

Virtual eCAADe Galleries and Meeting Places

Andre Brown, Lesley Gavin, Phil Berridge, Henri Achten and Mike Knight

Keywords

eCAADe, virtual meeting places, internet

Abstract

This paper describes the first steps taken to establish a virtual gallery as a device to enable the display and sharing of information, both within the eCAADe organisation and for other interested or related parties.

Initially an important role of the gallery would be to display student work from all of the member states of eCAADe. With this feature established we might then want to move on to providing additional elements within the world which could allow exchange of views; discussion; points of contact; and the provision of educational and research information relating to CAAD.

The paper will describe the potential of the different kinds of gallery that might be appropriate. The worlds reviewed will deal with sites which offer a collaborative environment represented in a three dimensional form. We will comment on some specific relevant examples, and review their appropriateness against a set of relevant criteria. The proposals that we make will be open to review and comment by eCAADe members before a fully working site is constructed.

Introduction

Since its inception one of the core aims of eCAADe [1] has been to promote and facilitate the discussion and interchange of ideas relating to a broad range of issues in the field of CAAD. The explosive cocktail of technologies that have come together to give us the environment that we know as the Internet has offered a range of stimuli for new initiatives. Our aim is to investigate and explore this new potential with the proposal of establishing an eCAADe Virtual world as a vehicle for testing the associated ideas.

Early on in discussions it became clear that the proposal for a Gallery of student work in a 3D world would only explore part of the potential offered by such contemporary web environments. Consequently the scope of the project was broadened to include areas for discussions, meetings, displaying information and so on. In short the broader concept had become to provide an internet world that fully exploited the potential for sharing information in line with the aims of the eCAADe Organisation. It was agreed that this world should be composed in a manner that exploited the capabilities of current technology whilst recognising and re-

sponding to the important observations and conclusions of researchers working in this area.

Context and precedents

There are many examples of two-dimensional web based galleries architecture, art and design artefacts (quondam, for instance [2]), but recent developments in the associated technologies offer enhanced ways of viewing, discussing and interacting. In the past five years or so various researchers and research groups have contributed to the evolution of web based communication for architectural design and architectural education. It is worth noting some of those contributions here since they inform the work described in and arising from this paper.

Some of the evolutionary work that has taken place has focussed on the Virtual Design Studio (VDS) in which architectural design proposals are discussed and developed by groups in disparate parts of the world either synchronously or asynchronously [3,4]. A particular strand of work in this area which is enlightening has been undertaken by a dynamic group who have worked together in a variety of different teams, which it itself evidence of the net fostering fruitful and flexible collaboration. The work in question has led recently to collaborative architectural projects called Place2Meet and Place2Wait [5]. The projects follow from earlier work which refined a tracking system to record interaction, and design modification, called Phase(x) [6].

In a more general sense Caneparo [7,8] has been involved in the notable development of appropriate worlds for synchronous interaction in a Shared Virtual Environment for architectural debate. Added to this the potential for the application of such environments for teaching [9] and assessment [10] in architecture have become apparent in recent years.

But there are significant caveats. In the evolu-

tion of an appropriate virtual world one of the temptations is to believe that enhanced technology (such as faster machines and more bandwidth) holds the key to solving the current problems evident in net-based communication. However, Winter and Taylor [11] emphasised the importance of allowing users to construct their own protocols. The application of such ideas in an architectural education setting was discussed by Koralevic and Ng [12] who concluded that 'flexibility in the provision of technology is more important than its optimisation'.

That said, it is apparent that multi-user domains (MUDs) such as Fatal Dimensions [13] offer the potential to provide promising social workplaces and, given the advent of three-dimensional graphics and sound, to offer rich and compelling on-line spaces [14]. Even though the Fatal Dimensions domain mentioned above is only text based the interaction between architecture students in the domain is lively and diverse. A visual world has the potential to be even more engaging and appropriate for architecture students.

Interaction, and its support are key issues in such environments. The chatting element should not take over, but is an important social aspect that should not be ignored.

There are many degrees of usage of MUDs. Standard players simply roam about, whilst more sophisticated users take up social roles (clan leaders say) and advise and help others. Builders even add new areas to the MUD and program behaviour of objects and mobiles. Such a division of users will also be found in the VR-worlds that we are looking at. All of these aspects need to be supported. In addition participants in the MUD give important feedback and share ideas through the posting of notes, ideas, bugs, and other such comments.

The eCAADe world should be one that supports and fosters discussion and exchange of information effectively [15] and the construction of the world should be driven by this primary considera-

tion. We note that our focus here is, *de facto*, on screen based human computer interaction issues.

eCAADe World: the Initial Concept and Criteria

The conceptual organisation of the world and its interconnections that has been initially agreed is shown in Figure 1. In devising this representation we were aware of other potential metaphors for the world. In addition to the building metaphor chosen the other two potential contenders were the city model and an abstract model. The abstract metaphor would be the result of arguing that in a virtual world the need for a real world analogy is debatable.

