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E-LEARNING AND INFORMATION AND COMMUNICATION TECHNOLOGIES (ICT)
IN ARCHITECTURE AND LANDSCAPE DESIGN

European Aspects

There is still no comprehensive view regarding the use of ICT in education in Europe, a *European* vision for e-learning has to be developed further. The linkage between e-learning efforts in universities and the overtaking of goals described in the Bologna process documentation should be more visible.

Irrespective of the numerous strategic papers written on institutional levels, there is often no clear realisation from theory into practice and current e-learning practices do not sufficiently address pedagogy. Visions are lacking for upgrading single institutional or regional efforts towards an European or international level. There is a need for good/bad/best practices to be identified which focus on practices and models with high-value for generalisation. Further work should concentrate on practice, and research should be based on experience rather than on theory.

Efficient links between research and teaching at the postgraduate level could create virtual mobility by integrating teacher mobility into the research community. The promotion of interdisciplinary studies might help to break down boundaries between subject areas.

E-learning allows students to embrace virtual mobility and in doing so to benefit from the advantages of a culturally and linguistically-rich educational experience.

(from the Report on the Consultation workshop „The ‘e’ for our universities – virtual campus“, 2/2005).

Premises

In the future, students will learn in a European Learning Space. They will navigate themselves in it and select courses and programmes according to their needs, interests and their actual life conditions. They will look for the best provisions in terms of quality and services universities provide.

Universities are to be conceived as nodes in this Learning Space delivering knowledge resources and learning facilities, based on research. They will build their reputation on the quality of their research, education and services to the students. Education will be lifelong open and flexible. By integrating e-learning in their systems, openness and flexibility can be improved essentially.

Substance

Architectural education is nowadays undergoing substantial changes. It is directly influenced by information society. As James F. Horan, the former EAAE (European Association for Architectural Education) president, said: „The educational requirements are no longer confined to the teaching of design, but include new building

technologies, digital projecting, networking and selecting relevant knowledges“.

The question is how can we implement ICT and e-learning systems to the education so specific, as architecture surely is? It organically implies art and creative design with technical and abstract subjects.

This study tries to assess the topic and derives from the acquired knowledge status, based on available information sources, research and pedagogical activities at the Department of Computer Aided Architectural Design, Institute of Design, Faculty of Architecture, Slovak University of Technology.

Reflection topics

- A. Analyses of actual conditions of the issue, with the specification of the system, specification of its application to academic background, the overview of its benefits and negatives
- B. Impact of new information and communication technologies (ICT) on the architectural education and design. Utilisation of ICT in the educational process in architecture and landscape design, appointing the measure of its applicability in core architectural subjects
- C. Experimental work and case studies
- D. Conclusion.

A. Analyses

E-learning

The system of e-learning which has recently observed a lot of concern in the whole civilized world, represents the modern form of education and nowadays is very expanding. This boom partly issues from the prevalence of information and communication technologies and partly is descended from the fastness of alterations of everyday life and environment, and consequential decline of the time, we could, or should devote to our further self-improvement. Here, in the field of additional, longlife or distant education, lay great opportunities for electronic education.

E-learning is the process, which includes the creation and distribution of electronic classes, the coordination of distance teaching and consecutive feedback. E-learning courses are usually multimedial applications, generated by simulations, multimedial units (created as mixture of text, patterns and layouts, audio, video and graphics) and electronic virtual trials. It's up to every service user to regulate his own study form and timetable. Certainly e-learning presents the high quality complement to contemporary educational facilities.



The focus of today e-learning system lay mainly in private sector, which is aware of the professional requisite of further education of their employees. The greatest facility, however, could be offered by educational institutions, especially by universities. E-learning can transform the learning system on each level, it can also afford the accession to qualified education for people, who cannot participate on classical form of education, because of their personal, distance or health barriers. Despite all of those benefits, universities (and not only in our country) are so far rather resistant to this electronical forms of education. Among the general reasons are the lack of technical and management skills needed for the implementation of the new system, and insufficient financial resources.

One way to solve this problem could be the state assistance, which could afford the unified developing model and enable the universities to use e-learning system and create its professional content . (Such model was created in United Kingdom, where state founded the UK eUniversities corporation, which is suspected to develop, offer and manage the unique e-learning platform).

Benefits of e-learning:

- Costs cut-down against the classical form of education. The charges for teaching aids and material, for classroom rent, lecturers, transport etc. are included.
- The modular design of the courses gives students the opportunity to tackle courses in the best way for them, in appropriate time, provided by their personal schedules. Whenever they want, they can return to subject, revise and review their knowledge.
- The quality level of provided information can be easily updated. The course content is created on consistent software base, what enables simple updating, access and use.
- In comparison to standard education, in which evaluation of students is rather dependent on subjective decision of the teacher and doesn't have to correspond with knowledge level of the student, e-learning offers the strictly equal rules of evaluation for everyone. It furthermore provides students with direct and immediate feedback and informs about their results (also their superiors or teachers).

Specific assets for academic background:

- increased student engagement during seminars, using various interactive exercises and tests, resulting in evaluation,
- each student gets the personal care from faculty,
- alternation between the classical learning and e-learning brings improvement to education scene and makes it attractive,
- student, faculty and course management can be controlled from one location,
- classes, once developed can be further used in broader institutional educational activities, like distant or re-qualification courses, courses for faculty staff etc.

Negatives:

- Higher initial costs for necessary technical equipment and human resources.
- The loss of human aspects which implies the traditional classroom education.

Analysis of designing the system for online education

Historical background:

E-learning, or the educational process by the means of ICT, was at the beginning perceived mainly as an opportunity for automatization of educational process and coherent retrenchment in textbooks, classrooms and teachers. It was just the margination of human aspects in the designing process that led to many defects and shortages, which couldn't be easily improved. Many problems were caused by insufficient pliancy and user unfriendly environment of various systems, what discouraged both the content creators and the perspective students. Incompatibility of systems, favoured by the producer companies, have induced and still induces problems in faster broadening of the advantages of electronic education at universities.

The key success factors of system design must include:

• User friendly environment.

For users, whether they are students, teachers or content creators, a well designed e-learning platform must be transparent and well articulated. It should consist from the educational activities, interactive tools for cooperation and validation, synchronous and asynchronous communication tools, online certification, transparent courses management and finally the security scheme against unwanted intervention to the system.

