

Remote Studio Design Collaboration: An International Approach

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Introduction

In October of 1999, an urban design workshop was conducted in Siena, Italy, between Montana State University School of Architecture and the University of Liverpool School of Architecture. Ten third year students from the University of Liverpool led by Jack Dunne joined nineteen fourth year students from MSU. Professors Daniel Glenn, Susan Glenn, and Jack Dunne served as advisors critiquing the teams' week-long collaborative design efforts, as they developed a masterplan for a specific area in the town.

The intent of the workshop was multi-fold. It was intended to be an exercise in designing a collection of distinct uses, which together formed a cohesive whole and articulated a powerful urban space - the design of a new campus extension for Siena University. It was also instigated to monitor and provide overviews of the educational process of groups working both collectively and individually on the same project but separated geographically by 4,000 miles.

The Montana State University students had been in Europe on a study tour for several months and had been in Siena for three weeks investigating the existing buildings and the site prior to the arrival, for one week, of the Liverpool students. The design work was undertaken in studios at the M.S.U. hotel.

The challenge of each team was to develop a site design and building strategy during the week which facilitated the individual development of building schemes upon the students' return to their respective institutions. Each strategy required a powerful vision and a clear design framework to accomplish a successful collective, composite urban place.

Follow-up Studio

Upon returning to their respective universities in early November, students were asked to develop four distinct schemes into architectural proposals. It was agreed while in Siena that two of the Montana State students would travel back to England with the Liverpool students and undertake the project from the studio base at Liverpool University. This was to facilitate better

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communication links and to act as an experiment in terms of design approach - would the visiting American students design work be different from that undertaken at Montana State?

The masterplan was to include a conceptual site plan, which located individual buildings and focused on the nature of the space or spaces created by those buildings and their integration into the site and its context. In addition while in Siena, each team developed an agreed upon 'language' for their architecture: including a material palette, formal agreements, relationship of building to site and open space, scale, and the conceptual underpinnings for the overall approach to the architecture. The challenge was to tie together disparate uses with a shared language and siting strategy. (See figures 0-4).

The program was set intentionally as a diverse set of building types - ranging from a library to housing to an arts and architecture building - in order to heighten the challenge of successfully creating unity within that diversity (See Appendix 1). The final analysis of success or failure in terms of design is largely based on whether the whole could be judged as greater than the sum of the parts.

During the Follow-up Studio at their home institutions, students individually designed one sector of the campus, including at least one major building and its surrounds, within the context of their shared master plan and the building language of their respective teams. The workshop was the only time in which the full team had the opportunity to work directly together; after returning to their respective institutions, all communication with the teams was by e-mail, fax, or phone. The intent was to have a shared physical model of the site for each team made by the Montana students and each team member was responsible for providing their building component and site development for this model for the final joint presentation.

The MSU/Liverpool student teams each prepared a cross-continental presentation of their schemes - the final review was a joint critique via video teleconferencing, in which critics from both universities were invited to comment on the eight week project.

The Virtual Design Studio

The pattern of studio education can be defined in design exercise as simulation, education role, graphic formulation and continuous teacher-student interaction (Cuff 1991; Argyris & Schon 1996).

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A design studio is a simulation: that is; it implies imagining a virtual transformation of an area, in the city, country etc and is relatively free from any need to actually realise the project – thus it is the teachers' role to reproduce real project conditions.

Peter Russell states "In the traditional architectural design studio, the students are given a well defined design assignment and instructed to begin work as soon as possible, usually alone. The students attempt to solve the problem using various design methods and are usually instructed to select one which solves the predefined problem and is internally consistent. The work is carried out in either the student's own home or in communal work spaces at the school with planned consultation and review sessions setting a timetable for work planning. Consultation and criticism is given in sessions where the students first present the work and the Critics react within the allotted time with their comments. The final evaluation is based upon the internal consistency of the student's logic and the élan with which a solution is provided (or with which it is presented)."

However, new technology is changing this approach, and Mitchell argues that computer supported design studio releases participants from the time-place constraint. Since 1992, several universities around the world have been experimenting with a new architectural design method involving the temporally and geographically distributed collaboration, known today as virtual design studio (VDS) paradigm.

Several cases have informed the project undertaken in this paper.

Virtual Design Studio- University of Karlsruhe

Rügemer and Russell looked at the VDS at the University of Karlsruhe over the past four years, incorporating computer based tools into the architectural design and planning process with the goal of enhancing the relationship between all participants. Each student undertook a three-day crash course in computer skills application, and although the application of technology evolved to a very sophisticated level, it was sometimes at the expense of design quality of the projects themselves.

Several virtual design studio projects with other universities were undertaken, but communication between the two universities and their students was minimal.

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They concluded that for future VDS projects that take place in different locations, the groups should physically meet before the studio starts, and the 'tools' must be seen as an extension of human interaction, not a replacement. Also, not only architectural but town planning issues must also be incorporated, kicking off the project with some sort of 'event' on site – with all participants involved.

The VuuA (Virtual Upper Rhine University of Architecture)

VuuA is a fusion of several Faculties of Architecture and Institutes from three countries: Germany, France and Switzerland. This 'virtual' university allows the students to realise design projects through collaboration via the internet. With a border project to rehabilitate a mill in Freiburg in Autumn 1998, the Schools of Architecture founded a virtual University in the Upper Rhine Region – a platform for presentation and communication being developed on the internet. For each VuuA project there is a 'real' design problem arising from a concrete economic or planning situation in the region.

Their idea is to "synthesise the multi faceted aspects of architecture across the borders in order to rediscover a common region." The projects are thus confined to a specific locale within a geographical region and are 'real' design problems involving town planning issues as well as architecture issues.

Virtual Design Studio – A place2wait

This project was a geographically and temporally distributed intercollegiate VDS at the Bahaus-Weimer University where students had to create a place to wait in the form of a 'folly'. The design task was split into five phases and each one had a specific time frame – after which results were stored in a common data repository. Students used modelling tools, video conferencing software and rendering programs and the workshop focused on the design process itself – leaving the design task more open. The resultant conclusions are explained by Donath.

