

Digital Identity in the Virtual Design Studio

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Internet tools most effectively connect diverse groups when individuals involved experience vital human connections. Online strangers are pulled into a community in which they can see a friendly face in the crowded stream of information. Strong self expression engages an audience and can result in personal interactions which reward getting beyond the technology. A group of individual profiles can coalesce to give colorful definition to team biases, strengths and weaknesses.

This paper examines how the expression of identity has been a critical factor in the success of Internet design collaborations. First, it provides context on how these projects can improve architectural education by increasing relevance. Second, it identifies opportunities for individual and team expression gathered from a series of annual international design exercises known as the Virtual Design Studio. Third, it explains strategies for fostering student expression and interaction. Finally, it cites areas for future investigation.

I. INTRODUCTION: A WEB FOR ENGAGEMENT RATHER THAN RETREAT

As commercial forces capture more and more of the Internet bandwidth, the visual dazzle of Cyberspace's almost infinite complexity can mesmerize people into retreating from reality. In contrast, the Internet can also be used to ground people in reality and connect them to remote situations and places with an immediacy never before possible. What differentiates the Internet from hypnotic broadcast media is the opportunity for grassroots authoring and the resulting diversity of expression. The richness of the medium depends on individuals having the means to make their voice heard.

The Internet's ability to connect dispersed participants has encouraged many distanced design collaborations within academia and the profession. A strong motivation for arranging student collaborations is to use technology to engage the outside world into the educational process. In bringing people from remote locations together into a Virtual Studio, different objectives, equipment and customs must be bridged. The process of negotiating common ground requires participants interact in group situations common to architectural practice. Since architects have to work with people from

different backgrounds, it makes sense to use telecommunications to put students into direct contact with those trained in different ways.

Using telecommunications to bring immediacy to distant sites is particularly valuable for architects who will be operating in our global economy. In our 1995 project, for example, we were able to bring together students from North America and Europe and architects from Shanghai to study the city's low-rise high-density courtyard housing typology. The joint project included a group from the University of British Columbia who surveyed the site with digital cameras and CAD-equipped laptops, allowing participants to use current information to design specific solutions for a specific place. Digital means can provide direct access to people and resources from these places. In a second example, our 1996 project to design a Monument to Hong Kong's 1997 Handover connected North American students to Hong Kong and Taiwanese students during a time when China was testing bombs off the coast of Taiwan. While the monument design was the ostensible agenda, getting honest personal reactions to the larger political events provided a strong educational context.

Because the Internet helps connect people, Internet projects are suited towards matching complementary resources. Institutions facing resource shortages are well served by finding ways to share specialties with each other. In addition, by making connections, it is possible to link the resources of the university with communities in need of services and government agencies in need of new ideas. What makes these projects happen is not that some large institutions seek each other. Rather, individuals discover opportunities and make human connections. The vitality that comes in face to face contact seals human bonds. For digital collaborations to work, that human spark must be legible through the veil of the media.

II. BACKGROUND INFORMATION ON THE COLLABORATION PROJECTS

Using a series of collaborative projects called the Virtual Design Studio, several colleagues in architecture schools have been experimenting with the technical, curricular and social context since 1992 to maximize the quality of the

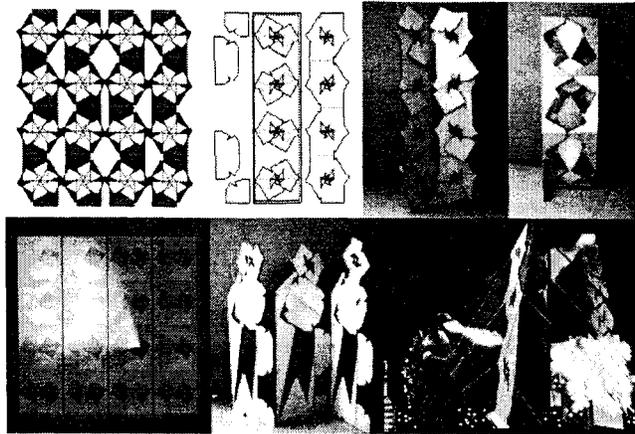


Fig. 1. (From Screen to Screen '96) Partners created new compositions from images, CAD data and digitally lasercut wood components of a screen design by Greg Thomson, Univ. of Oregon. Physical components resulted in playful compositions including the Godzilla image collage showing the whimsical side of J.J. Lee of Univ. of British Columbia.