• Flexibility

The technology of environment should be designed so that it promotes the creativity, it should not constrain it. This principle must be present at the content creation and product utilization, at online communication, at adaptation for the local requirements, and at the wide range of employed hardware and software technologies.

• Efficiency

Important success factor of e-learning is the cost retrenchment in the comparison with the classical education. It is supported by the system interoperability – for the possible exchange of information, learning materials, for easy and inexpensive connection to existing databases and for accomplishing the maximum productivity of the system.

Basic arguments for good design of the system

• Feedback compatibility

For the favour of spent costs it is desirable to achieve compatibility of new systems with the systems of older generation and the learning materials created on them.



• Modularity

It is important to design the system in the way that will allow the client to select only the services he needs (for example content creation, communication platforms, tests and certification) and leave him the possibility to complete it in the future.

- The opportunity of multiple utilization of basic learning units - Reusable Learning Objects – in various e-learning platforms.
- Central administration

The structure of future e-learning platforms is assumed to be supported by the strong central server with more client places and with their central administration. Advantages of such design lay in unloading of client institutions from management of large-scale systems and their retrenchment in technology facility. Such approach will allow the universities – as the education content creators – to focus on pedagogical objectives.

Content creation for modern education

The creation of e-learning materials is in many ways specific. While any misunderstandings and problems can be instantly discussed between the teacher and the student in classical „classroom“ teaching, this is not quite possible at distant learning/teaching process, unless it is well designed. The content creator must therefore anticipate these situations and include the possible ways of their solution.

Such design process contributes backwards to the higher quality

The key questions, which should the content creator answer, include:

- Who is the receiver
- What target ought to be achieved
- What will be the structure of course and which medium will be used
- Which educational activities will encompass
- How will be working the evaluation and certification.

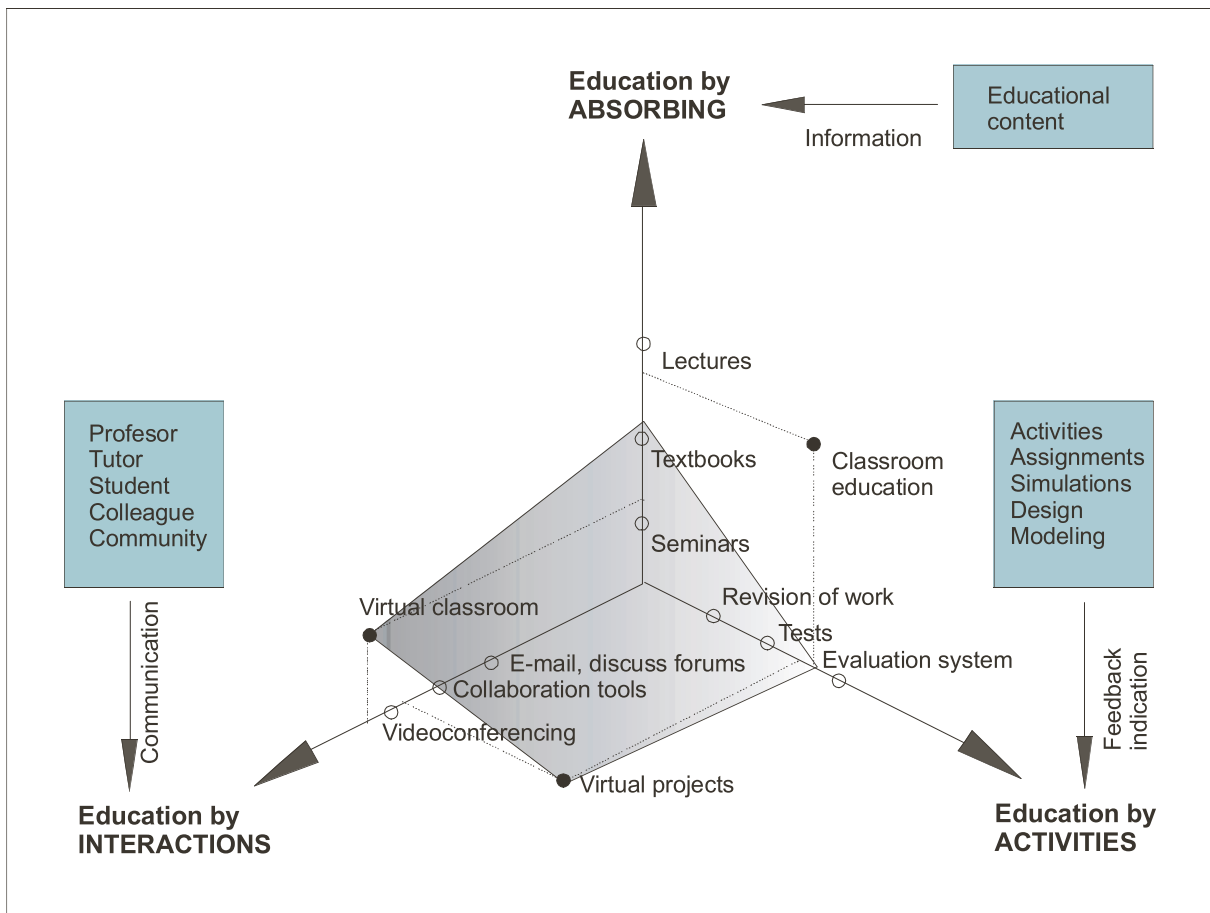
E-learning has the advantages in variety of a learning content – it includes text and hypertext structural informations, raster images, sounds, animations and all the material is multimedial.

It is important to realize the student involvement to learning process by proper design of assignments. E-learning must include interactivity.

But it is not the only condition for success of e-learning courses. Important source of informal knowledge is also the personal contact with the lecturer and other classmates, which has to be adequately compensated by appropriate environment in e-learning. A quality electronic education has to provide the communication facilities between the students and their teacher and between students themselves and thus create teamwork environment.

„The aim is not to remain at virtual textbooks but to follow the virtual classes“. (Huba et al., 2003)

Fig. 1: Basic forms of education.





Communication

Communication has substantial function in electronic education and supplies the loss of immediate conversation, present in classical form of education. From the chronological point of view the communication can be

- either synchronous – happens in the same time
- or asynchronous – occurs at different time intervals.

The most common tools of asynchronous communication, which are realized through the ICT, are e-mail, web discuss forums and discuss groups.