"As could be expected from the previously held Virtual Design Studios using the phase approach, one can clearly speak of a *collaborative* design week. A look at the VDS Web site shows a wide variety of models, in which via threads and genetic trees the contributions to the shared models can be viewed. Questionable, however, is in how far ideas were really shared: the communication streams between the universities were unfortunately insufficient to allow a high level of idea

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sharing on a direct, possibly face-to face level. Email was seldom used for personal communication, presentations were often visually orientated and therefore multi-interpretable, and desktop videoconferences were limited by the bandwidth, unless audio-feedback was provided via a telephone connection. In the case of videoconferencing, people often feel unpleasant or insecure using it, caused by both language differences and bad audio connections. On the other hand, reviewing the visual structure of a model, supported by the VRML browser on the VDS Web site, was more successful.”

Siena

The difference between this project and the virtual studio projects mentioned is that the students met and worked together for a week – fostering sound ties and allowing group dynamics to be formulated towards the design work at the embryonic stage. The design subject covered was a real competition for Siena university and not a ‘folly’ such as mentioned above where design quality suffered. There was a high level of idea sharing as there had previously been face-to-face student contact that the above projects lacked. The studio that followed reinforced team working that had been set down during the intense charette process – the studio thus being a ‘remote’ one rather than a virtual one.

Why the project was instigated

Daniel and Susan Glenn and I (as head of third year at Liverpool) had a long history of working together on student projects both in the USA and Mexico. These always involved American students only, and there was no opportunity for British third year students to be included due to the cost of travel to the USA or vice-versa.

Every year the MSU organise a European study tour for three months in the autumn for their fourth year students, and it seemed a good opportunity to meet and work with the American students whilst they were in our proximity in Europe.

However, the demands of the British undergraduate architecture degree course make it difficult for students to be away from their school for more than a short time due to heavy lecture loads in other modules. The expense of long-term accommodation is also an issue. Hence one week was all that could be spared.

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We were attempting to provide the students with as much time as possible to work together other than just one week, and devised the concept of working remotely for a further seven weeks within teams whilst back at our respective institutions, teleconferencing the final results in order to provide a fitting climax to the programme.

A Study of 'virtual' studio projects had shown that despite modern technology being used for distance collaboration, it is better for the students to initially meet through some sort of 'event' and then follow through with a remote studio - the 'tools' being an extension of human interaction, not a replacement thereof. (Rügemer and Russell).

In addition, work at Bahaus Weimar University had shown that a realistic 'masterplan' project has more strength and meaning for the students than a 'folly' design project. (Donath)

Thus a university campus was chosen as the design problem as all the students had first hand experience of one – which proved to be a particularly popular choice of project.

The Site

The site chosen was on the crest of a hill behind the 'old' Siena wall - a redundant former defence wall that had been breached by the town in the past as new boundary fortifications were constructed. It allowed pedestrian links to be formed to the existing street pattern, but was sufficiently enough on the edge of the town to allow some design freedom in terms of aesthetics. (See Appendix 1 for briefing details).

The Team Proposals

Each team came up with a specific masterplan proposal for the site, each addressing the 'wall' in a variety of ways. (See figures 0 – 4 following).

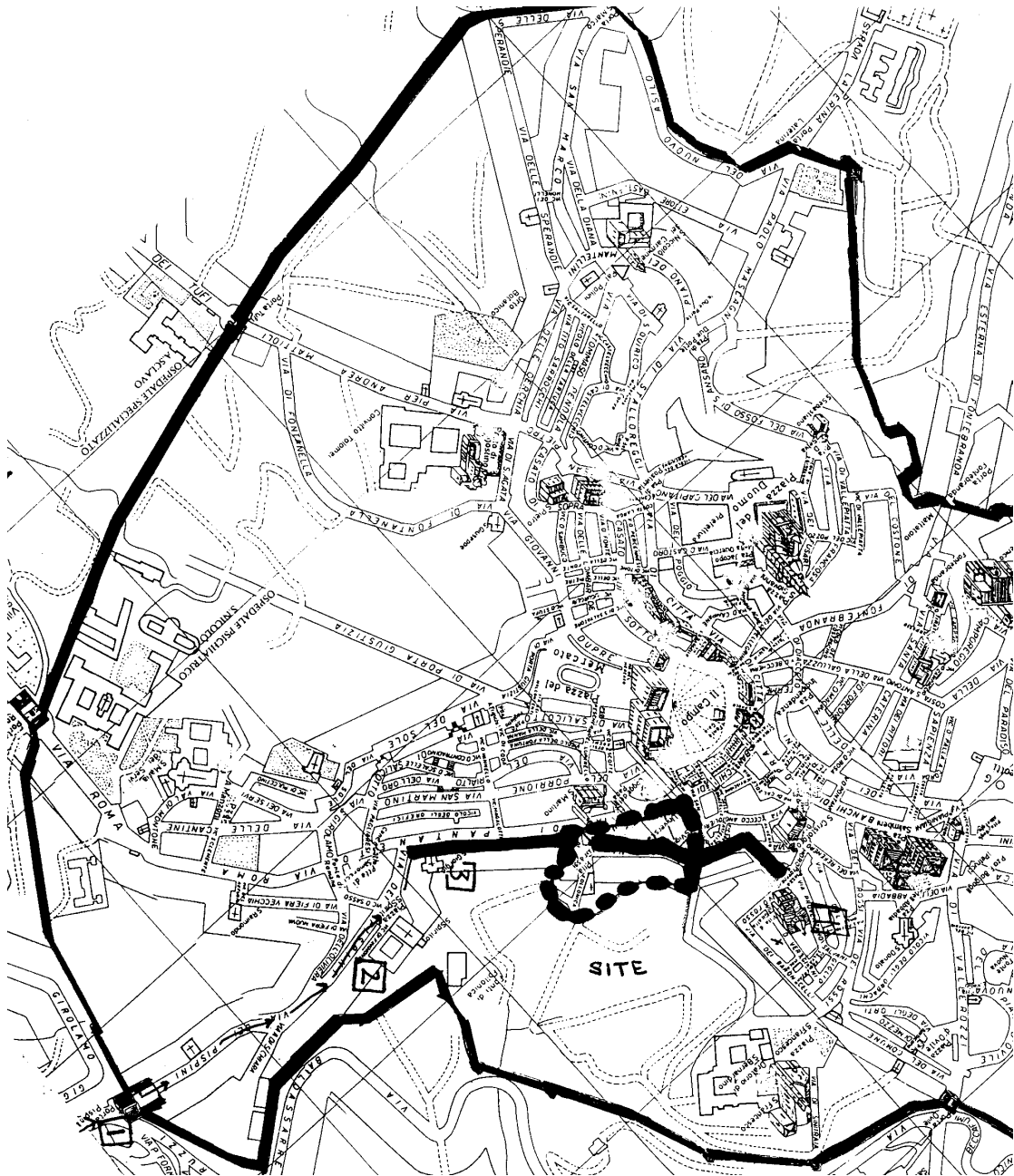


Fig. 0: General site plan of the Siena site and wall as existing (no scale).

