A Process for Developing a World Wide Web Environment in Architectural Education
or Mapping the Transition from Printed Magazine to Educational Tool

PAUL ROSENBLATT and MARC TINKLER
Carnegie Mellon University

INTRODUCTION

The World Wide Web (WWW) is the fastest growing portion of the Internet. It is becoming the fastest, easiest, and cheapest way to find information about virtually any subject. The Web truly makes the idea of a global community even more within reach. It is important for a department of architecture to have a place in that community and to understand and structure the process by which it is developed.

A healthy Web site in a department of architecture can be defined by several aspects: 1. It must provide basic and useful information about the department; 2. It must represent all the members of the department; 3. It must be modifiable by the users in real-time; 4. It must be easy to maintain; and 5. It must be easy to use.

We have focused on the planning of a Web site as an outgrowth of traditional architectural publishing typologies. In an educational environment, a transferable three phase planning process that is flexible, effective, and sustainable, has been developed to meet these goals. Identifying these three phases—relating to 'Desire,' 'Understanding,' and 'Evaluation'–can help to structure the planning process, thus enabling the community to focus more clearly on its goals and expectations for the site it develops. The process is cyclical: if the evaluation process is earnestly engaged, successive generations of users will revise and update the site according to their changing requirements.

Without an awareness of the necessity for structuring this development process, time intensive programming is wasted, and a common language of dissemination can not develop. If this happens, the Web ceases to be perceived as a supportive environment for communications in architectural education. Clear expectations about how to plan and produce a traditional newsletter or academic journal for a department of architecture is based upon years of experience and a common set of exemplars and standards. Since interactive media technology on the Internet is so new and inherently different from other media typologies, we possess no common set of values and procedures. This paper sets out a theoretical and practical strategy for establishing some common ground.

BUILDING A JOURNAL

In the Fall of 1994, when the World Wide Web was not a household name and the letters URL might have been mistaken for some sort of extra-terrestrial space ship, architecture students at Carnegie Mellon University were beginning the fourth annual offering of a course called 'Building a Journal: Architecture, Media, and Dissemination." The course's goal is to introduce undergraduate students to the theoretical and practical issues of "building" an architectural journal. Three general objectives were addressed in the course: 1. To define what an architectural journal is in terms of its function and form; 2. To define and understand specific theoretical issues raised by architectural journals and by other architectural publications; and 3. To define the basic practices related to critical reading, effective writing, constructive editing, and meeting the practical demands of producing a publication.

At the time, we had no idea of the journey we were about to embark on. We believe that our migration from a printed pamphlet to an interactive environment has the potential to be both instructive to faculty, staff, and students in other institutions who are also trying to weave their own portion of the World Wide Web.

THE DESIRE TO COMMUNICATE / PHASE ONE

During the 'Building a Journal' course, students grapple with the realities of producing a publication on a shoe-string budget. With this in mind, students are encouraged to make decisions about the layout and form of the publication early in the design concept stage. Before 1995, Portfolio, the annual publication produced by the students in the 'Building a Journal' class had an average distribution of about 300 copies of a four or five page pamphlet. Discouraged by budget and production limitations imposed on them, students in the spring 1995 class were encouraged to explore other formats and media.[2] At that time, the World Wide Web was just beginning to come into the limelight. Students were initially attracted to it because of its affordability, lack of size limitations, and increased circulation potential. After much

debate and a rapidly approaching deadline, the decision was made to go with the Web.

This stage of the students' experience corresponds to Phase One of the process we are advocating; this phase generally relates to a community's desire to communicate internally and externally, to involve all members in interactive communication, and to decentralize the content, form, and production of the communication. Any publication must emerge from the energies and desires of a group who recognize a common need to communicate. To be effective, this cannot be delegated or legislated; it must grow organically. Thus, if a few key community members do not have a desire to create a Web site themselves–an understanding of its unique characteristics that distinguish it from other architectural publishing media, and the time to contribute to its realization–other typologies may be sufficient and effective. However, if this desire does exist, then the community needs to structure their planning process to enable them to create a site that effectively reflects their desires in terms of image, form, content, and use.

