

# 7.2 LAVA A Virtual Studio on the Internet

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*Marc van Grootel*

Faculty of Architecture, Building and Planning  
Eindhoven University of Technology  
PO Box 513, postunit 20  
5600 MB Eindhoven  
Netherlands  
e-mail: bwaumg@urc.tue.nl (LAVA: lava@urc.tue.nl)

*The Lab for Architecture is an Internet based information service for Architecture. It was initiated by students of The University of Technology in Eindhoven in 1993. LAVA has three important objectives. 1) Providing pointers to interesting information about architecture. 2) Providing new information to the Internet, for example: student projects, discussions, faculty research and course material. 3) Exploring the possibilities of network-based media by initiating special projects, for example cooperation's between different Universities. The last part of this paper tries to indicate some of the possible influences network-based media can have on education.*

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## **Introduction**

Global networking will have more fundamental effects on Architectural education than Computer Aided Design by itself. This paper will discuss some of these possible effects through presenting the objectives of the Lab for Architecture, an information service on the Internet. It started in 1993 as a students initiative. One of it's first goals was (and still is) stimulating the faculty to use the possibilities of network-based media in education, and to actively experiment with them. LAVA will not be presented as the best example of such an information service. There are others (here).

The millions of computers that are connected via the Internet make new ways of communication possible. These possibilities are currently explored by different subcultures on the Net. Some of these explorations will become important for the future design of mainstream applications, being, so to speak, the 'haute-technique' of the Internet. This introduction will not give a thorough introduction to the Internet and it's different 'species' of communication. More information can be found here.

In a short period of time Gopher and the World Wide Web have become rather mainstream (here for a more in-depth introduction). Both are protocols for providing or 'publishing' information on the Internet and do not require intimate knowledge of either networking or UNIX. All information is offered as a global menu (in the case of Gopher) or a global hypertext (in the case of World Wide Web). Clicking around is all there is to it. At the moment we work on both: Gopher for practical reasons (more access points on the university), and the Web because it offers real hypertext with integrated graphics.

Seen from a global viewpoint the Net is not structured. On a smaller scale different structures exist. Universities, companies and institutions organize their presence on the Net into 'sites'. But the amount of accessible information makes one realize that 'to know it all' is impossible. 'Knowing *where* to find *enough*' becomes crucial. We have to get used to this condition, as it is not going to pass. Strategies should be taught to handle these gigantic waves of information rolling (more and more, graphically) into our studios. Consequently some means of education have to be re-evaluated. Scientific visualization, beautiful math programs, multi-media and computer games are slowly but surely undermining well established principles of education.

On the Internet this is a 'live' paper (<http://www.bwk.tue.nl/baub/ecaade.html>) on paper it's not quite dead, but flattened because links in the text have become useless. On a computer this text is combined with links (in Courier typeface) that give access to the demonstrations and examples. It is one of the advantages of hypermedia. It also means that this is NOT the original version. It will change during the time it takes to get it printed on paper. So, although not quite true to the principles of digital media - where all copies are perfect - in this case, the net-document is the original.

## A Tour through LAVA

The figure below shows the entrance or home-page of LAVA. It's comparable to the cover of a book. It is the first thing a visitor sees, it should give some information about the site, and present the site in a few links. It should not be decorated to much because graphics increase the time to load the page. This can get very annoying if people visit your site often.