Masterplan Strategies and Comments by the Author

(See Figures 1-4)

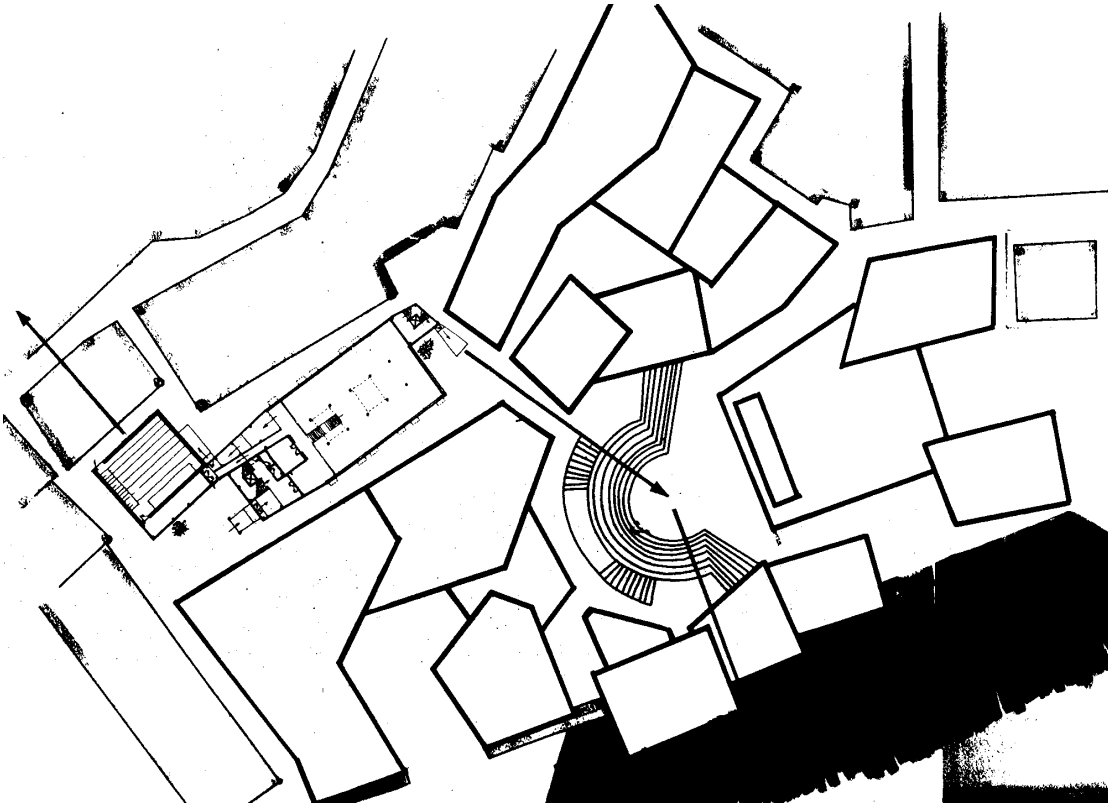


Fig. 1: Group 1

This was based on circulation routes - the buildings are designed around them. The scheme follows the existing contour lines and is allowed to break through the wall only at defined points. The buildings proposed have very large floor plates which may be problematic for the individual at the solo building design stage. The wall doesn't seem strengthened enough and there is an opportunity to express the wall elevation as viewed from the main road below the hill. The lack of roof plan detail portrays the plan as a series of 'figure grounds' rather than actual buildings, indicating an incompleteness to the proposals.

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Fig. 2: Group 2

This scheme treated the existing wall as the generator - using it as a 'spine' with which to lay out the new campus extension. It was the only project to propose building completely on the outer side of the wall, using the existing natural 'shelf' - the landscape as their central piazza. The wall is therefore experienced as one approaches the site from the proposed car parking area to the Southeast. There are two large open spaces proposed and the difference needs to be defined between the two - which is the major/minor space or are they of equal importance?

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Fig. 3: Group 3

The concept behind this proposal was to provide an organic solution - with buildings as close to nature as possible and in response to the climate. The old wall doesn't contain the city any longer and is therefore seen as redundant. All roads lead to the central space provided (in a similar manner to the existing 'Campo' the main square of Siena) but not in a conscious manner. The proposal retains the existing trees although there needs to be a consistency of design between the proposed inner courtyards. The proposal came first and the set of rules were a secondary generator - a more intuitive approach.

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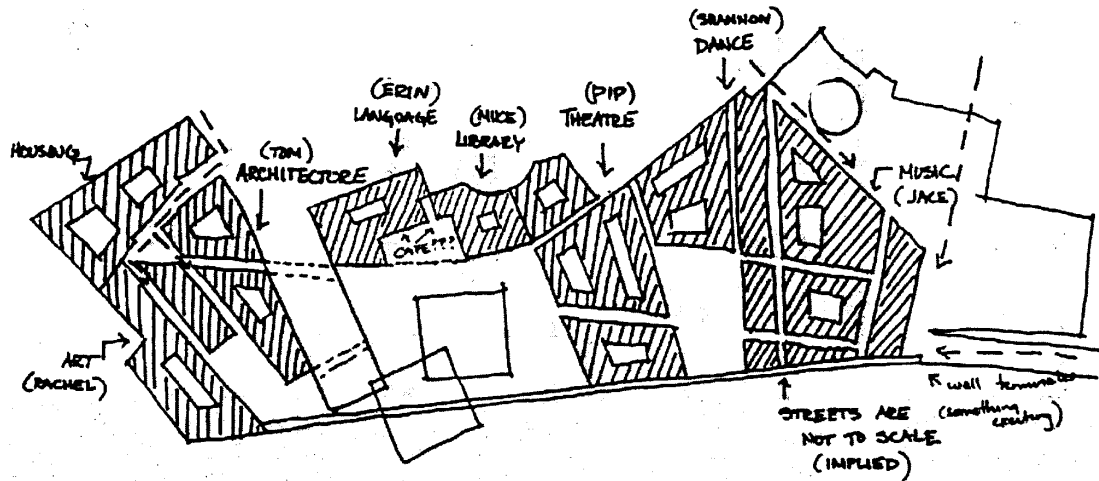


Fig. 4: Group 4

This group had difficulty in agreeing on a final proposal, and although one was put forward it didn't have consensus. The central idea was to have four large 'anchors' at each end of the campus based around an open space, although the wall itself wasn't a clear orienting device as the open spaces did not directly relate to it. There was intended to be a hierarchy of pedestrian paths to the scheme although the resultant building blocks seemed extremely large and unwieldy. There needed to be more connection between the two sides of the proposed campus via open space and smaller building design.