Synchronous communication (like telephone, chat, as an interchange of small text messages, and various types of videoconferencing) provides the basic favour of immediate response.

Videoconference

Videoconference is the most sophisticated form of synchronous communication using ICT tools. It supplies the real time communication with the simultaneous projection and sound transfer. Videoconference implemented between two points is called two-point videoconference. Multipoint videoconference connects more than two participant points.

According to the technology of implementation, can be two essential forms of videoconferences:

- videoconferences through ISDN links (Integrated Services Digital Network) – are relatively cost demanding for the basic equipment and for the service (the payments for ISDN call), but are very credible for good sound and image transfer,
- videoconferences through computer nets and Internet (Netmeeting, MSN, Windows Messenger, FirstClass, VRVS, Skype etc.) – require the minimum of technology equipment (web camera, headsets or microphone and loudspeakers), and provide the low cost services (only the payment for nets). The specific time delay of the image and sound transfer, due to the data overload of computer nets, is their disadvantage.

B.

Utilisation of ICT in educational process in architecture and landscape design, its applicability in core architectural subjects

The study of architecture (as well as the relevant specializations like town design, landscape and garden design, interior or industrial design) is a very specific intersection of engineering and artistic expression, thinking and feeling.

Architecture belongs to the oldest professions in the civilized human history and also the architectural education and training, which has progressed in the last century from the prevalent forms of apprenticeship to the form of studio-based tutorial environment. Studio teaching is a simulation of studio practice, with designer/client interactions over actual projects.

The tutor's authority strongly determines the design process. In this respect the studio teaching and real design studio work are different. Creative architectural process is also induced by many factors and agents, that join and strongly influence the design process.

The following scheme presents different participants of the investment operation, that confront an architect from the initial design stage till the end of the whole process.



Koščo, 2001

The tools of ICT can provide much help to simulation of real, multiprofessional environment.

„Distance learning and computer-based training offer pragmatic ways to bring the practice of construction process into the classroom. Although the student internship with a contractor might be even more valuable, on-screen methods can show students how buildings are actually made, more easily and affordably than field trips.“ (Sorving, 2004)





Fig.2 : Example of animation from building site for teaching purposes.

One of the main barrier of developing computer mediated material for architectural education is that majority of teachers do not sufficiently develop and maintain the necessary skills. (Koutamanis et al., 2000).

Solution can be found in better technological support from faculty and the collaboration with specialists, who can develop the appropriate hypertext frame sets.

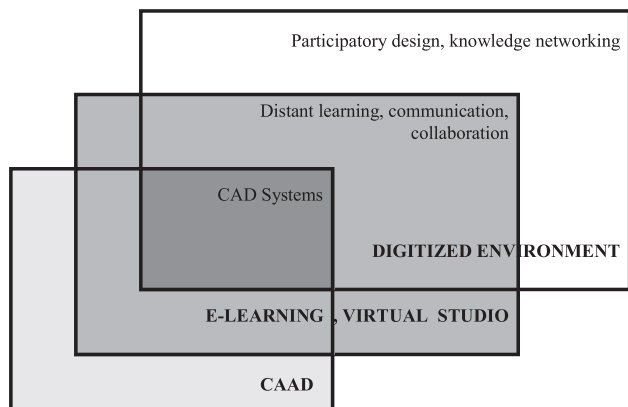
Utilisation of ICT in architecture and landscape design can be split into three main fields, following the complexity of application of new technologies:

- 1. Computer aided architectural design (CAAD)**, as a use of ICT and CAD systems for and during architectural design.
- 2. E-learning and virtual studio**, as a use of ICT for distant



learning and collaboration during architectural design without geographical or other limits.

3. Digitized urban environment, as a use of ICT for town and landscape design with wide professional and public participation and communication.



Scheme of utilization of ICT in architecture and landscape.

CAAD

Computer aided architectural design is not a new phenomenon. It has been developing for already few decades. But the starting enthusiasm and vision, that everything will work easily in the digital world, evolved the realistic view at the CAAD design potentialities.

The proportion of application the ICT varies by the main stages of architectural design, following the:

Analysis

Reflection – Creation

Adjusting

Presentation

Analysis – means that analyses and surveys are executed (like locality survey, exploration of existing conditions, environmental conditions, orientation to the cardinal points, etc.).



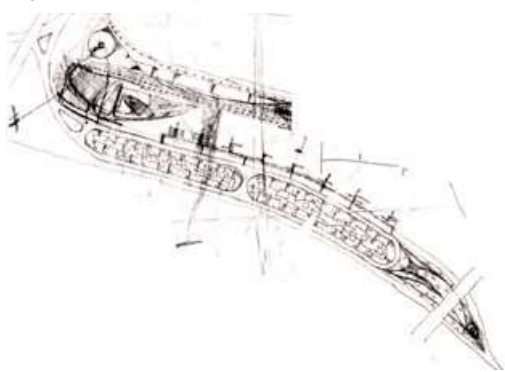
Fig. 3 : Analysis

It is quite appropriate to apply here the dual system: either by personal inspection of environment and conditions, or by utilizing the digital information sources. In particular cases (for instance by the long distance studio assignment) it is possible to use only digital inputs, although for the later creative process, the personal perception of specific Genius loci could be absent.

In the **reflective** stage, at the beginning of creative process, when the thoughts are quickly flying and images are only partially defined, the application of computers is questionable. They appeared to be very poor in operating with misty and indefinite inputs.

Most designers materialise their thoughts through sketches during the reflective phase, using transparent papers loaded on for making changes and looking for desirable shape. Clarity dominates over accuracy in this phase.

Fig. 4 : Reflection, process of creation.





The stage of **adjusting**, means that there is the necessity of more real, materialised design. Students/designers must produce verification studies, either in the form of physical model and /or digital model. Digital models, in particular, are very helpful in this stage and enable the confrontation between basic forms and solids. They put the model into the virtually modelled landscape and into the real environment by photomontage. They create the radiance and color studies and find out the collision points, etc. This process retrospectively confronts the results of the creative phase.

Digital model can be very easily animated, the virtual survey inside and outside the designed model offer to designer/client the opportunity to feel the future realised space as if in reality (depending on the quality of animation).