exchange. (Wojtowicz 1995) Jerzy Wojtowicz initiated some small scale experiments among former students of William Mitchell which grew into an annual project. Each spring, we have agreed on a common design brief, common communication tools and a partnering scenario. The number of schools has varied from 2 to 6, the number of participants at each site ranging in size from 3 to 30. The shared collaboration time has varied in duration from 2-1/2 to 9 weeks. Design team size has ranged from 2 to 5 or more. Typically, asynchronous exchange throughout the period has been wrapped up with a final synchronous (live) review.

While we have upgraded the tools for collaboration and have written new scenarios each year, the actual outcome of the projects was highly dependent on the emergence of a student leader. Typically, the students would find the burden of learning the Internet tools burdensome until one of the more motivated ones got an interesting response from a remote site. Once the sociable students were hooked by the idea of putting on a good show for a new Internet acquaintance, the enthusiasm became infectious.

What made the difference between the leading students and the others? While a high degree of technical skill was needed to get beyond the mechanics of communication, what really made a difference was the ability to convey a personality through the Web. Communicating a personality can engage both author and audience. Getting beyond the technical difficulties made the medium transparent so that the student could concentrate on expressing their creative ideas and sharing cultural curiosities.

III. COMMUNICATION MODES IN THE VIRTUAL STUDIO

Specifically how was identity expressed in the Virtual Design Studio? In different years, we used different combinations of communication methods, each of which facilitated different

eve's VDS'95 homepage SpIRiTUaL MetAmORPHosiS



intro image of myself!

Design Project

Homepages for the Competition in Japan

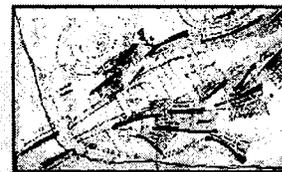


Fig. 2. From VDS '95, Center for Religios Studies, Miyajima: a Web page uses individualistic type treatment and scan of pocket contents (copying the previous year) to convey personality.

		YDS '92	YDS '93	YDS '94	YDS '95	YDS '96	S2S '96	YDS '97
Asynchronous	Text Messages				E-mail			Hypernews Archive
	Image & Data Files		FTP		WWW			Java / YRML CAM
Synchronous (live)	Private Interaction		Whitebd + audio			Desktop video		
Final	Group Interaction		Conference Call			Video-conference Review		

Table 1. Communication methods for Virtual DesignStudio projects can be sorted by the nature of the information and the stage of the project.

ways of expressing identity. The techniques which were once esoteric are now much more accessible and economical. The table below summarizes the the changing technology.

In 1993's Chinese shop house and walled village redesign, when graphic information was exchanged by sending files by FTP to a common bulletin-board server, e-mail was the most natural way for relationships to develop. Each school had a local team and the final results were viewed locally with communication via telephone conference call.

In 1994's High-density low-rise housing in Shanghai, many of the students expressed themselves by creating quick digital collages of ID cards and items in their pockets. In the final review, one team tagged their work with antique Chinese

photos. Throughout the project, the Barcelona participants conveyed their identities most strongly by juxtaposing poetic quotes, LISP software routines, video images and even a scanned piece of holiday candy. The intriguing mix of unlikely missives made them seem compelling. A wrap-up video-conference via AT&T PictureTel provided the chance for everyone to see the mystery participants.