THE DIFFERENCES AND SIMILARITIES BETWEEN E(LECTRONIC)-PUBLICATIONS AND A(NALOG)-PUBLICATIONS / PHASE TWO

Because of the inherent differences between analog publications and electronic publications, there were many issues to be tackled after the big decision to go "E" was made. Some of the Web's least successful sites are those that ignore these differences. There are also some inherent similarities between E-media and A-media. However, many failures also arise when publications try to totally redefine the nature of a publication. The most important lesson that we learned from the Web is that people want to be able to choose for themselves from a variety of paths and options. Other lessons include the following: to encourage reader interaction and use, individual pages on the Web should contain at least half as many words as a traditional printed page. This does not mean that the quantity or depth of the content that is presented should be reduced; quite to the contrary, it means that the content—which can be increased in size and depth because of the Web's storage and retrieval capacity–should simply be broken into smaller pieces. Users should ALWAYS (on every page) be given the option to return to a table of contents or some other type of control structure. Links between unrelated areas should be discouraged or de-emphasized within a publication because they cause confusion. When a user enters a site there should be some indication of the structure of the site so that the user can build a mental map as they navigate through it. Cross links that take users to entirely different sections of the hierarchy confuse users; even though the Web is an entirely new medium—and hypertext has its advantages-people still like structure.

This second phase of our process model relates to educating potential participants to the range of form and content options available. A series of seminars, courses, or mini-

courses, should be designed to introduce undergraduate students, staff, and faculty, to the theoretical and practical issues of 'building' an architectural site on the Web. Three general objectives should be addressed in these seminars: 1. To define what an architectural Web site is in terms of its function and form; 2. To define and understand specific theoretical issues raised by architectural Web sites, and by other architectural publication types; and **3.** To define the basic practices related to critical reading, effective writing, constructive editing, programming and implementing in preparation for the practical demands of producing a Web publication.

Media are not neutral. Architects receive information and ideas through a variety of media and forms; because each affects the nature of the message received, it is especially important to understand their characteristics and objectives.' Developments in architectural discourse are primarily recorded in four major printed typologies:
1. the popular press
2. professional magazines
3. critical independent periodicals
4. academic journals
Electronic media are playing an increasingly significant role in the dissemination of architectural knowledge. These typologies include:
5. Television
6. WWW/Internet
7. CD-ROM
To help develop a thorough understanding of the nature of architectural communication in and from a department of architecture, these types should be compared. What are the characteristics of each? the language? the focus? the tone? What other issues help to characterize architectural publications? Ultimately, seminar participants should approach some answers to these questions: what is the function of an architectural Web site? what forms can it take? and why would one form be more or less appropriate to a given department.

THE EVALUATION OF PORTFOLIO IV / PHASE THREE

When Portfolio IV was completed, we were ready for the big unveiling. Numerous faculty and guests were invited to use Portfolio IV and get hands-on experience with it. The reaction we had was very positive, but we learned something very quickly. Because of the nature of our attitudes toward electronic media, electronic artifacts are generally perceived as temporal and easily modified. As a result, our invited users did not hesitate to make suggestions regarding the layout, content, and structure of the publication. Not only did they not hesitate, they expected us to change it! At first this was extremely frustrating for the students, since they we were under the impression that they were presenting a final product, but this turned out to be one of the most important lessons we learned from the Web. The lesson was this: the

beauty of the Web is that documents can be updated and revised with virtually no consequences. In the community of the ever-expanding World Wide Web, sites that get the fewest visits are the ones that never change. Temporality is a positive quality of the Internet; it should not be fought, but instead should be viewed as an opportunity to exploit the nature of the medium. In fact, today, we not only monitor usage of Portfolio IV, but we monitor the sequence in which people view its pages—in order to make changes to facilitate easier navigation in the future.[4]

This third evaluation phase reveals some of the most dramatic differences between E-publications and A-publications. Because the feedback loop is very small on the Web, refinements can be made rapidly in response to user comments and criticisms. Of course, this begs the questions of control, responsibility, and upkeep time. Once a traditional A-publication is published, it is immune from physical alteration. Questions and criticisms can—and should—be made, but they may only be addressed in future issues of the publication. However, the Web offers the possibility of instant feedback. Who decides what to change and how in response to user feedback becomes a significant policy decision which departments must consider. There are also significant amounts of time which these modifications may require.

A STEP IN THE RIGHT DIRECTION

After Portfolio IV was produced, it was in the unique state of being stored magnetically on a disk drive someplace where very few people could access it. The time had come to give Portfolio a home—a site and context in which to reside. One of the students involved with the publication (Marc Tinkler, B.Arch.'96, co-author of this paper), undertook a faculty monitored independent study (with Associate Professor Paul Rosenblatt), to create a Web site for the Department of Architecture at Carnegie Mellon. Using what we had learned from the production of the journal, we set out to define a larger "Web Environment" for the department which would meet the disparate needs of students, faculty, and staff.