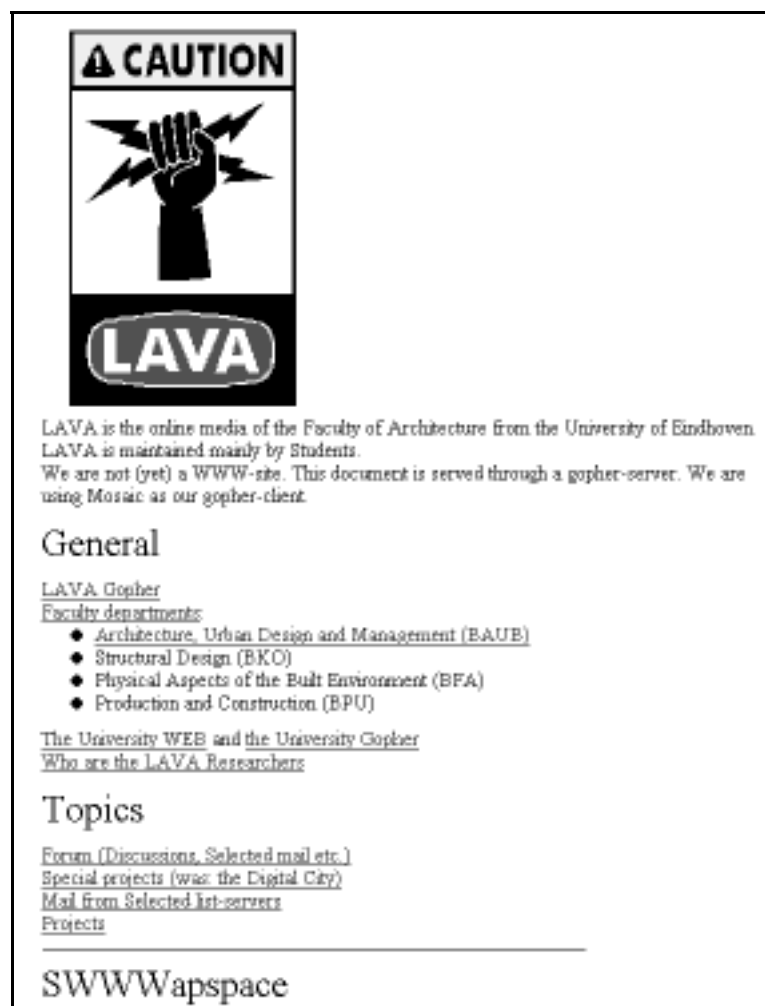


Figure 1. The entrance to LAVA (underlined items are hyperlinks)

The LAVA server maintains logfiles that give us important clues about how many people connect to LAVA and what items they visit. We also ask for explicit feedback through e-mail. This doesn't happen very often though. Stepping up to the World Wide Web has the advantage that getting feedback from our visitors becomes much easier. People can fill out a form, and, without using a special e-mail program, they can send us their remarks.

There are many caveats to keep in mind when interpreting these statistics. For example, when we work on LAVA we test a lot, and we didn't filter these test connections out. But even if we did, we still cannot see what the user does with the information. We have to bear this in mind when we interpret the data. For example we see that apart from June (summer-holidays?) we have an increasing number of connections. The numbers for connections from within our University are level with those of the rest of the world. Discounting test connections means that *at least* half of the connections comes from abroad. This justifies our attempts to offer information in the English language as much as possible. The number of connections from our University will probably increase in the near future as we are working on the local discussion service and on faculty information (courses, cultural activities etc.). Regrettably we cannot compare our figures with other, more established sites, like ArchiGopher.

	<i>University</i>	<i>Netherlands</i>	<i>Rest of the World</i>	<i>Total</i>
<i>February</i>	200 (41%)	73 (15%)	213 (44%)	486
<i>March</i>	260 (39%)	65 (10%)	343 (51%)	668
<i>April</i>	552 (57%)	73 (8%)	342 (35%)	967
<i>May</i>	575 (46%)	97 (8%)	574 (46%)	1246
<i>June</i>	365 (45%)	80 (10%)	360 (45%)	805
<i>Total</i>	1952 (47%)	388 (9%)	1832 (44%)	4172

Table 1. Average number of successful connections per week. A successful connection with Gopher means that someone looked at a directory or downloaded a file. Every item looked at or downloaded counts as a connection.

The number of connections is important, but these figures become meaningful only when combined with the information looked at. To interpret these figures correctly it is important to know when an item appeared, when major additions were made to certain topics etc. Even then, it's hard to draw conclusions from them. We have not yet developed a standard approach to do this.

From our main items on LAVA the Special projects attracted most visitors. Under this entry we only had a link to the Digital City (the first popular freenet in the Netherlands). However, the Digital City cannot account for the large number of connections, and we therefore have the strong suspicion that, along with the Architecture entry (which doesn't have much information yet), a lot of people could be somewhat disappointed by how little information they found under this entry. This leads to the rather trivial conclusion that people use the name of an entry to look for information (this is supported by the fact that our testing area - named Warning EXPERIMENTAL - got almost as many visitors as the architecture entry). Student projects was the next popular entry. It is updated regularly with new projects. Other popular items were Architecture and Computers and the Forum. We clearly underestimated the value of good naming. In Gopher everything the user sees, before he actually get's a document, are menu's. Using a generic name like Architecture for an item which contains little information is a clear mistake. The logfiles point out these mistakes and can provide a good starting point for one of our group-meetings. In WWW the situation is different. Here you can use real hypertext, so additional text or graphics can be used to give more information about the destination of a link.