In 1995's ACSA's Center for Religious Studies in Miyajima Competition, students created Web pages for the first time and in some cases, inveigling their partners by creating quick biographical profiles. Idiosyncratic use of typography and audio clips of music gave individual flair to the pages.

Individual spirit ran high despite the agenda of team collaboration across school lines. Students who had started individual designs found it difficult to work collaboratively; those students who were able to work in a local team carefully divided their design problem into separate domains.

In spring 1996's Monument to Hong Kong's 1997 Handover project, teams were expressly composed of local plus foreign students and designers plus programmers so that different roles would evolve. While design ideas were primarily presented through Web pages, desktop video-conferencing (CU_SeeMe and "nv" and "vat" on UNIX) worked with intermittent quality, allowing more intimate interaction. Students enjoyed being able to freely inquire about international differences and the future of Hong Kong.

In fall 1996's Screen2screen project, students were invited to create folding screen designs working from components designed by their partners. One on one pairings simplified communication logistics and gave a more private nature to the exchange. On the other hand, reducing the team down to a pair reduced the resources available for solving technical problems, thinking about the design problem and presenting the design solution. Motivated sociable students enjoyed contact over desktop video-conferencing despite a low-quality connection. A few pairs suffered from mismatch of motivation, leaving one of the best students with a no-show partner. The lesson learned is that careful matching of partners is important because enthusiastic students make the spirit of the project.

In spring 1997, Communicating a Sense of Place project brought together 3 different architectural school cultures. In the first phase which was done asynchronously at the different schools, each student created a place description on the Internet. In the second phase, the students worked with a partner at another school to negotiate a linkage. To encourage quality in the initial place presentations, students were allowed to market their sites and solicit partnerships with those they felt were strongest. Those who had not been able to find a partner after 10 days (approximately half of the group) were assigned one. One student attracted many potential partners without even showing her face on the Web. Her quick-loading photographic history of a Hong Kong neighborhood revealed her savvy. She enjoyed the social whirl of many e-mail messages before tiring of the demands and settling down to one partner.

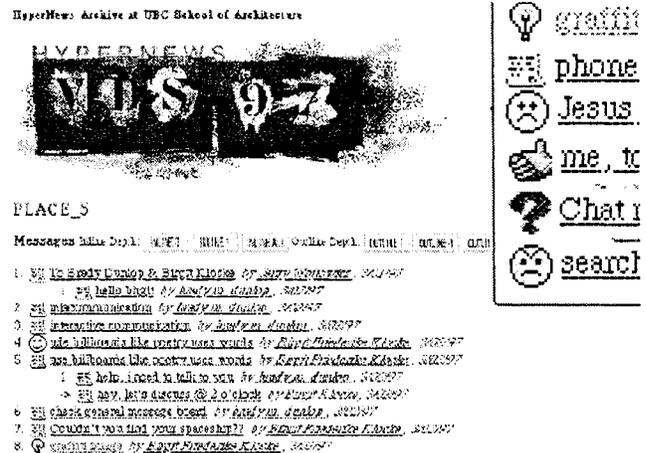


Fig. 3. VDS'97, Communicating a Sense of Place: Hypernews archive with customized interface. Right insert shows how users can select an icon to tag each message with emotion/content hints.

To communicate, the students used primarily asynchronous methods: e-mail, WWW pages and Hypernews, a cgi-forms based bulletin-board software which archives text, HTML and image references. Within the Hypernews system, it is possible to label responses with a set of standard symbols, including smiley faces and question marks. (My preference would be to have actual video grins or grimaces to emphasize the person behind the words.)

As synchronous communication was limited due to bandwidth and financial limitations, students had to take the initiative to get a live link. Many students found that text-based methods worked well and developed intense e-mail and hypernews discussions. One pair enriched the hypernews interchange by scheduling interactive chat sessions (simultaneous typing) outside of class.