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Project Work Groups – Structured Elements of Communication

When problem solving groups, educational groups, social groups etc. come together there are many issues to be addressed. They may not be clear about what is expected of them; they may assume that their job is simply to have agreement whether it makes sense or not. They may decide that they have to seek the one 'correct' solution and then agree they can't find it. Others may see the process as a contest between their side and the 'wrong' side in which the goal is victory.

Cragan states that:

"The complexity and interdependence of modern society manifests itself in organisations such as the project work group. Suppose a collection of highly trained and specialised people were brought together for a brief period of time-six days.... to complete a specified project. The individuals that formed the group probably would not have much history of working together, and the group itself would have no longstanding tradition dictating its expected level of productivity or an established set of symbols or slogans. In short, the leader and the group participants would have to start from scratch and build on the basis of the suggestions for developing a work group."

He also states:

"Professors in small group discussion classes often use a technique when student groups are formed for short periods of time. Each group determines its success on a comparative basis. For example, the success of each group can be determined by comparing its presentation of a problem-solving panel discussion with the performance of the other groups."

This is how the 'Crit' session focuses the groups to have a specific visual 'goal' - a masterplan that is compared with the other groups.

Cragan goes on to conclude:

"The major advantage of project groups over longstanding groups is that the members are free to create their own group tradition. Yet this is also the project group's leading drawback. The project

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members know that their group is a temporary thing, and it is difficult to get them to commit sizeable amounts of energy to building a group that will break up in the next few months. Also, project group members tend to have a lot of "hidden agendas," which often produce a great deal of special interest pleading."

If groups are randomly assembled, the most frequent answers have, more-over, majority or plurality support in most groups. Through a combination of these factors, the proposition of the initially most frequent responses would be likely to increase in groups following discussion. This type of group process probably occurs in various situations when groups, homogeneous with respect to status and initial resources, are confronted with choices among a limited number of untestable responses or propositions.

Ellis argues that:

"Structurisation is concerned with how groups develop structures and how these structures change over time. Groups use rules and resources but they also appropriate the structures of other social systems for their own use. Group members take their own information and knowledge about how to work in groups (this information is a resource) and they adapt that information to create their own version of how their group should operate."

According to Brandstutter (1978) there are three primary factors that influence the process of structuring a group. "The first is *member characteristics*. Group members differ in many ways. Those who are well informed and highly motivated will use structures in different ways than others do. Someone who wants to control the group will try to alter the group's procedures to his or her benefit. A group member who wants control, for example, will have a different interpretation of how leadership should function in the group. The controlling member will encourage strong leadership if he is the leader, and weaker leadership authority if another group member is the leader.

External factors are a second influence on group structure. These, as mentioned above, are simply factors that the group has less control over: group size, task, resources available, network structure, environmental limitations, etc.

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The third influence on group structure is the *dynamics* of the group. In other words, how the group actually uses its rules and resources. For instance, the members might contradict themselves. They might espouse democracy but practice tyranny. This will create a tension that will result in conflict and an assortment of other problems."

Structure and composition of the student teams

The 29 students were mixed and divided into four teams of seven (one of eight), and teams were chosen based on several factors.

- Equal proportional split of British and American students.
- Male/female members of each team to be roughly the same.
- Students split accordingly depending on their design ability – avoids one team containing the strongest designers.
- Each team to have at least one computer literate student with strong skills in computer aided design.

Student Feedback on the Siena Workshop

Upon return to the UK the Liverpool students were asked to provide feedback in response to the overall process of collaboration with the Montana students in Siena. The following headings were provided as a guideline:

- What was good about the collaboration?
- What didn't work well?
- Comment on the suitability of the site.
- Comment on the suitability of the program.
- General comments.

Feedback

What was good about the collaboration?

The intensive nature of the charette was of great value. It is not often that we get to work so closely with people who we have not chosen to work with. This tends to mix things up to a useful, if not always-productive extent. Purely on a social level I found the trip to be extremely good fun, helping us to bind together as a group. This bond is still in evidence now back in Liverpool, which can only improve our work through increased discourse.

I felt that the Siena charette was very successful, within our group (group one) the interesting mix of people lead to a much more interesting and diverse design than any one of us would have produced individually within the time. The group worked by taking and combining a number of ideas from different members, then gaining agreement from all members before continuing.

What was startling to me, was the pace of work that could be achieved, and really, whilst working far less stressfully than when working singly. I know we were told we could do this prior to the charette, but I had met the suggestion with cynicism. What was important in achieving this, was the establishment of an effective group dynamic. For myself, I learnt that this can be achieved democratically, and some pointers on how we did that, that can be applied elsewhere. For others, I believe there was equal merit in learning how that dynamic can fail.

Not knowing most of the members of the group also meant that we had the same respect for everyone in the group, which helped to allow everyone the same amount of input and ensured that nobody's ideas were ignored. Generally the MSU students seemed to have different ideas about historical urban settings, such as Siena (although this was not always true) which they put down to their travels around Greece and Italy. I feel that their background in Montana State also had something to do with this, as again, I think Liverpool students on the same trip would have viewed it very differently. The American students seemed to view the whole of Siena as untouchable history. They seemed to view the role of the city of Siena as primarily that of a museum. The fact that people lived and worked in the city seemed to have less impact on the way the site should be treated.

I had never worked as part of a team to design a scheme or strategy before and now I feel much better equipped for life in practice in this respect. I also hope it will help my methods of attacking new individual projects by knowing I can think both carefully and quickly.

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We had expected them to be much better than us at everything but we were pleased that we were in fact more advanced at some things-like thinking for ourselves! However, I think the reason why our group worked and got a good result was compromise. Everyone had really different, strong ideas and we didn't all agree. We came to a conclusion by allowing everyone their say and then discussing it. The conceptual stages were the easiest but it got a bit harder when laying out footprints for each building.

