communication technologies with face to face interaction could be the also be effective at arriving at an informed

understanding of site? And if is, what would the methodology look like for applying these strategies to design? A provisional methodology for integrating some of these tools follows below.

Addressing Distance with the Internet

Synchronous communication channels such as video conferencing and other forms of real-time social media have increased dramatically in quality and entered widespread use among the general populace in the past few years as the quality of the virtual experience improves. Many architects have also adopted these tools, enabling them to meet with clients and consultants more frequently and at less expense than traditional meetings in person. Synchronous communication might be said to have the greatest positive effect where budgets are tightest and project sites the most remote. One area where both tend to be true is western architects designing humanitarian projects in the developing world. In the context of limited budgets and far-flung locations, synchronous communication tools can enable architects operating in this context to engage in a heightened versions traditional client/ architect relationship than otherwise might be possible, offering substantial benefits to the design outcome of projects.

The positive benefits of the sort of stakeholder participation that these tools can make possible has been the subject of considerable study in conventional planning and housing projects in the past. Sherry Arnstein developed a ladder of citizen participation (Arnstein, 1969). J.F. Turner extended this argument with *Housing as a Verb*, a seminal text on community-based citizen participation in low-cost housing in the developing world context, in 1972. Marisa Choguill adapted Arnstein's ladder of participation for community based planning in the developing world context (Choguill, 1996). More recently, Davidson et all speculate that the most effective benefits of community participation in the developing world occur at early stages of design and diminish as time goes on (Davidson et al, 2007). Other research has explored some of the potentially negative effects of conventional participation (Lizarralde and Massyn, 2007)**,** but overall the past forty years of scholarship suggests that fostering participation from stakeholders is a key indicator of the project success, especially in the developing world context, where numerous failures attest to the dangers of a top-down approach disconnected from the desires and knowledge of project stakeholders (Kleczkowski and Pibouleau, 1983).

Synchronous communication tools can provide effective pathways to community participation, and integrating these tools into design practice can yield insight into local cultural and environmental conditions at minimal expense. In order to be used effectively, however, they require hybrid working methodologies capable of integrating them with more conventional modes of design development. The methodology suggested here can best be described as a phased approach that assumes that knowledge about site and context is often generated incrementally during the design a project. The method proposes to use synchronous design tools to communicate initial designs, which function as fluid tools to stimulate conversation about site and context issues with stakeholders. It should be noted that the proposed methodology is by no means a complete departure from conventional design methods. Rather, the method seeks to utilize the additional remote communication tools to engage clients and stakeholders more fully in the design process than might otherwise be possible given project constraints.

The potential for misunderstanding via mediated communication channels requires the designer to be more deliberate about the same working relationships that exist in any design process. The proposed method requires the architect to present discreet design options to clients and stakeholders to guide debate, ensuring that conversation does not become overly vague or circular. Providing stakeholders with concrete designs to which to respond makes it less likely for misunderstandings to take place. Presenting schemes early and often to those with an intimate knowledge of local sites and adapting them to incorporate feedback allows the designer to calibrate designs to local conditions. Of course, this method depends on the designer being willing to remain highly flexible with respect to design changes to accommodate new information as it becomes available.

The more varied communication options enabled by synchronous communication methods do present potential difficulties, particularly in the developing world. In this context, projects are often funded by one entity (the client), while serving another (stakeholders), and more direct communication channels can create confusion as to how to manage these relationships for the best outcome. Also, additional social engagement could produce a cacophony of stakeholder interests capable of confusing key issues and the ability of the architect to bring their skills to bear on the project. Nor do the communication channels address the accuracy or reliability of information conveyed over them by competing interests. However, despite these difficulties, when properly managed according to the methodology outlined below, synchronous communication technologies offer tremendous potential for architects to develop striking designs that engage with site and context in ways that would not otherwise be possible.

The following provisional methodology is effectively engaging video conferencing in the design process.

Guidelines for future studios in the context of the Global South

1. Clarify the working relationship with all partners at the outset of the project. A memorandum of understanding (MOU) signed by all parties involved is a good way to establish project expectations and commonly held objectives.
2. Conduct an initial site visit in person to collect as much site information as possible. This visit is also imperative to establish personal relationships that can be leveraged with synchronous communication tools going forward. Digital survey plans, photos of the site and context, soil analysis should be done well ahead of the start of the studio to allow for the additional time that is often necessary when collecting this information in the developing world.

3. Conduct precedent studies with a focus on well functioning design and examples both in conditions similar to that of the particular site, as well as those dealing with similar programs in different contexts, to establish a broad range of approaches.

4. Develop conceptual design schemes at a distance. Initial design stages of design should focus on basic common shared human attributes and a relaxed attitude toward local conditions to ensure an adequate range of design exploration. Early stages of design should focus on developing designs that are formally sound rather than perfectly adapted to local conditions.

5. Schedule frequent meetings with key stakeholders during the design process. Designer brings initial schemes to virtual meetings with clients and stakeholders with attitude of flexibility and willingness to change to accommodate site context and environmental conditions. Iterations in response to concerns raised by clients brought to future meetings. Later stages of design development should be approached with flexibility to accommodate specific information about the site as it becomes available.

6. Design for long term flexibility. NGOs and other supporting organizations come and go in the Global South. Seek to develop durable architecture that can be repurposed to offer ongoing tangible benefits to local communities in the event that project sponsorship is eliminated.