The students' work strongly reflected both their schools' specific digital media training and their professor's orientation to the project. In the Sense of Place project, Hong Kong students used abundant photographic documentation to provide travelogues or historical profiles about their city. UBC students collaged appropriated imagery and words to create haiku-like impressions of a place that lives strongly in memory. Oregon students methodically built up three-dimensional models of critical components into complete building descriptions. Internet publishing and communication allowed easy comparison and discussion of the different approaches in a way which traditional studios could not.

IV. EXPRESSING IDENTITY

Relevant research in examining virtual identity has concentrated on text-based Multi-User Domains (MUDs) for geographically dispersed individuals. (Anders 1997) In these elaborate worlds of the imagination, individuals are only known by their words, so part of the appeal is the freedom with which real identity can be hidden. The mask of the medium allows marginalized individuals to find niches such as gay meeting rooms or to try passing as "mainstream". (see Woodland 1997

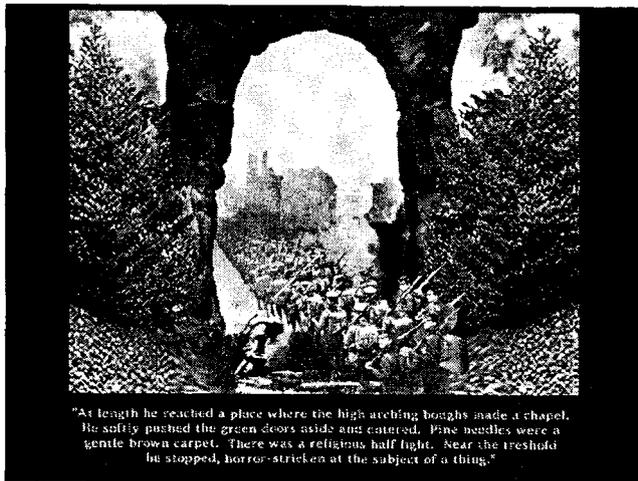
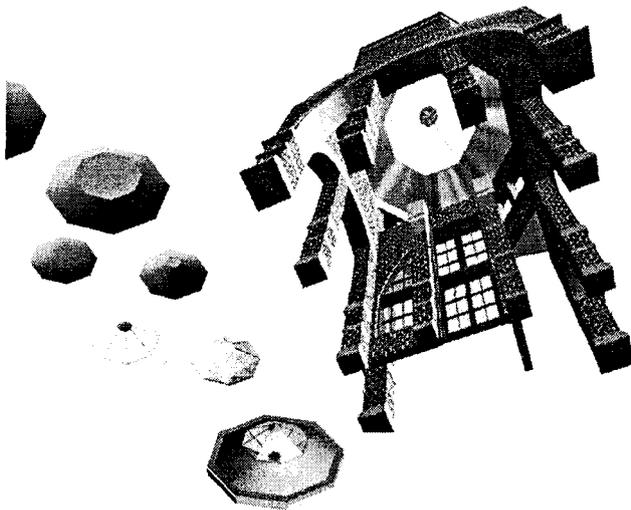
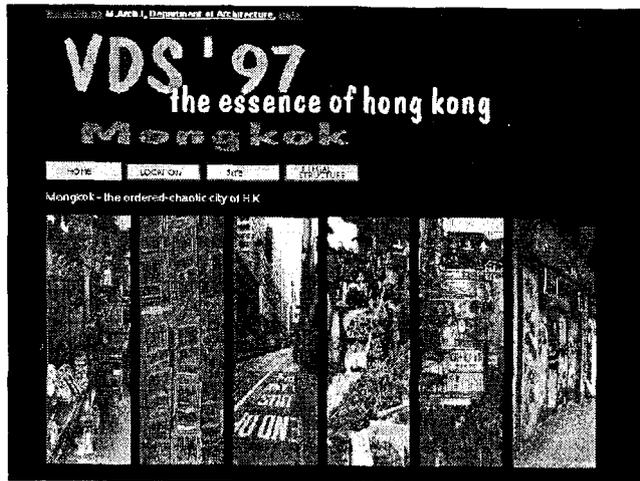