Based upon this independent study, a healthy architecture Web environment in architectural education can be defined by these five aspects:
1. It must provide basic information about the department, for internal and external consumption. At the very least, an architecture Web site must provide the basic information that is traditionally available about the department in books and brochures. Goals in this area may include interactive guided tours, written feedback, and links to the University Admissions Office.
2. It must represent all the members of the department. Every member of the department should have the ability to put information about themselves or their work on-line. The system should be easy enough to use so that novices as well as experts have the opportunity to participate.
3. It must be modifiable by users in real-time. One of the biggest problems with most, if not all, other World Wide Web systems is that in order to change information that is on-line, users have to e-mail the webmaster. Thus, a top-priority goal should be to allow users to control and change information instantaneously. If users can get instant feedback, they will be more inclined to use the system on an everyday basis.
4. It must be easy to maintain. Maintenance should be able to performed by part-time work-study student administrators; these administrators should need only basic computer skills in order to keep the Architecture Web site in working order. A knowledge of UNIX or C programming should not be required. Of course, manuals should be available explaining the more technical aspects of the system.
5. It must be easy to use. An architecture Web site should be intuitive, fast, and simple enough to use to ensure that it is not a chore or hassle for the user or the administrator.

NEXT STEPS

It is easy for an architecture Web site to become nothing more than a newsletter from the head of a department of architecture. Initially, there is always a fear of relinquishing control of the content of your site. Yes, there should probably always be an "official" portion of the site that is written and maintained solely by the administration—but it should be kept to a minimum. People browsing the Web will be more attracted to use your site if it seems to be a window into the department. This voyeuristically attractive sense of peering into a busy office window—seeing people buzzing around—will let outsiders see, and even participate in, the life and variety of events and discussions that happen within a department of architecture. This can only happen if the administration supports the Web.

Clearly, a certain amount of control must be relinquished to achieve the above stated goals of interactivity and feedback. For better or for worse, people are inevitably going to post inane things to your site. The job of the webmaster is to edit and compose as little as possible, but to rearrange as much as possible. In the past, there was a need to edit traditional A-publications because physical size and content was itself a constraining factor. This is not the case anymore. Today, the webmaster should be responsible for reorganizing the hierarchy and making sense out of what is on the site, but not for deleting, because he or she or the administration does not deem it worthy of inclusion. In addition, the department has to support the Web site as its primary means of communication. To encourage use, departmental announcements and communications should be gradually made only through the Web Site. Education about the Web should be integrated into first year classes, so students become familiar with it and are able to post their work and ideas easily. Professors should encourage (or even require) students to post their work periodically on the

Web and encourage other professors to have their students critique it. In fact, if the site is easy enough to use, and fully supported by the administration, it will become the major tool of communication and education within a department. It will become truly open window—both into a department to outsiders and out to the world of students and faculty elsewhere. [5]

CONCLUSIONS

Our journey from printed publication to interactive environment is a story of slowly relinquishing control. Designers of traditional A-publications are used to a tremendous levels of control over form, layout, and content. Publishing on the World Wide Web is different. The most successful Web sites are interactive environments, which provide a variety of interactivity options. A site should not only provide users with a choice of what they may see, it should also give them the opportunity to contribute to the form and content of the site itself. In essence, this is the most profound difference between a magazine and a Web site, between the E-publication and the A.

NOTES

[1] The course entitled, 'Building a Journal: Architecture, Media, and Dissemination,' is taught each spring by Associate Professor Paul Rosenblatt; Marc Tinkler was a student in this class during the spring semester, 1995, and is the first Department of Architecture Webmaster at Carnegie Mellon University.

[2] Class members during the spring semester, 1995, included Sarah Agrest, Brent Capron, Eugene Carroll, Karen Choy, Amy Haupl, Jackson Tam, Ashli Thompson, and Marc Tinkler.

[3] Marshall McLuhan, *Understanding Media: The Extensions of Man,* New York: Signet Books, 1964.

[4] B.J. Novitski, "Students Weave a Computer Web," *Progressive Architecture,* September, 1995, pp. 39-40.

[5] To 'visit' our site: http:l/www.arc.cmu.edu.