Despite their increasing proximity to reality, synchronous communication tools are unlikely to ever fully replace direct human interaction, and it is worth considering that distance from a site can be a positive attribute. Geographical and cultural disconnection forces a self-aware architect to acknowledge his or her position as an outsider, necessarily oblivious to the finer grain of a culture. Simply put, the architect's position as "other" brings a valuable outside perspective to bear on a context. In contrast, attempting to design from the perspective of a native of a different culture is a dubious proposition at best, bringing up problematic questions about attempts to assimilate another culture that have been explored extensively in philosophy (Fanon, 1952) and critical theory (Appiah, 1992). For that matter, it could also be argued that projects that focus exclusively on the technical aspects of sustainability rarely produce works of enduring architecture, even when this approach is informed by rigorous understanding.

Viewed from this perspective, the disembodied nature of synchronous communication tools might also offer the designer the distance required to explore options freely in a way that is beneficial to the early stages of the design process. This type of free exploration is more likely to produce a durable design concept that can be adapted to the particularities of place as these become available as the design process unfolds. Privileging design exploration that responds to program in the initial stages and takes on the challenges of site as more information becomes available as the design process unfolds is an effective way of addressing the initial lack of information, if enough flexibility is maintained such that the design can accommodate new information as it becomes available.

Operating with limited knowledge about a local site and culture at the outset requires an architect to fall back on a basic humanism: basic human dimensions are similar around the world despite deep cultural differences that characterize different regions. Relying on what is shared across cultures will help ensure that the architect's range of expression is not limited to speculation about what the designer might imagine to be appropriate to a particular region. This is an increasingly difficult determination to make, especially in an era characterized by increasing cultural hybridity. At the same time, architects should be realistic about the notion of "progress" and about its own limitations. Developing countries in Africa and elsewhere are littered with well-meaning projects whose effects were markedly different than intended. Given the difficulty of accurately calibrating design responses to particular contexts, it is important that the designs developed have enough flexibility to accommodate the radical differences that are likely to be encountered as a project moves from the hypothetical to the actual. Designers operating in Africa and elsewhere in the Global south from abroad must be flexible and adaptable enough to respond to the different uses of the project as it unfolds. This method highlights the need for provisional responsive decision making that is capable of assimilating new information as it becomes available.

CONCLUSION

This paper presents a methodology to incorporate increasingly popular synchronous communication tools into the design process for projects in the developing world. There are many indications that global projects will continue to increase in professional circles, and instructors at design schools must address issues related to global practice to adequately prepare their graduates for professional practice. Synchronous communication tools have the potential to increase dramatically and at low cost the level of engagement with project participants, which has been shown to be a key predictor of the project success. Integrating synchronous communication tools into the design process also has the potential to allow for a more nuanced understanding of site and context, on most contemporary notions of sustainability are predicated. This paper provides a description of one such project in an academic setting in order to propose a set of working guidelines and provisional lessons learned that could guide Western architecture and landscape architecture schools seeking to implement sustainable design solutions at a distance in Africa and elsewhere in the Global South. The set of guidelines offered a first attempt at a methodology for dealing with design for distant sites. These principles are developed for Western firms operating in the context of the Global South but could be applied by others working in unfamiliar contexts at a distance.

WORKS CITED

Appiah, Kwame A. (1992). In My Father's House: Africa in the Philosophy of Culture. Oxford: Oxford University Press.

Arnstein, Sherry R. A Ladder of Citizen Participation. Journal of the American Institute of Planners 35 (1969), p. 216.

Chinn, M. D. and Fairlie, R.W. (2007). The Determinants of the Global Digital Divide: A Cross-Country Analysis of Computer and Internet

Penetration. Oxford Economic Papers, New Series, Vol. 59, No. 1, p. 16-44.

Choguill, Marisa. (1996). A ladder of community participation for underdeveloped countries. Habitat International, 20(3), 431–444.

Davidson, C. H., et al. (2007). Truths and myths about community participation in post-disaster housing projects. Habitat International, 31, 100–115.

Fanon, Frantz (2008). *Black Skin, White Masks*. Trans. Richard Philcox. New York: Grove Press.

Kleczkowski, P. B. and Pibouleau, R., eds. (1983). Approaches to Planning and Design of Health Care Facilities in Developing Areas. Geneva: World Health Organization, WHO Offset publication No. 72. 3-85.

Lizarralde, G. and Massyn, M. (2008). Unexpected negative outcomes of community participation in low-cost housing projects in South Africa. Habitat International 32 1–14.

Mang, Pamela and Reed, Bill (2012). Designing from place: a regenerative framework and methodology. Building Research and Information 40 (1), 23-38.

McHarg, Ian (1969). Design with Nature. Garden City, New York: Natural History Press.

Orr, David W. (1992). Ecological Literacy: Education and the Transition to the Postmodern World. Albany, New York: State University of New York Press.

Ramage, Michael, Ochsendorf, John and Peter Rich (2010). Sustainable shells: New African vaults built with soil-cement tiles. Proceedings of the 2009 International Association for Shell and Spatial Structures (IASS) Symposium 2009. Valencia, Spain: Editorial de la Universitat Politécnica de Valencia; pp 1512-1520.

Turner, J. F. C. (1972). Housing as a verb. In J. F. C. Turner, & R. Fichte (Eds.), Freedom to build (pp. 148–175). New York: Macmillan.

Van der Ryn, Sim and Cowan, Stuart (1996). Ecological Design Washington DC: Island Press.

Young, Jeffrey R. (2005). 'Open Courseware' Idea Spreads. Chronicle of Higher Education, Vol. 51 Issue 26, p 32-33.