Fig. 4. From VDS'97, Communicating a Sense of Place: the stylistic signatures of 3 schools. Travelogue by Wong Wa On, Univ. of Hong Kong (top), catalog of pavilion components by Edwin Lee, Univ. of Oregon (middle) and poetic collage by Sonya Carel, Univ. of British Columbia (bottom).

on Queer Spaces or Nakamura 1997 on Racial Tourism)

More recent work is focusing on how dissimulation and proclamation of identities are accommodated within 2D and

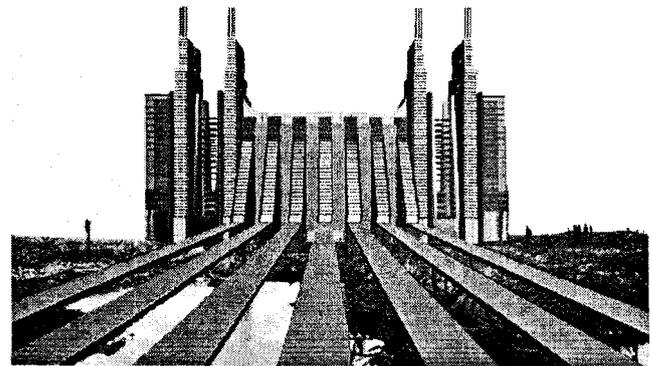
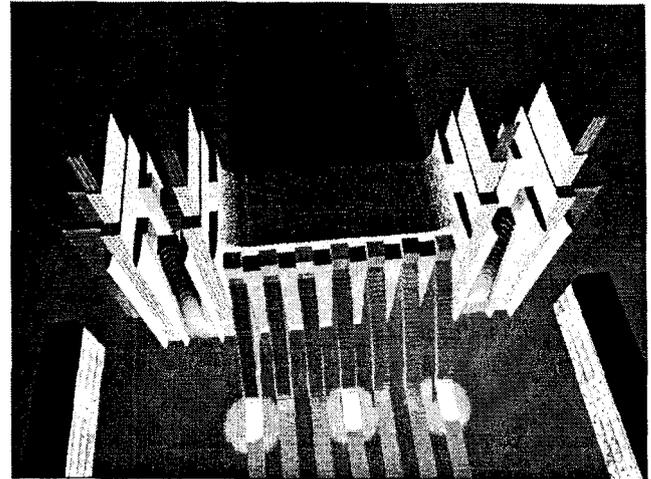


Fig. 5. From VDS'97, Communicating a Sense of Place: computer renderings of Sant' Elia's La Citta Nova by Midhat Delic of Univ. of Oregon (top) were collaged with Sonya Carel's war torn images based on Stephen Crane's A Red Badge of Courage to create a sequence of transitional images (bottom).

3D graphical environments through the use of avatars. Participants either assume a standard character (Alien66) or cobble one together as an image map or a texture-mapped 3D figure. Since the quality of interaction is dependent on low-bandwidth graphics, the representations have been either abstract or rather crude. (Avatars 1997)

The anonymity on which these studies are based is partially missing in the Virtual Design Studio. While remotely located students didn't know each other, they could not easily falsify information since they were part of a class whose affiliation was broadcast up front. Though they could not experiment with their identities, they could be quite certain that none of the participants were pretenders, so suspicions of masquerading could not be the level of trust. The message stream did tend to blur the distinctions between teacher, assistant and student: each started out with a similar presence and built credibility with through their contributions.