What didn't work well?

The one major problem we did have was the differing design approach of the two Schools of architecture. The Montana approach was more conservative than our own, using traditional building types and materials, so there was some tension between the two groups with our more conceptual approach to the project.

Also, when it came to dividing up the drawings which needed to be done, not knowing each other made it more difficult to decide who would be best working on which drawings.

There were slight disagreements sometimes between the Liverpool and MSU sides of the team due to different teaching and assessment methods but if we found we were going round in circles at any time we left the problem and returned to it later. I think maybe if the same kind of collaboration was attempted again it might be better to aim at combining equal numbers of students from each school as then neither side would feel outnumbered when arguments arose due to these types of conflict.

One of the problems of group work is that because there are so many ideas being generated there is a need for a "decision maker" to help speed along the process. Our group chose not to elect such a person but to see how we could reason with each other; the outcome hopefully being that the best ideas would naturally be taken onboard. There were occasions however when people would take too commanding a role in order to force their idea to the group. At times it was difficult to maintain the idea of the working being "the group's". Each person began to attach to an aspect or area of the site and attempt to make it their own. This I felt was partly because we were aware of the fact that once home we would each develop an area of the site. From the beginning we maintained the need not to become attached to any one feature of the site because the site would be distributed on a random basis. This ownership which began to develop towards the end of the

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charette and which then continued in Liverpool, while only a small point, was enough to create a definite unease.

Comments on the suitability of the site

I think the choice of the site was extremely good as it left a lot of scope for each of the teams to go completely different ways. In one direction was the opportunity to build on top of the building design if choosing to layout the strategy over this land. What created most discussion though was how far we were going to go in respecting the city's historic wall and the 'sacred' meadows past it- Should we go over it? Through it? Stay within it? I think it was an interesting and challenging site from the beginning and will continue to have profound influence in our building designs.

There are many design options available and many interesting features and characteristics that you can design from rather than recreating Siena. This issue was probably the main dilemma. Although the Liverpool people in my group had similar ideas for the final outcome, we realised they were pretty different to the American ideas, so we will have to see what happens. We didn't really start to design the buildings individually but it was interesting to see that when the American's sketched their ideas the buildings were copies of other local buildings.

Comment on the suitability of the program

I think the most interesting part of the program was the fact that specific open spaces were included. These became one of the bases for our design strategy for the masterplan whereas in previous projects I have probably not paid as much attention to the contextual setting of my schemes as I should have.

Siena has a strong educational base and therefore the prospect of the insertion of a new University campus is a very feasible one. This was an important aspect on the success of the whole charette.

The brief again brought up a sense of equality. A university campus is something we all have direct experience of and many of its requirements vary little in different countries. Because of this, the brief was immediately accessible to all of us, and allowed us all to start off on the same level.

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General Comments

The charette process as a whole, was a fantastic experience and great practice in fast, effective work. It was just a shame that we could not have spent longer out there studying the city as this would have helped us with our own projects once back home.

I will round off by saying that whatever the outcome, it was thoroughly worthwhile experience, and one I would exchange, nor begrudge anyone else.

I think the best aspect of the charette was the intensity of the learning experience. I possibly learnt more about how individuals and groups design in the charette week than I have in any other week since I started this course! I'm sure I learnt more from the discussions and arguments we had than I did when things were going smoothly. For this reason I feel that the collaboration was an extremely worthwhile exercise despite the fact I wasn't satisfied with our final Masterplan.

In general, I felt that this project was a success. Gaps were bridged, and insights were given into each other's schools of thought. I made great friends and a few enemies, and some lasting relationships. I would do it again in a heartbeat, if the opportunity ever popped up again.

To sum up my thoughts about this charette, I would have to say that I'm very happy with the way things have turned out thus far. Although, I still have some scepticism towards how things are going to work out as far as collaboration between the two Universities from now on. In the end I still have some high expectations about the outcome of the whole process, and anxiously await the outcome of the design through this collaboration.

The Design Development Process at the Respective University Studios

What became clear straight away in retiring to their respective universities was that the groups who had the strongest agreed masterplans in Siena needed very little information exchange to keep the overall and individual design elements progressing. Group 4 – who weren't in agreement in Siena spent a lot of time in communication without any final agreement. Communication between the other groups was intermittent and unstructured and the pace of the design 'interfaces' moved along slowly due to the limitations in technology and the time it took to reach a 'team' agreement from afar on the individual building design elements.

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As students progressed the work, communication continually lessened between the teams, despite having two Montana students working in the Liverpool Studio. Individuals tended to be protective about their own building designs and less flexible towards their agreed masterplan – although the strength of the originally agreed masterplans carried the work of groups 1-3 to a successful conclusion. (This paper focuses on the design process rather than the end results – hence individual final building designs are not included).

Communications between the teams were constantly monitored by the tutors, some excerpts of group 4's faxes are shown below.

Fax from Liverpool to MSU:

"I had a feeling from the beginning that trying to design together from across the ocean was probably not going to work. It looks like I was right. We are sticking to the plan, BEHIND the wall, library in the pack of the piazza, etc. You guys can obviously do what you want to do. It would be nice to reintegrate our designs, but judging from the direction that the concept is going on your end I don't really see that happening this late in the game. We will probably just mass up the buildings (that we are not actually designing) as we pictured them and go with that. We should have some images soon".

Fax from MSU to Liverpool:

"Glad to hear everything is okay, but we need more feedback, especially from you. The library is an important part to have some idea of what is going on over there. I will try and fill you in on some new innovations here. First, we are exploring a small terracing effect on the façade fronting the amphitheatre. A hidden terrace of about 3 feet maximum width. Also the first floor should be 15 feet in height. So what we need is a mass model of your work digitally sent to us!!

We have been thinking about the wall and how it is incorporated into the rest of the project. The piazza will obviously have a strong base, but we are thoughtfully considering a canted wall on the base of several facades. This canted base may change and be manipulated throughout, but it appears to be working".

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The teleconference

The final designs were reviewed at a teleconference held at the end of the project. The MSU suite was large enough to contain a full physical model of the site and the proposals and had sophisticated moving cameras and seating for 50 people. The Liverpool suite allowed two pin-up drawings and accommodated six people in front of camera. Despite the limitations in the sense that the drawings were not to 'real' scale the students performed well and feedback was generally positive. (See appendix 2 for further teleconference details).