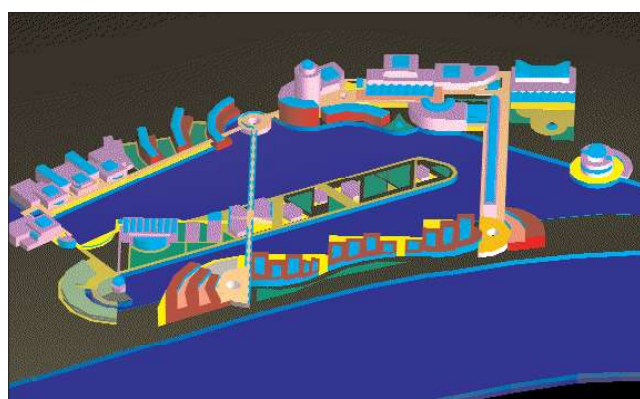
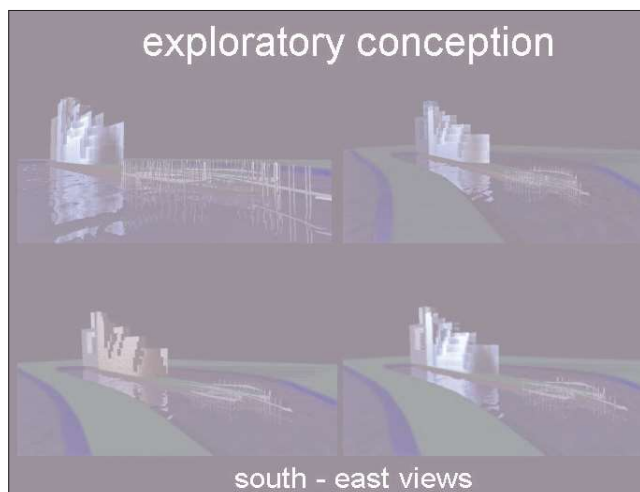


Fig. 5 : Adjusting, preliminary design and massing study.

The final stage is **presentation** of the design with concentrated application of information and communication technologies. Digital outputs in the form of plans, sections, views, perspectives, rendered images, photomontages, project presentation files and animations are nowadays much of an imperative in architectural practice. Digital studio represents the top quality of creative work, transformed to the pedagogical process in architecture and landscape design.

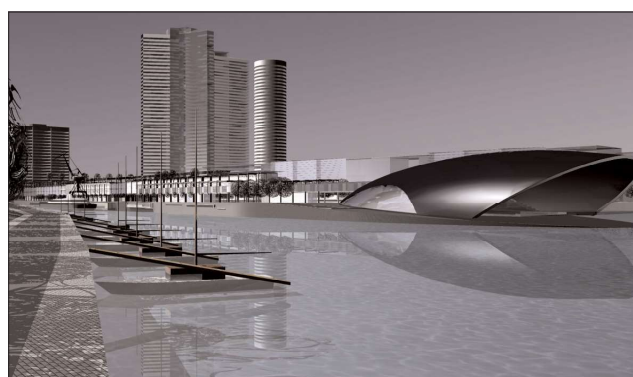


Fig. 6 : Presentation.

Digitalization of architectural design process enhances the demands on the education of architects. Specialized and extensive software systems are impossible to manage in all their complexity during few hours or days. Students need considerable time, effort and lecturer guidance in the initial stages, to handle the systems and to be able to present their design.

Digitalization of architectural design, on the other hand, brings the release into the proces of studio generation and correction work. Student is willing to accept the tutor's advice at the late phase of project labour, as the modifications made to the digital model are fast and easy to do, even shortly before printing.

E-learning and virtual studio

Virtual studio enables long distance cooperation and consultation during the studio work. It's no matter where the student is at the moment. If the project details are digitally adjusted and accessible through Internet for pedagogical process, students and professors can virtually communicate and consult their work on the various stage of elaboration, present it online via videoconferencing tools and data transfer.

Generation of architectural and landscape design is always the multidiscipline process, where the quality and flexibility of interactions between particular disciplines (supplied by the new technologies), results to the required design. New world net



systems, which can offer the economic and coordination benefits, enable also the cooperation of selected experts regardless to the geographical or other limits nad create new premises of expansion.

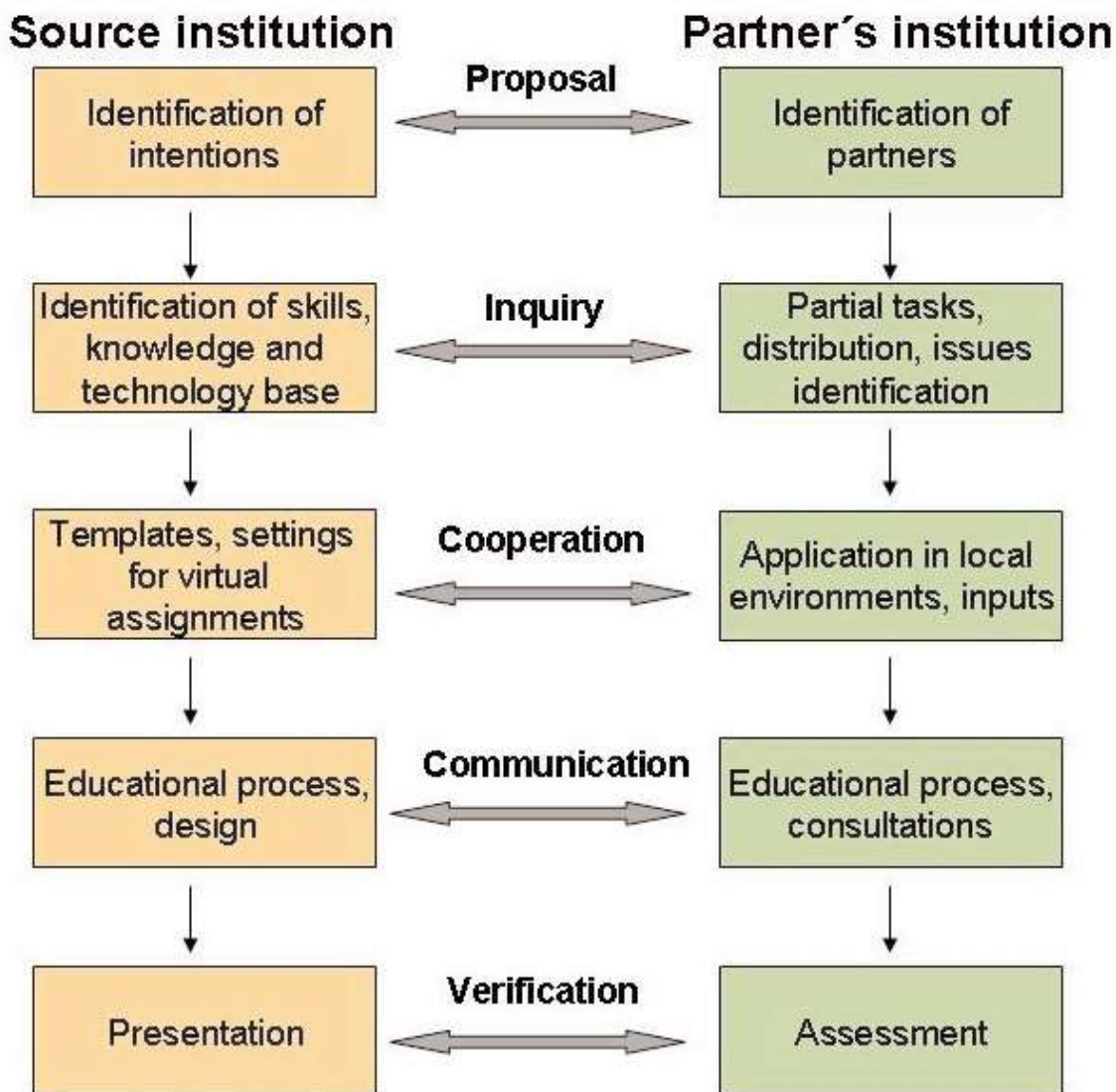
Videoconferencing enables the visual presentation of design in real time. In the architectural education it represents the method for verification of design quality. On the other hand, professors and students have an opportunity to join the design process even if they are on abroad station. By the means of videoconferencing