At the beginning of each project, students had the important task of establishing identity. A self-portrait requires reflection whether it is choosing a photo, creating an e-mail nickname or sculpting a three-dimensional avatar or substi-

<i>Mode of Communication</i>	<i>Means of Portrayal</i>	<i>Masking</i>	<i>Direction</i>
Sync audio: phone	caller ID		sync 1 to 1 (usually)
E-mail	login name, signature, domain name, writing style	(multiple) aliases, anonymous re-mailers	one-way async
Letters, Fax	Stationery, Logo	stolen or fake stationery	one-way async
FTP	files (images, drawings, text, etc)		one-way async
Sync chat or MUD (text)	alias, descriptions	trolling (assuming a false identity)	sync 1 to 1
Video conferencing	actual faces	selective camera & mic angles, muting	sync group or indiv
WWWeb	Personal Web page	selective portrayals	one-way broadcast
VRML			interactive navigation
Interactive Virtual Worlds	avatars		sync interaction

Table 2. Communicating personality : each media provides different means for portrayal or dissimulation.

tute. The act of self description forces the author to project him or herself into the space of collaboration, metaphorically putting the author into the project. Schmitt (1997) has shown that beginning CAD students can become very involved by cobbling together simple forms into a personal 3D logo. The table below summarizes how media enables self-portrayal.

When we identify ourselves, each method provides the chance to project a certain image. Login names act much in the same way that vanity license plates do: telling the world that we are "superwmn" or "naturboy". Being aware of the public nature of these place-holders is important, just as being able to control the use of our own signature.

Our identifiers can be explicit stand-ins such as our names or literal descriptions such as biographical sketches. More subtle are the stylistic clues that became evident in the 1997 exchange, *Communicating a Sense of Place*, where the identity of the participants was marked in the design approach of his or her school. In the arts, creating a strong statement requires the articulation of personal expression, so learning self-portrayal for the Internet can be valuable practice.

In categorizing the ways that we can articulate our identity on the Web, these methods of labels, descriptions and styles have been present in traditional media. The difference is now that our words and images can react and interact with other parties. In this way, synchronous mediated interaction matches face-to-face interaction: we adjust our responses according to our audience's response. This natural inflection to situations can become exaggerated on the Internet where the medium provides the possibility of multiple identities to fit different situations. Paniras (1997) has explained that the Internet creates a duality between the real and virtual personality and

gives free reign for adjustment and experimentation. He proposes that inflected "micro personalities" could be encoded into a virtual Lego-like device or tree-like form for virtual interaction.

The virtual studio can be a place for trying out different roles and learning from the resulting positions. Donning the identity of others can force us to learn from other points of view. In the way that participants of Virtual Worlds dress up as knights or monsters, architectural students can take the roles of coordinator, planner, designer, editor or graphic designer. Collaboration tools developed at Osaka and Turino provide three-dimensional robots whose clothing and expressions can be adjusted for interaction in a three-dimensional environment. (Woo 1996, Capanero 1997)

V. STRUCTURING COLLABORATION WITH TRAINING WHEELS, TEMPLATES AND SMILEY FACES.

How can we encourage shy students to put themselves out for display to strangers? Experience from MUD virtual communities can be applied to Virtual Design Studios. Amy-Jo Kim has proposed the sort of "**social scaffolding**" for virtual communities which translates well for the design studio: (Kim 1997). She encourages distinct roles such as leaders and mentors. She fosters subgroups with territories and events and carefully delineates group goals and rules. All of these methods are ways of imposing order on the formlessness of cyberspace. Scaffolding is a great metaphor for the structure we seek. In order to find our place in a virtual world, we need to have definition, whether it be scheduled events or hierar-

Function	Wards	Images	Sounds	Video	Hybrid
Place-holder	Login, alias, signature, name tag	Photograph, logo, Icon	voice-mail recording		Business card, id card
Description	Affiliation tags, Biographic sketch, resume, Domain name (affiliation)	organizational logo, tram clothing, country		profile	
Concrete Expression	essays, poetry, papers, books	self-portrait, design work	songs, music, speeches	video	building design
Interaction	chat	avatar expressions	audio discussion	video-conference	face-to-face

Table 3. Types of Identifiers.

chical kinship groups. Within these new structures comes the possibility that people will be able to find each other.