Student Feedback on the Conclusion of the Overall Design and Teleconference Process

In order to follow a similar format to the charette feedback, a set of five questions were posed in order to elicit a structured response. The following headings were provided as a guideline:

1. Difficulties of collaboration with MSU once we had returned home.
2. Insights into working with the American students who returned with us.
3. View of the studio/tutorial process and the scheme designs
4. How did the schemes develop in the UK in relation to the Siena 'teams'?
5. Your overall view of the whole process

Difficulties of collaboration with MSU once we had returned home.

Despite leaving the charette full of good intentions concerning how our group could continue to work together, the real difficulty lies in setting aside the time to see how/what everyone is doing. Perhaps arranging deadlines between the two institutions for feedback work to be passed to and from would have made for more of an effective collaboration. I would strongly recommend that this be suggested to future students taking part in such group work.

I found that when we had split the groups up by returning to our respective universities the communication between MSU and the students here in Liverpool diminished rapidly. I thought while in Siena the group had reached mutual decisions quite easily and we returned with a solid masterplan that everyone could work with so the need for much communication due to any major changes would be minimal.

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For this reason it became more and more difficult to agree on the masterplan, as we all became less and less flexible as we got further into the design process. The communication on this was difficult mainly because of the time it took to get a response. Once we came up with an idea which could be understood in images with minimal information, scan it onto disk and then email it across. This then had to be repeated at the other end before we received a reply. This time, in addition to the six hour time difference involved, made agreeing on the masterplan impossible as it would be 24-48 hours before we could expect a response. This caused the group to split into two halves working independently.

Insights into working with the American students who returned with us

It was reassuring to know that their designs retained a good level of imagination rather than to just copy the existing Sienese style. From the fax showing the early sketches of the MSU student's schemes and also from the teleconference link it seemed that the students adopted a very reserved style in their designs. Many opted to place the bulk of their design underground for example, rather than to infringe on the landscape with something that may look "different".

The students who returned with us have proved to be a breath of fresh air. In some ways I felt that they were more advanced, model making, CAD skills etc, and so it was possible to learn from them. Simple things, in terms of presentation and models have been re-assessed and new materials found, and this has been useful. However I did not feel in any way inferior on a design level, which was a heartening given the extra year that they have spent on their education.

I think they may have felt they had more freedom here than at MSU so used this opportunity to change their approaches and experiment with less traditional ideas. One of the American students in Liverpool told me he had intentionally worked from the building shell inwards in concept where he would normally work outwards and he believed if he had done the project at home in the U.S.A. he would have produced a completely different design.

View of the studio/tutorial process and the scheme designs

The scheme designs seemed reassuringly fresh. One of my biggest concerns was that the project would severely limit the amount of creative input by dictating how the scheme should look and to what extent it would fit in with the rest of Siena. Once it was established that this would not be the case, it allowed for a completely new set of issues to be tackled.

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I think the process from start to finish was very smooth. The way the tutorials were structured fitted in well with the stages we were reaching in our individual schemes, from having team tutorials, ones based on building function and one to one discussions towards the final crit. I also think the interim crit came at the perfect time as we all went into it with a basic design idea which we were able to get constructive remarks on and still have plenty of time to work with before the final presentation.

How did the schemes develop in the UK in relation to the Siena 'teams'?

Regarding the schemes themselves, it was quite difficult to tell over the teleconference link, although, on the face of it, our predictions that they might 'mimic' the Sieneese style were largely correct, with a few exceptions. It was surprising, in the light of this, that their 'professors' were so open to our interpretations.

The teleconference itself was an incredible experience, despite the differences in our suite compared to theirs. The realisation of the transatlantic link actually set the heart racing. Teleconferencing, along with VR, seems to be one of these things that you see on television, and high up executives at Microsoft do, so it was a real awakening to see the process arriving and a useful level, and not just being used as an executive toy.

The schemes seemed to be worked up in the team we had in Siena, the intensity of the charette week had got us used to the idea that the project was a group project. I think this was good as it encouraged us to talk more about the masterplan. This ensured that our masterplan continued to have an influence on our design work.

Your overall view of the whole process

I do feel privileged to have partaken in the charette at Siena. The experiences were unique and I am sure have benefited us all. The project was well structured and allowed for a very real design with few constraints.

From start to finish this project has had direction, with achievable targets, and clear goals. Despite problems in Siena with group output, and with the pace of our work, the experience has opened

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my eyes to a new country and I feel that I have almost gained more from the hitches than the smooth rides. It has been very worthwhile.

I think I have come out of this project with a lot of useful experience. The charette had a very intense work schedule and gave me great insight into working closely with a team. The individual design process could have taken the team work further but this became less important between MSU and Liverpool although an attempt was made to keep it going within the two halves of the teams on either side of the Atlantic which in some ways was very useful and productive. The teleconference was extremely enjoyable and brought up a lot of interesting points through the pooling of all the critics.

Overall I think working with the American students was a great opportunity, especially as the video conference allowed us to see all the finished work to enable us to understand how the decisions we had taken during the charette had been followed through in the design process. I think without the video conference, the work would have felt much less like a group effort, but this enabled us to communicate finalised ideas and get an idea of the whole group's work, rather than just our own half.

Summary

In general, the whole programme was very successful and produced some good design work. The students were very positive with their (anonymous) feedback.

The trip around Europe and the three week stay in Siena immersed the MSU students in 'history', and seemed to colour their design approach. They were very respectful of the existing 'wall' compared with the Liverpool students, and more conservative in their design proposals.

The Liverpool students took a more functional approach to the individual design projects, whilst the MSU students attempted to be more contextual. Several of the MSU theatre buildings were underground so as not to impact on the landscape - which resulted in environmental problems such as inadequate ventilation.

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It was difficult for some students to service the needs of the group-to envision that the whole was more important than the sum of the parts (individual buildings) and Cragan's viewpoint seems to be reinforced in relation to 'hidden agendas'. The students were aware that following the design of the charette masterplan they would be allocated their individual buildings to design, and were careful to ensure they were not restricted in their design choices. They were also aware that they were to be graded individually, not collectively for the project.

The teleconference worked well and was a success for all concerned. The critics at Liverpool included Professor Simon Pepper – an expert on Siena. He was able to provide expert opinion at critical times during the critique which enhanced the overall process and prevented the pace from waivering.