tools the education converges to practice and therefore could represent the important methodology tool in architectural education.

Research and application of new information and communication technologies to the experimental, pedagogical and applied activities in the field of architecture, landscape design and design represent the new dimensions and quality. Crucial moment is to verify the possibilities of limit-free cooperation in the future common Europe, using the modern technologies and communication tools.

System methodology

Basic scheme of development and process of virtual studio:





Virtual mobility can be understood as a complement or substitute to physical mobility.

It may precede and/or extend physical mobility and thus offer new opportunities for students, who do not want or cannot benefit from physical mobility.

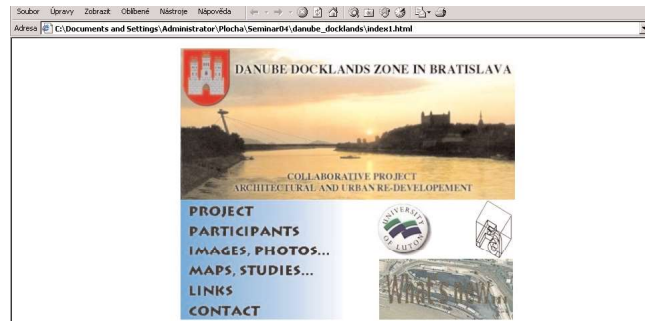
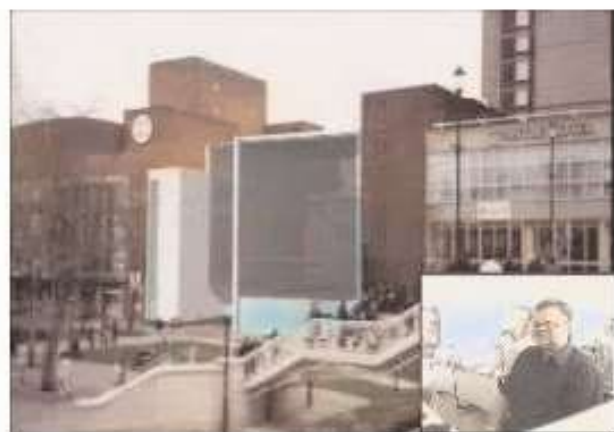


Fig. 7 : Examples of Internet based environment for virtual studio collaboration and communication.

Videoconference through ISDN Lines



Videoconference record from the long distance defence of the studio project between Luton and Bratislava



Digitized environment

Computer based urban modelling and communication for participatory design represents the wide actual and future research and application platform for urban design and planning. Such design easily reflects future economic demands and sociological trends. Electronic communication media provide opportunities for a high level of participation in the design process by a large number of stakeholders.

Development of digital representation of urban environment can evolve simultaneously the built reality accessible through simple network technologies.

Digital model provides a conceptual and urban design framework for site developments, public art and landscape improvements.

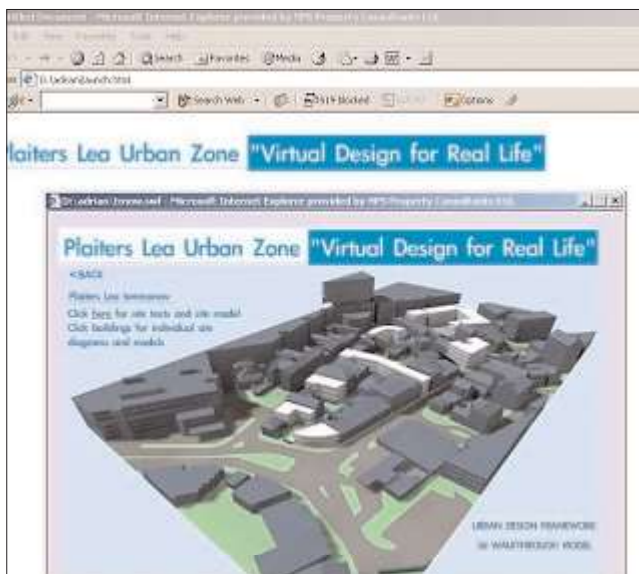


Fig. 8 : Virtual Urban Design. (Dobson, 2005).

"Projects in urban design and regeneration are usually made by technician experts, who receive the decision basis from the municipality", (Holmgreen et al., 2001).

Such planning method often misses the feelings and opinions which have the residents and other participants in the area about the possible future development of the locality they live or work at.

The involvement of the citizens in the identification of the needs for the improvement of urban regeneration proposed by the planners can be effectively strengthened by the new information and communication technologies.