Defining project subgroups with network permissions and passwords allows participants to work with **different levels of privacy** as appropriate to the design process. We found that the usefulness of seeing all messages exchanged through archiving tools such as Hypernews and Motet was partially offset by the lack of participation by the reticent members. Exchanging messages and images by e-mail & e-mail enclosures provided a way to bypass the public display of these archives and the Web. Keeping some channels of a digital exchange private may limit the research data, but can provide a necessary backstage area which nurtures emerging and unconventional ideas. Something as simple as an e-mail listserv can be a good way to supplement more public means of communication and reduce redundant questions.

Whenever possible, our projects have tried to incorporate small group **live interaction** to increase the sense of vitality in the project. To supplement formal group video-conference reviews which require expensive equipment (i.e. Picture-Tel), we have enjoyed using live audio, shared screens and desktop video-conferencing (CU_SeeMe). Seeing faces and hearing voices helps kick off a rapport between participants, and being able to discuss ideas in privacy can be more stimulating. While the technology can seem like a needless addition, it both facilitates the connection and brings a gee-whiz factor missing from face-to-face interactions.

For a virtual community to flourish, it must have not only the armature and the privacy protection from invading eyes, but also **time**. In many of the Virtual Design Studio projects, students felt that they were just barely getting to know their partners when the project finished. Due to the differences in school schedules and curriculum agendas, we have not yet run a quarter or semester long project. The short time frame has necessarily limited the design exploration possible. In the

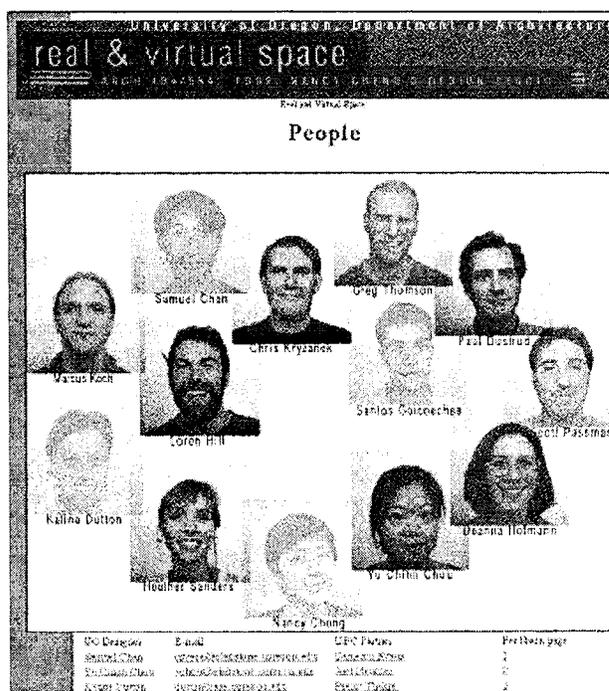


Fig. 6. From Real & Virtual Space , Fall '96: Using faces for a clickable image map for navigation.

future we plan to work with smaller groups focused on a common agenda for a more extended period.

In addition to using social engineering, we can **prepare the participants technically** for the virtual environment. Giving students background reading about the collaboration process can make them aware of the whole process. Well documented procedures and patient hands-on training can make the technology less intimidating. More sophisticated interfaces can be more of a burden than a help. It helps users to practice using new tools with their local classmates before

facing strangers. Awkward video cameras and poor sound quality can defeat the purpose of using the equipment if participants are distracted from the content of the interaction. For exchanges using multiple modes of communication, including some basic old reliable channels such as e-mail or UNIX "talk" (interactive typing) provides not only a back-up for times of technical difficulty (training wheels) but also may make the difference in getting the sense of human contact.