Another statistic worthwhile compiling is about unsuccessful connections, as this could point to errors from our side, or to users who have made links to specific items on LAVA. Using links can

personalize your access to the Internet, they are easy to use and one doesn't have to remember the route to get to a particular item. You could also compile a personal newspaper or a collection of frequently visited items. There is a problem however: when we move these items to another directory, or when we change the name of the file, these links are broken. Because we cannot know who made such links we cannot tell people to fix them (except for some official sites of which we know they have references to us). A solution, but one which defeats much of the functionality of links, is to ask people not to link to specific items, but only to one or two fixed entrance points into our information structure. This way we can change and move items without breaking other peoples links.

### **Providing Guided Access to the Internet**

Providing pointers to information about Architecture is one of our main objectives. In doing this we gathered some experience in searching the Net. This section will discuss some means to search the Net. But still, only experience makes you see structures, similarities and differences.

*Don't do it all yourself:* from a social viewpoint this is the nicest strategy. When looking for information it can be useful to look for people who know more than you do and who share this knowledge with the community. Lot's of people on the Net compile information on specific subjects. Sometimes you meet them by coincidence. Sometimes they promote their list through newsgroups or mailing-lists relevant to the subject (here). When the list is useful to you, you can help making it better by sending corrections and/or by sharing new found resources.

*Search engines:* it would be great if you could consult a gigantic database of all information on the Internet. Don't wait for it. There are many search engines which each have their strengths and weaknesses, as they are all restricted in the kind or subject of information they search on. In providing such a search engine it is very important to present clearly what is covered by it, because it will always be a partial search.

*Magazines, Netnews, Discussion groups:* these are all well established means of publishing and communicating on the Net. All have their pros and cons and the experienced citizen will probably establish a mix to stay up to date. Especially Netnews and Discussions via Listservers are difficult to handle because their quality and relevance varies a lot. Not all services are accessible for everyone. For some list-servers you have to send mail to the editor to ask him/her to add you to the list.

*Lists of lists:* with the abundance of search engines, compiled lists, and subject-overviews the need for lists of lists and probably even lists of lists of lists arises. Information about these topic-oriented guides will probably be made public through common services like newsgroups, mailing lists, discussion groups etc.

*Ratings:* it is clear that through the impossibility of doing a complete search one has to rely on other people or search engines. When such a service proves it's usefulness it gains confidence. Up to now, well-established or even official ratings of information are lacking. But they are necessary.

### **Designing Information**

The Internet works because people and institutions provide information. The way in which LAVA provides information is through Gopher and WWW. For a while Gopher was the most common denominator for accessing information in an easy to use, menu-style, manner. It had rather limited capabilities, but it could be extended, and it became popular very fast. The ease with which text, images, CAD-models and sound can be integrated into one (hyper-) document makes the Web unique. It quickly surpassed Gopher and became the most important protocol for information-providers on the Net. Additionally, most WWW software can access Gopher information. Because of the nature of Gopher it

currently lends itself best for people who access the Internet over a slower modem. But Gopher may be gradually replaced when more people can access the Web with reasonable performance. In the mean time we will provide both.

Not all information will be suited to put on the Net. Mostly, reference material or courses that need a computer are good candidates. When this material is published through WWW there is no need to get your local copy. You can do so, but then additions and changes aren't reflected in your local copy.

If we would proceed in accordance with the shareware philosophy on the Net a global University could be the result. We would help each other to improve the course material. Students could study with material from different schools making them more aware of education in other Universities. This could foster a new and critical phase in Architectural education.

In Eindhoven students of the third and fourth year developed a hyper-media course for first-year students (here). Through these students the teacher became interested in using hyper-media for his Architecture course. In the third year multi-media course each student prepared a part of this course. A paper version already existed, and could be used as the basis. Meetings were held to establish some common principles of interaction and layout. The project confronted the students with important features and problems of information design. It was stimulating because every student took part in a project that would become available to other students.

The Internet is already popular in academic circles. The Web and it's applications put the tried and true examples of research communication via the Net into question. WWW for collaboration in research will make other approaches viable (see designing communication). WWW can integrate graphics with text. Additionally the images can be turned into maps that react to the position that the user clicked (here). Research often deals with diagrams or schemes. Maps can turn a diagram into an information structure. Finally, all this tied together makes distributed research possible. People in different countries can work on research together. Work doesn't have to be transferred to one central server, different servers can form a web in which it doesn't matter where you put your information. Changes become immediately visible to others.

## **Designing Communication**

Wojtowicz (1993) presented a classification for communication which was based on two simple observations: 1) either communication can take place between people who are in the same room or not (non-distributed versus distributed), and 2) communication can take place at the same time or not (synchronous versus asynchronous). Combined this gives four basic types of communication. In practice these appear mixed and in many different shades, depending on the media used.