Internet is the most dynamic and widespread tool for such activities and therefore is highly used and perspective. It offers the ideal environment for information, communication and learning platform also on the communal level. The number of examples of

using Internet for publication of regional/municipal information has extremely grown in the last decade.

Basic example is the interactive map with streets/institutions location. More complex utilization is provided by the publication of regional and landscape information (master plans, landuse studies of particular zones or locality subsystems, special geographical information systems for cultural monuments, sport and recreation, bussines and enterprices, natural resources, etc.).

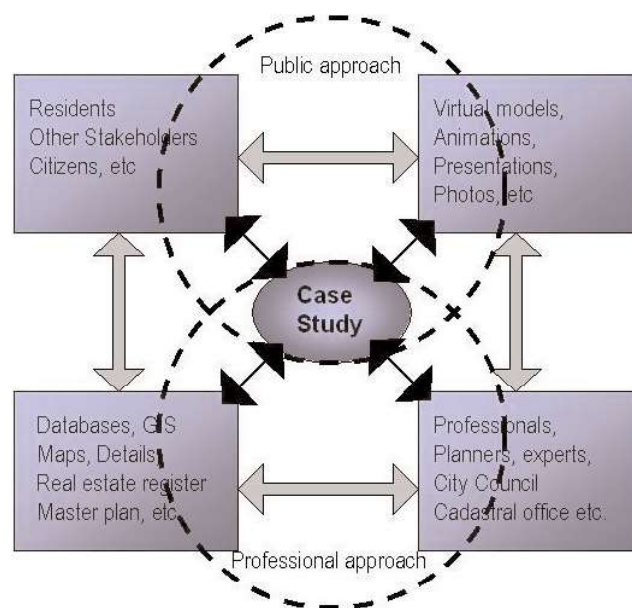


Fig. 9 : Scheme of interactions in urban environment.

C.

Case studies

Examples of case studies applied to teaching and research process at the Department of Computer Aided Architectural Design, Institute of Design, Faculty of Architecture, Slovak University of Technology.

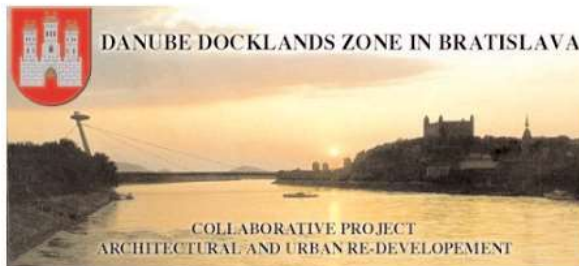
C.1

Street of 21st Century

This study was elaborated in the scope of an international student competition in which the European Center for Architecture & Information Technologies - International Academy of Architecture in the cooperation with Bratislava City Council and the Faculty of Architecture specified the street (or better the whole zone) to be designed for the 21st century requirements. The core aim was to support the cooperation of talented students at European universities and gather new, modern ideas for the participant cities redevelopment.



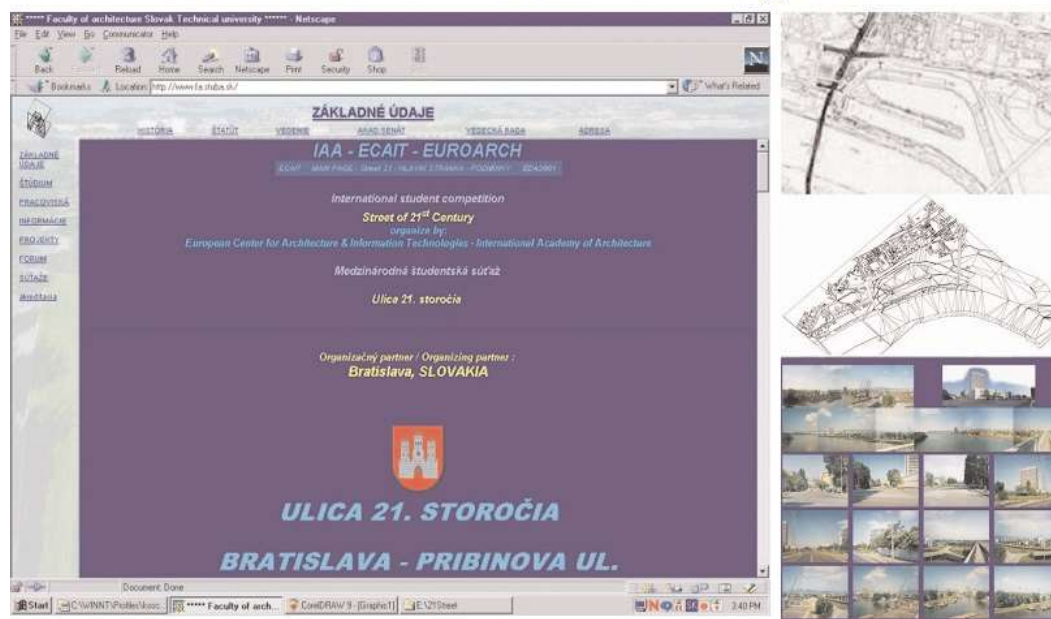
International Studio Project Works



INTERNATIONAL COMMON PROJECT WITH UTILIZATION OF INTERNET, BRATISLAVA-LUTON REVITALIZATION OF THE OLD BRATISLAVA DOCKLAND AREA, 1999-2001

Fig. 10 : Examples of web environment for virtual studio.

International Studio Project Works



INTERNATIONAL COMMON PROJECT WITH UTILIZATION OF INTERNET and CAAD SYSTEMS THE STREET OF 21st.CENTURY, DOCUMENTATION, MAPS, 3D MODEL, SNAPSHOTS etc. on WEB SERVER



C.2

Bratislava Dockland Zone was a collaborative study focussed on the architectural re-development of the Danube dockland zone in Bratislava, using advanced computer based urban modelling and virtual cooperation through the Internet and digital communication technologies. It dealt with the area of old Bratislava port, which according to the model of urban renewal of old dockland area in London, was intended to promote urban re-development strategies in this area.

The collaborative student design work and academic research between two universities, Bratislava and Luton (U.K.), was supposed to continue after the completion of this specific project. A core aim of the project was to achieve an impact upon urban renewal strategy and policy in both partner sites, and to participate in the formation of appropriate systems. Impact of the academic

contribution in terms of student design projects was recorded through web based design presentations, end-of-year exhibitions and the reports of external examiners at the two participating institutions.