Time and Logistic Implications

The difficulties for the Liverpool tutor were as follows:

- As the programme was being instigated for the first time and held in the autumn, over fifty second year students needed to be informed of the project at the end of their second year in June. This led to logistics difficulties of arranging travel and hostel accommodation for an 'unknown' number of students over the summer vacation, when lines of communication are at their weakest (students on holiday etc). As each third year tutor group involves twelve-fourteen people, this was the maximum number of available places, (students were to cover their own costs) and students needed to sign-up for the programme before August. Also, as the tutor involved I did not know the students yet, and was not able to hand-pick the best design students but had to accept any students who enrolled.
- The design studio teaching approach at Liverpool is not a 'unit' system but rather one where all third year students undertake the same design project . The difficulty was in taking ten students out of the system and treating them differently in terms of programme and the pacing of the scheme. This caused the third year to split into two factions and was ultimately divisive to the year as a whole.
- The collaboration process following the Siena workshop was slow and often ineffective - sometimes taking forty-eight hours (i.e. - send a fax to the USA, have it interpreted, alter the design and fax back - the seven hour time difference didn't help).

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- The fourth year MSU students had an additional year of architectural training and were thus more advanced in presentation techniques.
- The Liverpool students had never undertaken a charette and needed educating to the process.
- The USA work in imperial measurements whilst the UK utilise metric! As MSU had provided the drawings the charette teams used imperial scales.

How the Students Learning Experience has been Enhanced

Although the Montana State University students were knowledgeable about Siena and the site-and were therefore more confident on what they saw as their 'home-ground', the Liverpool students brought an articulate voice and a fresh view to the workshop, which resulted in a good combination of skills for team working.

As there were no drawing boards in the hotel that was used as a student base, the students were forced to provide all drawings in freehand-which was an excellent discipline and one that many did not have much experience of.

Culturally, the Liverpool students had less respect for the traditional architecture of Siena as they are immersed in 'culture' in Britain almost everyday. This contradicted with the Montana students viewpoint and raised the level of debate.

The fact that the working groups had no official 'leader' engendered a more professional attitude towards the work - the students took on the responsibility for progressing the project themselves and learned to compromise.

As in professional practice, good social ties often foster a good professional relationship.

A successful working group can achieve far more than an individual working alone. Students learned about group dynamics as well as collaborative design.

The better the agreed masterplan design in Siena, the easier the follow-up studios became - as there was less need to communicate. Group 4 (who didn't reach consensus in Siena) had a great

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deal more communication than the others on returning home, attempting to reach agreement in order for their individual building designs to progress - without much success. What they did become successful at was articulating their design decisions in writing, as they had to explain them at great length via fax and E-mail and subsequently gained experience at putting down their design thought processes on paper in written form.

It was noticeable that the two MSU students working in Liverpool produced more ambitious designs, perhaps being influenced by their new 'peers'. These seemed to be well received by the MSU professors at the teleconference.

Despite the differences of the Liverpool teleconference suite to the MSU suite and the 'dizziness' felt when viewing the Montana model via the hand held 'sweeping' camera - the teleconference was an overriding success. It made the students feel part of their teams again and provided an underlying reinforcement to the whole process. What became patently clear during the teleconference was that the technology became 'transparent' - the design work was the focus of the discussion and the medium was forgotten. A crit is a crit in any format.

If the Project was to be Repeated, What Improvements Might be Made?

The American students had been resident in Siena for three weeks and had provided all of the site information in readiness for the five day charette. The Liverpool students arrived just for the one-week workshop and it took two days for the groups to build-up trust and settle down. In retrospect a two week visit would have been more appropriate.

The American students seemed reluctant to act against the design advice of their tutor-they were dependent solely on him for their final grade. He in turn was also relying on an assessment rating from his students to aid his eventual tenure application, so both sides seemed more cautious than the English group (who are graded by a three-tier independent system and were not solely reliant on their own tenured professor). In retrospect a collaborative marking system could have been adopted to suit both schools, and to suit the external examiners at Liverpool.

A three-day crash course in computer aided design and communication would have prepared the students for the project, as would an attempt at a 'charette'.

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An equal number of Montana/Liverpool students would have made the charette process more balanced.

Studies of other 'virtual' studio projects has shown that there is minimal co-operation between the students when collaborating remotely. Even though the students in this project had worked together face-to-face, it became clear that 'feedback' deadlines during the seven week collaboration would have structured the process in a more organised manner - the students were more ad-hoc in their communications once they had returned to their respective universities (although desk-top video conferencing facilities added to their computers would have helped the process considerably).

A teleconference is like any other meeting, it needs an agenda and a chairman in order for it to be structured successfully. The two hour conference itself seemed a suitable length in terms of achieving and holding a dynamic.

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Links

VuuA: <http://www.vuua.org/>. Site visited at: 15 May 2001.

APPENDIX 1

- Charrette schedule for 1 week Masterplan workshop in Siena.
- Program (brief) for the Masterplan components for a Siena University campus extension (buildings and open spaces).

Charette Schedule

| | | |
|------------|----------|---|
| Tuesday | 10:00 AM | Intro to the charrette program |
| October 26 | 10:30 AM | Sketchbook discussion - in groups |
| | 11:30 AM | Initial brainstorming of concepts, present individual ideas to team |
| Goal: | | |
| Concept | 12:30 PM | Lunch--continue design discussion |
| and Site | 01:30 PM | Develop concept, Strategy |
| | to | Sketch plan sections for crit |
| | 07:30 PM | |

CRITS

- Group 1 - 4:30 PM
- Group 2 - 5:15 PM
- Group 3 - 6:00 PM
- Group 4 - 6:45 PM

| | | |
|------------|----------|---|
| Wednesday | 10:00 AM | Presentation on Architectural language |
| October 27 | 10:30 AM | Site Strategy Refinement - in groups |
| | 12:30 PM | Lunch |
| Goal: | 01:30 PM | Develop building strategy, draft |
| Building | to | 10-point building design criteria and plans |
| Strategy | 7:30 PM | and sections for crit |

CRITS

- Group 4 - 4:30 PM
- Group 3 - 5:15 PM
- Group 2 - 6:00 PM
- Group 1 - 6:45 PM

| | | |
|--------------|----------|---|
| Thursday | 10:00 AM | Presentation on Masterplan designs |
| October 28 | 10:30 AM | Building strategy refinement |
| | 12:30 PM | Lunch |
| goal: | 01:30 PM | Presentation drawings |
| Finale | to | |
| Designs & | midnight | |
| Graphic/text | midnight | Collection of all required drawings. |
| Presentation | | Hand in to Daniel Glenn--No Exceptions. |