Another way to facilitate student interaction is to short-cut the presentation process with **prepared framework material**. In the case of material presented on the Internet, style templates can make it easier for students to get something online. While model pages can narrow the bounds of creativity, they can also ensure that the class starts out with a unified framework and a team identity. They also explain what is expected from the students by leaving place-holders for specific types of media.

The Internet gives particular advantages to **stimulating a better learning community**. We can structure peer feedback to ensure that students don't get neglected. Tutors can monitor design processes over the Web and then communicate with authors to stimulate better work and compensate for lacksadaisical partners. As our projects have involved a number of professors and research assistants in different locations, time zone differences meant that there was usually someone awake to provide aesthetic feedback and technical expertise around the clock.

VI. DIRECTIONS FOR THE FUTURE

The new methods contain both opportunities and challenges. Our projects show that while today's technology make it straight-forward for well-acquainted people to work together, support for the acquaintance stage is still tenuous. In finding a working relationship, partners need handles for understanding point of view and establishing trust. We have tried to facilitate that in our student projects, but find that the process is still bumpy.

More work is need to to understand how vital Iinternet communication can support the design process. Staging longer projects will allow more substantive design partnerships to emerge. Making necessary connections with professionals will make the link more important. Setting up more controlled situations will allow us to understand how specific variables such as role definition and media type affect the process. Maher (1997) provides an example of how micro-examination of a small set of data can be useful.

We can look to diverse sources for further inspiration. For putting together more compelling portrayals, we can look at the cinema and broadcast media. For clues on improving the collaborative design process, we can look to other Computer Supported Cooperative Work and social theory about technology.

Throughout the years of the experiment, the supervising teachers have developed an on-going rapport from a shared educational history and/or face-to-face conference meetings

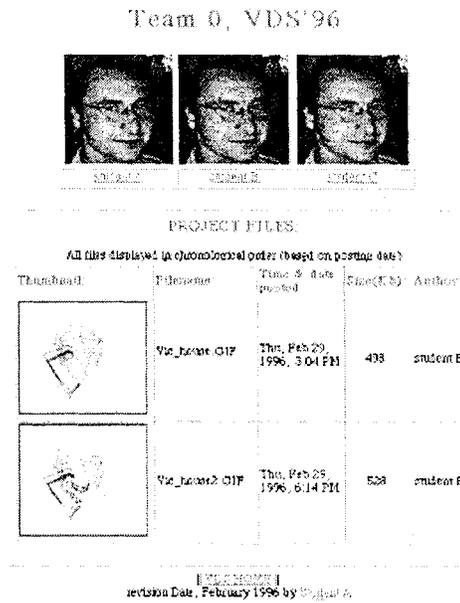


Fig. 7. From VDS'96: HTML templates provide standard layouts with place-holders showing expected information.

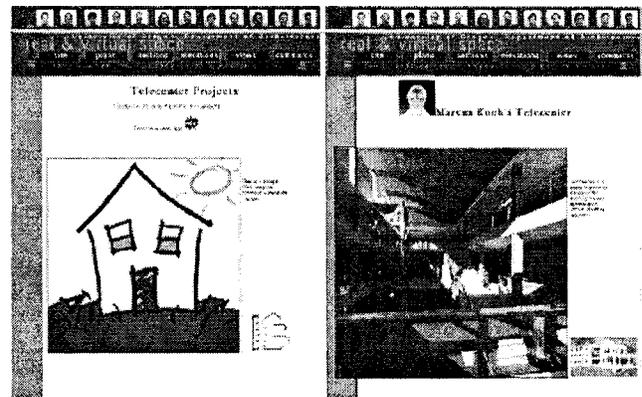


Fig. 8. From Real & Virtual Space, Fall '96: Template page with faces as index (L), Student web page such as this one by Marcus Koch, Univ. of Oregon, follow its unified style.

which has sustained the project. We hope to be able to bring that rapport to more of the students by making it easier for them to get to know each other. As digital tools become more commonplace, facility in expressing identity will certainly improve.

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