We envisage that the eCAADe world would be entered via a Virtual Foyer (1). From this area four other principal spaces could be accessed:

- a public meeting space (2)
- private meeting spaces (3)
- a lecture room (4)
- permanent gallery (5)

The gallery would contain, for instance, examples of student work, arranged by theme or region.

Additional enhancements to the world might be possible in some of the environments being reviewed. In some environments it is possible for users to attach (temporarily) their own subspaces to the main world. This feature then makes it possible to have:

- user hosted galleries (6)
- user hosted meeting spaces (7)

In broad terms our philosophical goals can be summarised as follows:

- the eCAADe world can point to future developments of information storage and

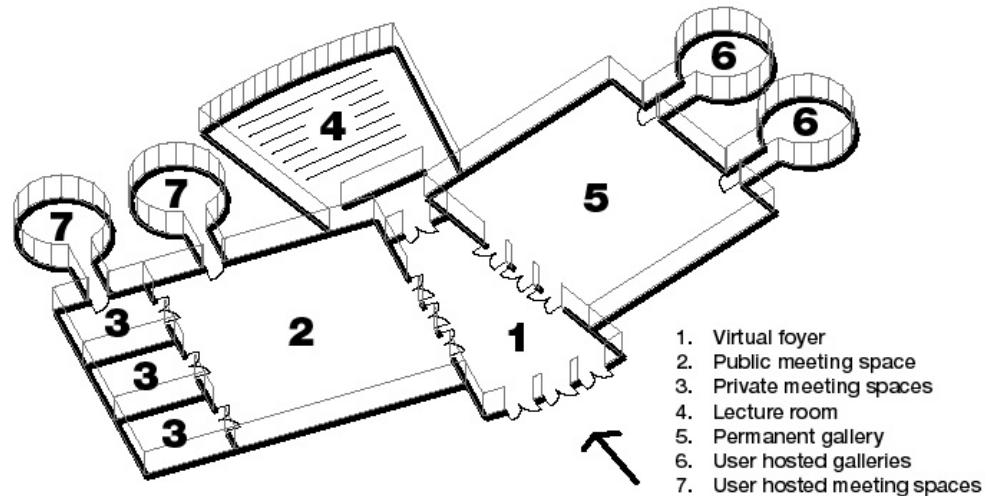


Figure 1:
The conceptual structure of
the eCAADe world

- presentation;
- it can establish an eCAADe landmark in 3DInternet environments (Cyberspace);
- it could become an experimentation ground for eCAADe members;
- and it could contribute to the construction of a shared knowledge base for these kinds of systems

In practical terms our critique and comparison needs to take in specific technical and pragmatic issues. Our philosophical goals have to be achievable through an environment that is accessible, efficient and effective. The issues that we considered important initially were:

Technical: Bandwidth; required hardware; computational power; accessibility/availability; connection speed; performance under stress; stability

Educational: pedagogical use; gallery support; discussion support; does interacting in these worlds transmit additional knowledge/information effectively?; what do you learn from building environments?; is there a steep learning curve for advanced use?

Human Computer Interface: time investment/product quality ratio for teachers and students; Speech/text/avatar possibilities and value; discussion of work easily possible?; private/public rooms?; student/eCAADe member/teacher/tourist different id's/possibilities?

Administration: eCAADe members; current teachers in the system; students; tourists; what are the respective privileges and how are they managed?

Interactive three dimensional worlds

We considered three environments that might offer the best solution to our expanded brief. These were:

- Active Worlds: Activeworlds Eduverse [16]
- Blaxxun: Cybertown and Virtual University [17]
- Holodesk [18]

A brief description of each of these environments is presented below. The authors have met in each of the worlds and have, as a result, formed an opinion about the effectiveness and appropriateness of each according to a set of criteria. Each of the worlds is evolving so these views will, we accept, become dated very quickly.

Active Worlds: Activeworlds Eduverse

Active Worlds is a very active environment and architecture schools already have a presence there. Meetings and lectures take place there frequently. Worlds can be constructed by going to the Builder's Yard and there are other worlds that are of interest to architects.

Plus points

- established and busy world
- facility for whispering (private chat)
- already used for architecture and architectural education.
- proven lecture room facility.

Minus points

- only 10-15 avatars can be seen even if there are more participants than this present
- busy and heavily populated at times.

Blaxxun: Cybertown and Virtual University

Blaxxun has become our favoured environment. It contains most of the features that we regard as important, and does not appear to be as limiting as the other environments in terms of technical restrictions and interface effectiveness. However eCAADe would have to provide a host and server from which the world could be run.

Plus points

- an advanced environment
- a variety of world types
- a participant capacity of 100 (is claimed)
- good navigation features and fast frame rate

Minus points

- heavily populated world with heavy backchat
- a suitable host with an appropriate server must be found.

- there are costs associated with hosting and providing the server
- the security/management aspects need to be clarified

Holodesk

An Internet Explorer engine sits behind Holodesk. In terms of ease of use and clarity of the interface this was the most effective of the environments.