Methodology

Both studies had common methodological features. Basic information about the projects, specific data entries, building regulations by city council, cite references and photodocumentation have been available on a server through hypertext organized web pages linked with other important sources. Two-dimensional and three-dimensional vectorised models of the existing conditions of the designed areas were created, published on Internet and were able to download.



Fig. 11 a

Aerial view

Fig. 11 b

3 D digital model of the area

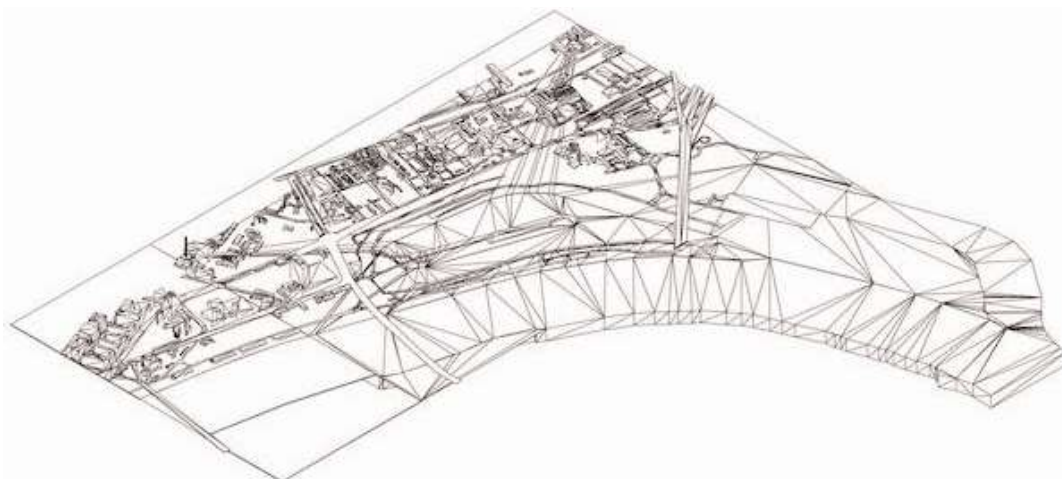




Fig. 11 c



Photodocumentation



Fig. 11 d

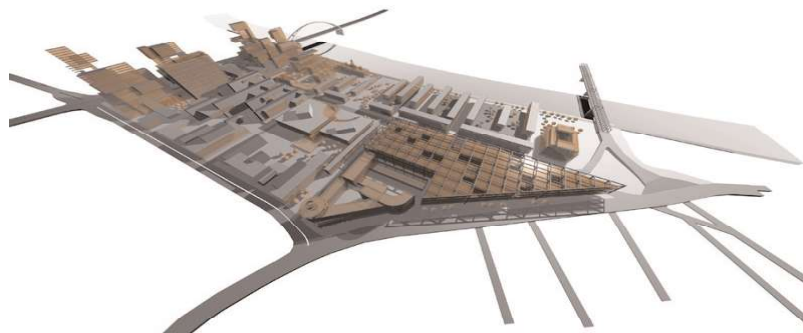


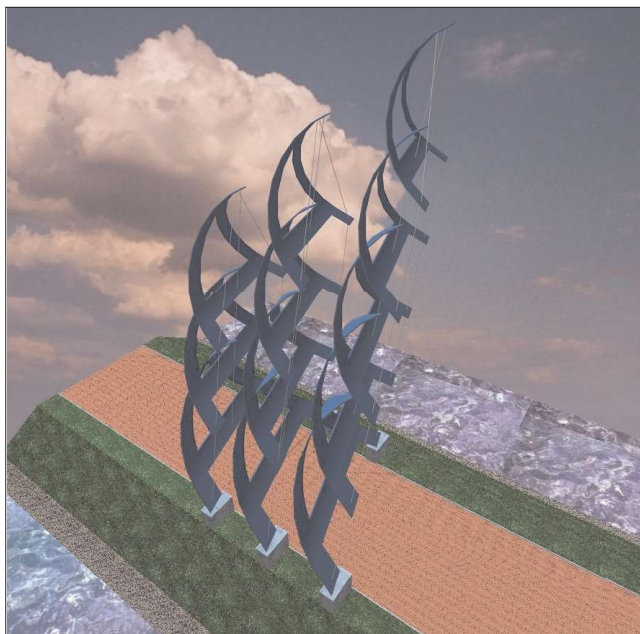
Schemes, studies

Communication during the various stage of collaboration was asynchronous, using e-mail, and synchronous, through ISDN videoconferencing. The result designs, (examples bellow), were published at the web sites.

Fig. 11 c

J. Ferenčík - P. Kopecký. Tutor: Doc. L. Vitková, MArch. PhD





Korbeľa, P., Tutor :March. A. Vranka,
MArch. I. Koščo, PhD. Specialized studio CAAD.



Vargan, P., Specialized studio CAAD.
Tutor: MArch. I. Koščo, PhD



Fig. 12 : Centre of Czech Architecture-digital design.

C.3

Centre of Czech Architecture in Prague is an actual pedagogical experience with virtual collaboration between foreign students from Socrates–Erasmus mobility scheme, studying at the FA STU, the FA STU professors and american professor, Mr. Lizoň, from University of Tennessee, USA.

The topic of the studio is the reconstruction and desing of new spaces for Centre of Czech Architecture in Prague.

Combined face-to-face and long distance education has been used during the two terms studio works. The unique distant learning consisted from the initial, continuous and final intensive workshops at the FA STU and subsequent videoconferencing sessions and electronic communication between the students in Bratislava and the teacher in the USA. Graphic files of students' architectural design have been critiqued through computer nets.

For the long distance synchronous communication the systems of VRVS (Virtual Room Videoconferencing System) and Skype were tested. Both systems belong to Internet videoconferences and require the minimum of technology equipment (web camera, headsets or microphone and loudspeakers) for long distant video, audio and data transfer.

VRVS system was able to accomplish multipoint videoconference session and was able to adjust specific desktop as a sharing server for the presentation of digital work. Also the video transfer was satisfactory. Main problems were caused by installation of the system to local PC stations and by worse quality of sound transfer (sound echo).

Skype videoconference system provided good sound and video transfer and was very easy to manage. However, it did not allowed us the multipoint sessions and online digital data presentation. The simplicity of Skype caused its wider exploitation in the process of long distance teaching in this case study.