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CRITS

Group 3 - 4:30 PM
Group 4 - 5:15 PM
Group 1 - 6:00 PM
Group 2 - 6:45 PM

| | | |
|------------|---------|---|
| Friday | 2:00 PM | Final Presentations |
| October 29 | to | Groups 1,2,3,4 -- 15 minute present |
| | 7:00 PM | Half hour of crit each |
| | 3:30 PM | |
| | to | Coffee Break |
| | 4:00 PM | |
| | 7:00 PM | Crits followed by farewell dinner at a restaurant |

Program: Master Plan Components

1999 Montana State University / University of Liverpool

Design Charrete: BA3

Articulating Space: An Arts & Cultural Institute for Siena

(A Competition for a University Campus Extension)

MASTER PLAN COMPONENTS:

This schedule is intended for the provision of a master plan strategy. You will yourself research the individual building types and provide your own detailed brief.

Outdoor Spaces

- Piazza (s)
- Paths
- Fountain
- Amphitheatre
- Street (s)
- Court (s)
- Stairs / Ramps
- Open-Air Café
- Garden (s)

Buildings

- Dance
- Theatre
- Music
- Language
- Fine Arts
- Architecture
- Library
- Housing (distributed)
- Commercial (optional)

MASTER PLAN AND BUILDING PROGRAMS

Totals

Dance

| | <u>Area</u> |
|--|-----------------------------|
| 4 Dance Studios (various sizes) @ 150-250 m ² | 800 m ² ∇ |
| 1 Performance Space @ 400 m ² | 400 m ² |
| 10 Faculty / Admin Offices @ 16 m ² each | 160 m ² |
| Court / Garden | Varies |
| Non-Assignable (Storage, Bathrooms, Circulation, etc.) (30%) | 400 m ² ∇ |
| Housing - Minimum 30 Students / 4 Faculty Families | <u>Varies</u> |
| | 1760 m² + |

Music

| | |
|--|-----------------------------|
| 10 Practice Spaces (soundproof) @ 10 m ² each | 100 m ² |
| 3 Music Halls (rehearsal) @ 100-300 m ² | 600 m ² |
| 1 Performance Hall (can be shared w/theatre) | 400 m ² |
| 1 Recording Studio | 50 m ² |
| 10 Faculty / Admin Offices @ 16 m ² each | 160 m ² |
| Court / Garden | Varies |
| Non-Assignable (30%) | 40 m ² ∇ |
| Housing - Minimum 30 Students / 4 Faculty Families | <u>Varies</u> |
| | 1710 m² " |

Totals

Area

Theatre

| | | |
|---|--|-----------------------------|
| 4 | Rehearsal Halls @ 100-200 m ² | 600 m ² √ |
| | Theatre / Performance Hall for 300 people | 600 m ² |
| | Experimental Theatre (black box) | 300 m ² |
| | Set Design Workshop & Storage | 200 m ² |
| | Green Room | 50 m ² |
| | Admin / Faculty Offices, 10 @ 16 m ² each | 160 m ² |
| | Court / Garden | Varies |
| | Non-A assignable (30%) | <u>573 m² √</u> |
| | | 2480 m² " |

Language

| | | |
|---|--|-----------------------------|
| 4 | Lecture Rooms @ 100-200 m ² each | 600 m ² √ |
| 4 | Seminar Rooms @ 50 m ² | 200 m ² |
| | Archive / Library | 100 m ² |
| 6 | Faculty / Admin Offices @ 16 m ² each | 96 m ² |
| | Court / Garden | Varies |
| | Housing - Min 30 Students / 4 Faculty Families | Varies |
| | Non-Assignable (30%) | <u>300 m² √</u> |
| | | 1300 m² " |

Architecture

| | | |
|--|---|-----------------------------|
| | Design Studios for 100 Students | 1000 m ² |
| | Crit Spaces, 4 @ 100 m ² each | 400 m ² |
| | Gallery / Exhibition Space | 200 m ² |
| | Lecture Hall | 100 m ² |
| | Faculty / Admin Offices 10 @ 16 m ² each | 160 m ² |
| | Court / Garden | Varies |
| | Housing - Min 30 Students / 4 Faculty Families | Varies |
| | Non-Assignable (30%) | <u>558 m²</u> |
| | | 2400 m² " |

Fine Arts

| | | |
|----|--|----------------------|
| 4 | Drawing / Painting Studios @ 100 - 200 m ² each | 600 m ² |
| 2 | Sculpture / Ceramic Studios @ 100 m ² | 200 m ² |
| 1 | Gallery / Exhibition Space | 200 m ² |
| 2 | Lecture Rooms @ 100 m ² each | 200 m ² |
| 10 | Faculty / Admin Offices @ 16 m ² each | 160 m ² |
| | Court / Garden | Varies |
| | Housing - Min 30 Students / 4 Faculty | Varies |
| | Non-Assignable (30%) | 400 m ² √ |

Library

| | | |
|---|---|-----------------------------|
| | Stacks | 400 m ² |
| | Reading Areas | 200 m ² |
| 4 | Study Rooms @ 15 m ² each | 60 m ² |
| | Archive | 200 m ² |
| | Support Areas (periodicals, reference, video, computer workstation, circulation desk, exhibit room, etc.) | 200 m ² |
| | Non-Assignable (30%) | <u>300 m² √</u> |
| | | 1360 m² " |

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APPENDIX 2

Technical details of the video conference

Teleconference Technical Details

Montana

The equipment at Montana State University goes through the METNET (Montana Educational Telecommunications Network) bridge in Helena. The web site for METNET is:

<http://www.state.mt.us/isd/metnet>.

Equipment: Compression Labs, Incorporated - Radiance

Type of Network: SW-56

H.320 Compliant

Video Server Bridge

Ascend Imux

Rates: 2x56 up to 768 kbps

\$400/hour cost is mainly telephone lines. It is cheaper to originate from England.

The HOTLINE during testing or conferences is (406) 444-9588.

Liverpool

Liverpool University used a BT system with six dedicated ISDN telephone lines, two user controllable cameras at each end. Operators could control position and zoom of each local camera via a mouse driven control, but not the remote cameras. The picture received showed the remote site plus a small 'picture-in-picture' of the image being transmitted.

The session was nearly three hours which was the longest period that the system had been used without a breakdown communication.