Figure 2:
A view taken in the
Blaxxun environment

Plus points

- two-way voice chat is supported
- navigation can be either by vrml interface or keys
- easy to use and responsive with a small number of users
- quite good whiteboarding facility
- no sign-up charge
- easy to load up vrml files and avatars
- local loading of worlds maximises bandwidth.

Minus points

- limited capacity for holding a large number of participants in one world.
- new, and relatively untested system, with important developments still to take place
- currently we would need to provide the server and host the world ourselves
- no facility for whispering (private chat)
- voice facility does not work with all soundcards.
- slowed down dramatically during our tests; at a simple meeting/discussion a 300 Mb swap file was generated which crashed the host machine.

The Next Step

Given the context and criteria set out above we plan to establish an alpha eCAADe world in one of the environments. All of the worlds have a combination of desirable features and drawbacks associated with them. None are perfect. All are evolving. And there might be others that offer more than those that we have tested.

However, we need to take the plunge and develop a world of some kind. Our initial shared view was that Holodesk held the best prospects. But that view changed when we began to look at the practical consequences of using this environment. The technical restrictions and problems that were encountered have led to a rethink and now Blaxxun is the favoured environment. No doubt we will be

wise after the event. No doubt we will make mistakes. But as Samuel Johnson said "if we wait for all of the solutions we will never begin to tackle the problem".

References

- 1 www.ecaade.org
- 2 <http://www.quondam.com/>
- 3 **Chen, N., Kvan, T., Wojtowicz, J., Bakergem, D., Casaus, T., Davidson, J., Fargas, J., Hubbell, K., Mitchell, W., Nagakura, T. and Papazian, P. (1994)** Place, Time and The Virtual Design Studio , **Reconnecting [ACADIA Conference Proceedings / ISBN Washington University (Saint Louis / USA) 1994, pp. 115-132**
- 4 **Wojtowicz Jerzy and Butelski, Kazimierz (1999)** Lessons from Distributed Design Practice, **Architectural Computing from Turing to 2000, eCAADe Conference Proceedings Liverpool (UK) 15-17 September 1999, pp. 482-487**
- 5 **Donath, D., Kruijff, E., Regenbrecht, H., Hirschberg, U., Johnson, B., Kolarevic, B. and Wojtowicz, J. (1999)** Virtual Design Studio1998 - A Place2Wait, **Architectural Computing from Turing to 2000 [eCAADe Conference Proceedings, Liverpool (UK) 15-17 September 1999, pp. 453-458**
- 6 **Wenz, Florian and Hirschberg, Urs (1997)** Phase(x) - Memetic Engineering for Architecture Architecture, Challenges of the Future, **15th eCAADe Conference Proceedings**
- 7 **Caneparo, Luca (1995)** Coordinative Virtual Space for Architectural Design, **Sixth International Conference on Computer-Aided Architectural Design Futures, Singapore, 24-26 September 1995, pp. 739-748**
- 8 **Caneparo, Luca (1997)** Shared Virtual Reality for Architectural Design, **CAAD Futures 1997 Conference Proceedings, München (Germany), 4-6 August 1997, pp. 431-442**
- 9 **Kvan, Thomas (1997)** Studio Teaching Without Meeting: Pedagogical Aspects of a Virtual Design Studio , **CAADRIA '97 [Proceedings of the Second Conference on Computer Aided Architectural Design Research in Asia Taiwan 17-19 April 1997, pp. 163-177**
- 10 **Johnson, Brian and Kolarevic, Branko (1999)** EVAL: A Web-based Design Review System, **Media and**

- Design Process ACADIA '99, Salt Lake City 29-31 October 1999, pp. 30-39**
- 11 **Winter, S.J. and Taylor S.L. (1996)** The role of IT in the transformation of works: A comparison of post-industrial, Industrial and proto-industrial Organisation, **Information Systems Research, Vol. 7, No. 1.**
- 12 **Kolarevic, Branko and Ng, Edward (1999)** Net enabled Collective Design Authorship, Media and Design Process, **ACADIA '99 Salt Lake City 29-31 October 1999, pp. 302-315**
- 13 <http://fataldimensions.nl.eu.org/>
- 14 **Anders, Peter (1999)** Extensions: Some Implications of Cyberspace for the Practice of Architecture, **ACADIA '99 Salt Lake City 29-31 October 1999, pp. 276-289**
- 15 **Kalay, Yehuda E. (1999)** The Future of CAAD: From Computer-aided Design to Computer-aided Collaboration, **Proceedings of the Eighth International Conference on ComputerAided Architectural Design Futures, Atlanta, 7-8 June 1999, pp.14-30**
- 16 <http://www.activeworlds.com/edu>
- 17 <http://www.blaxxun.com/>
- 18 www.holodesk.com
- Andre Brown (1), Lesley Gavin (2), Phil Berridge (1), Henri Achten (3) and Mike Knight (1)*
- (1) School of Architecture and Building Engineering, The University of Liverpool, UK*
- (2) School of Graduate Studies, The Bartlett, University College, London, UK*
- (3) Technical University of Eindhoven, Netherlands*
- andygb@liv.ac.uk*