Final jury review has been realized successfully at the FA STU with the jury chairman's attendance through video-conference.

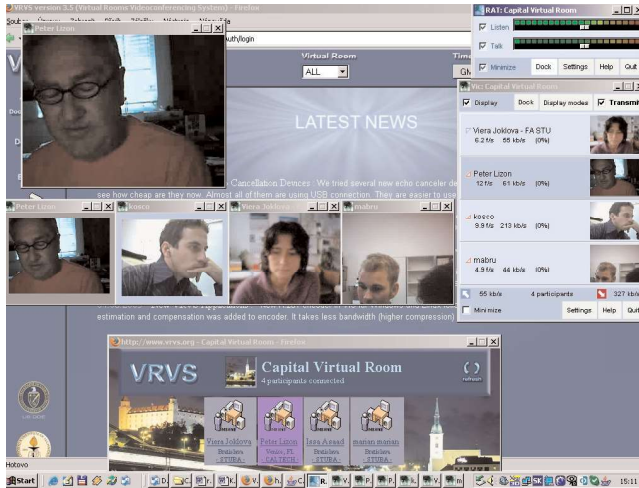


Fig. 13 : Videoconference consultations via VRVS system.

Results

Such form of long distance learning will continue at the FA STU. Experience from the first applications must therefore lead to improvement of the teaching and technology environment. Emphasis lays in the appropriate technology equipment for

the long distance defence of student projects; (so as the running with the camera and microphone during the videoconference sessions seemed nearly comic); with more sophisticated audio-video devices, beepers and back-up power supply.

C.4

LUDA – Large Urban Distressed Areas

LUDA is a research project of Key Action 4 *City of Tomorrow & Cultural Heritage* from the programme *Energy, Environment and Sustainable Development* within the Fifth Framework Programme of the European Union. It aims at improving the quality of life in large urban areas, which suffer from long-term environmental, economical and social distress.

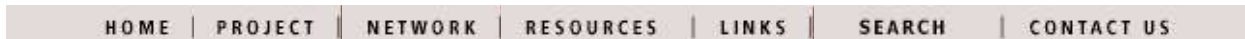
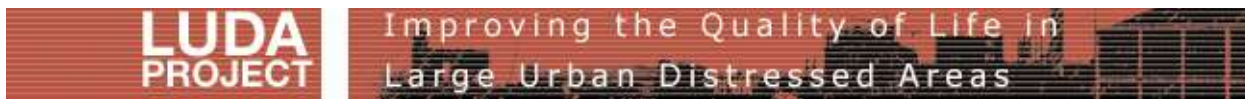
Project forms new tools, methods and approaches for better solutions in urban decision policy. It supports communal discussion, exchange of informations and knowledge between partner cities (Edinburgh, Dresden, Valenciennes, Bratislava, Florence and Lisbon).

One of the core aims of the project is to facilitate a learning process in initiating and elaborating strategic development concepts. ICT tools, such as interactive web site, virtual communication, audio-video videoconferencing infrastructure, represent important aids, which support such process.

Compendium - collection material about the rehabilitation of large urban distressed areas - is the main research result of the project. It is open accessible through net technologies for wide utilization.

Fig. 14 : Web page of Bratislava Rača Case Study.





Welcome to the LUDA Compendium!

Welcome to the LUDA compendium!

This is homepage for the LUDA compendium, a collection of material about the rehabilitation of large urban distressed areas (LUDAs).

The compendium is made up of a series of handbooks. You can find out more about the compendium, what it is about, who it is for, and how to use it by following these links:

- [What is the LUDA Compendium?](#)
- [Who is the LUDA Compendium for?](#)
- [Breaking with tradition](#)
- [Using the compendium](#)

The icons below will open the handbooks. All of the handbooks are in pdf format except Handbook 5.





[Approaches to urban rehabilitation](#)



[Sustainable urban regeneration and its assessment](#)



[Good Practice Case Studies](#)



[Decision Support System](#)



[Glossary](#)

Sustainable Development" within the Fifth Framework Programme of the European Commission.



Fig. 15 : e-Compendium.



D. Conclusion

The issue of ICT is extremely expansive and dynamic. Electronic communication technologies and multimedia offer wide possibilities for various complements to traditional architectural education. They offer new ways of collaboration and communication. Our own experience with ICT based design and research projects, linking students or professionals through Internet, have shown, that such form of collaborative work can be rewarding and effective. Development of typology for virtual classes and long distant cooperation will be the determining factor for the future success and implementation of e-learning system to the Faculty curriculum. It will be therefore the main topic and result in this PhD research.

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Recenzný posudok

Predkladaný príspevok architektky Viery Joklovej spracovaný v rámci doktorandského štúdia a grantovej úlohy KEGA sa zaoberá mimoriadne aktuálnou témou. Autorka v ňom sleduje súčasné využitie, ale najmä možnosti a trendy e-learningu v prostredí univerzít ako progresívnej metódy výučby a formy rozšírenia spektra mobilít ako i aktívnej cezhraničnej spolupráce a zahraničných kontaktov. Príspevok charakterizuje štandardnú metodiku a formy výučby, štruktúru systému e-learningu, kritériá úspešného využívania. Zhodnocuje prínos e-learningu, ale i bariéry voči „tradičným“ formám výučby. Príspevok sa cielene orientuje na uplatnenie e-learningu vo vzdelávaní budúcich architektov, urbanistov, priestorových a krajinných plánovačov a záhradných architektov. Zaoberá sa špecifikami výučby pre danú cieľovú skupinu príjemcov, kategorizuje určité predmety študijných programov, podľa vhodnosti uplatnenia jednotlivých foriem e-learningu - od najjednoduchších (učebných textov na webových stránkach - virtuálnych učebníc) po najkomplexnejšiu formu videokonferencií realizovaných vo virtuálnych učebniach. Nesporným prínosom je spracovanie a popis metodiky výučby ateliérovej tvorby v jej jednotlivých etapách prostredníctvom e-learningu i s možnosťou zapojenia zahraničného partnera (odborného konzultanta, či pedagóga na diaľku). Daná metodika bola odskúšaná v rámci niekoľkých projektov a je výsledkom overeným skúsenosťou. Článok je cenným a vítaným príspevkom k problematike architektonického vzdelávania prostredníctvom e-learningu.

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