One example of such a combination on the Internet are MUD's (Multi-User-Dungeon's; here). These are textual virtual realities, and demonstrate a wide range of communication from synchronous to asynchronous. They exploit the textual interface to the maximum and create complex - even programmable - worlds in which beginners can learn and in which an experienced player can have multiple characters, create things, and - but you need God status for this - change the universe.

In the future we will see new crossbreeds of, for example WWW with MUD's, or the 'dream', an interactive environment which combines WWW, MUD's and CAD systems. The Web is, from it's conception, an asynchronous information providing protocol. Information stored on a server is sent to a client when asked for. But clients can also send information to the server which can process it or make it public as a document. With the introduction of so called forms it became possible to use WWW documents as a front-end for databases (here) and other programs.

In a project at Eindhoven University these possibilities will be used to organize an electronic WWW-forum (Holtman 1994). E-mail, netnews or mailing lists were abandoned as a possibility for this because we would need to use different programs to achieve what we want. WWW was chosen because it

was easy to use, flexible, and it combined everything we needed into one. The forum is primarily meant for the University itself, and maybe for some other Universities in the Netherlands. It starts January 1995, and will last for 6 weeks.

Sooner this year, in September, this system will be used for a third year design project (here) in collaboration with Texas A&M University. Every student of our University will team up with a student from Texas A&M. They will both work on the same design brief while every student functions as a client, or critic, for the other. To accomplish their designs they have to communicate about their design ideas to students of the other country. For this they can use all kinds of communication (ranging from fax, e-mail, WWW to postcards). Staff members will use the WWW system to evaluate the students work and progress.

### **Impact on Education**

Having a presence on the Net implies the need to think about how to present oneself to a local audience but also to the world at large. The ultimate result could be that the doors of research labs, offices, studio's will be opened to more people. Students can become exposed to students and curricula from other Universities. This could foster a more critical attitude towards education.

Information retrieval, selection and using the tools available for information management will become more important and cannot be treated as an appendix to the curriculum anymore. Special courses in applied information-technology are needed in almost every academic study. The doors that are opened cannot be closed anymore.

The world may not become so intimate that it could be called a global village, but the need to organize education and research on a geographic basis will become less pressing. If a research field is so small that only a few people per country are active in it, they can combine their efforts on the Net. Obviously there are a lot of problematic organizational factors involved.

The new media also pose specific design questions. For example providing course material through the Net is a chance for a thorough reevaluation. Just pulling it through a text-converter of some kind won't do. In the beginning this may be a way to get material available quickly, but it's usability should stay under close investigation and evaluation, because it will probably have to change, maybe even drastically. We should experiment because no one has fixed guidelines yet (though some of them could be derived from existing techniques like video-courses).

Teachers should open their minds for new media. This can only be an evolutionary process. Special projects can bring students and teachers together, a situation in which both can learn. Preaching technology for it's own sake doesn't help and we should acknowledge that all these new possibilities can be very threatening. Be patient and not too brutal in imposing new technology on staff or teachers (especially not when those who impose don't know what they are doing either). For students it's probably more stimulating to 'publish' on the Net than to deliver a paper and have it 'perished' into a professors archive. Teachers should try to anticipate on this effect through the projects they propose, because they are still the ones who have to make sure the project is in accordance with the educational objectives. It doesn't have to be useful on a global scale, knowing that you create something that is accessible and useful for fellow students may be enough to make the effort worthwhile.

The biggest influence of the Internet and the Netculture will probably come from the way in which it transforms and displaces traditional modes of communication. Cultures on the Net show that people can adapt, very rapidly, to the possibilities offered by a new medium. And although no one on the Net has the formal authority to state rules for communication that doesn't mean that it's total chaos. These rules can be established by the community itself. Maybe the new ways in which people can communicate via the Net can be a fresh stimulus to the traditional ways we communicate and institutionalize communication.

## Conclusions

It becomes evident that the ways we can communicate, through networks, and services like Gopher or World Wide Web, can change the way we learn design more than the use of the computer as a tool by itself. Especially in education the context in which we learn changes drastically through the use of networks. Other, non-traditional modes of communication become available and should be studied and combined with traditional modes. Nowadays the dynamics of this interaction have become much more diverse and complex. If we see education as an interaction between those that have something to say and those that want to listen, in other words, as an act of communication, than this should become obvious.

Before we started with LAVA we didn't know much of the Network culture. At our University we were the first group from a faculty other than Computer Science to start such a network service. Furthermore, we were more interested in content than in technical issues. One of the reasons for the success of WWW is the ease with which people can use it, but also the ease with which you can offer information to the Net community.

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