Revisiting A Classification of Multimedia Application in Architectural Education and Practice

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This paper seeks to illustrate the meaning of multimedia, and more significantly, the importance of implementation of the technology in architectural education and practice as it is today. In order to achieve this, the paper presents an analysis examining the evolution of the definition of multimedia, and then, attempts a classification of multimedia applications in architecture. For the first time, such a classification was created in 1995. It is timely, then, seven years later and in the context of a dramatic advancement in the field, to take stock of how multimedia technology is impacting the sphere of architectural education and practice and to suggest an updated classification.

Keywords: *Multimedia, virtual world, classification, education.*

What is multimedia?

It may be surprising for many but the history of the term 'multimedia' reaches back to the early 1970s, when computers were still huge, unfriendly devices, which required air-conditioned environments and costed fortunes. The term referred, however, not to the computer applications but to the resource kits typically combined of pupils' booklets, teachers' guides, film strips, audio tapes, and photographic slides. Such products certainly offered multiple media packed within one box, but still fragmented. To integrate them was a difficult task for teachers and the result was often confusing for pupils. Most schools found, thus, multimedia kits rather trouble than advantage (Feldman 1997).

Despite the failure of that remote introduction of multimedia it has been developing fast since then and has become a fact indeed not only in the field of education. It seems, therefore, to be useful to examine an evolving definition of the term 'multimedia' as used in different contexts during the last several years:

Year 1992
"Multimedia is a class of computer-driven interactive communication systems which create, store, transmit, and retrieve textual, graphic, and auditory networks of information. Embedded in the above definition are three elements: the computer, graphics and networks, which when combined provide a new and powerful technology. " (Gayeski, 1992)

Year 1995
"Media: drawings, photographs, written text, slides, overhead projections, video, computer images, computer animations, spoken word, music, etc. Multimedia: the conflation of a wide range of separate media into one suitable computing environment. Hyper-media: an integrated presentation involving an interactive cross-referenced sequence of multimedia. " (Maver and Petric, 1995)

Year 1997

"Multimedia is the seamless integration of data, text, sound and images of all kinds within a single, digital information environment. By 'seamless' integration we mean so close an interweaving that the discrete character of the different types of individual media is submerged in the experience of the multimedia application. " (Feldman, 1997)

Classification

The power of multimedia message is due to the way people retain information. Researchers have found that people retain only 20% of what they hear, 40% of what they see and hear, and 75% of what they see, hear and do (Reisman, 1994). A great impact on computer-mediated communication and a new approach to teaching methodology can, thus, be seen. This paper attempts a classification of multimedia applications in architecture, and then, seeks to illustrate the importance of the multimedia technology in architectural education and practice as it is today.

For the first time, such a classification was created in 1995 (Maver and Petric, 1995). It is timely, then, seven years later and in the context of a dramatic advancement in the field, to take stock of how multimedia technology is impacting the sphere of architectural education and practice and to suggest an updated classification. This new classification is based on three following sources:

- the first classification created by Maver and Petric (1995);
- the multimedia research and development carried out by ABACUS at the University of Strathclyde in Glasgow;
- multimedia research and development presented in ECAADE, ACADIA, ACADRIA, SIGRADI and CAAD Futures conferences since 1995.
- Drawing on the aforementioned sources the following categories of application of multimedia in architectural education and practice can be identified:

Teaching – learning support

- Computer based teaching packages;
- Multimedia courseworks;
- On-line education (distance and life-long learning via Internet);
- Libraries of reference material and case libraries.

As stated above the term 'multimedia' originally described educational packages delivered to a classroom and this is still a valid use as has been shown by Batie (1996). A relatively small number of courses is, however, based entirely on the multimedia technology (e. g. Fitzsimons, 1999). Such a solution is most often adopted by distance learning via Internet (e. g. Yeung et al., 1998; McIntosh, 1998). The importance of case-based studies is reflected by the growing number of multimedia reference material (e. g. Maher, 1997; Mishima, Szalapaj, 1999).

Presentation

Multimedia has become a commonplace in the field of architectural presentation since the first classification. It is a powerful tool especially in presenting design schemes (e. g. Koszewski, Wrona, 1995), conference papers (e. g. Petric, 1996), and live demonstrations (e. g. Will et al., 1995).

Urban representation and GIS

This is a field in which one of the main problems is management of complex input data. Multimedia technology proved to be a powerful tool in dealing with representation of urban environments for example in projects based on GIS (e. g. Fortuzzi et al., 2001) or 3D city model (e. g. Kos, 1999).

Explanation of technical issues

Technical issues have always been tightly related to architectural design studio. The employment of multimedia enabled increasing understanding of these aspects (e. g. Garcia, 1996; Tsou, 1998).

Virtual heritage and virtual museums of architecture

The areas of research and development, academic institutions pursue include virtual world, virtual museums and virtual heritage. This has recently become one of the most spectacular and fast devel-

oping multimedia applications (e. g. Dießenbacher, Rank, 1995; Maver, Petric, 1999; Lee, Paterson, Maver, 2000).

Multimedia software design and interfaces to CAAD

As it was predicted by the authors of the first classification, the number of multimedia-based software and interfaces to CAAD has been increasing significantly with each year (e. g. Donath, Petzold, 1997; Gu, J. et al., 2000).

Remote co-operation and collaborative work (communication via Internet)

In this fast developing area of architectural education and practice, the computer-mediated communication that employ multimedia and Internet can empower designers by providing them with new ways of working together (e. g. Park, 1997; Andia, 2001).

Planning and building control and management

Multimedia has also had an impact on the effectiveness of decision-making process, improved communication and collaboration error reduction in planning and building control (e. g. Asanowicz, 1995; Gu, et al., 2000; Eshaq, Jabar, 2001).

Documentation

A number of examples of multimedia archives can be cited (e. g. Wojtowicz, et al. 1997; Maver, et al. 2001)

Experimentation

Despite such enormous diversity of multimedia applications there is still a place for experimentations, which can lay foundations for new developments in the near future (e. g. Han, Turner, 2001; Levy, 2001).

Conclusions

The variety of multiple media implementation in architectural education and practice is outstanding. Over eighty papers dealing with multimedia have been selected from the proceedings of annual conferences of ECAADE, ACADIA, ACADRIA, SIGRADI and CAAD Futures since the first classification of multimedia employment in the field of architecture was done. The papers provide ample evidence of the range and richness of multimedia applications. As a result thirteen different categories of multimedia implementation have been identified as compared with eight in the previous classification. This great number reflects not only the growing importance of multimedia technology but also its versatile and multifaceted nature. Multimedia itself should be considered as a standard application in architectural education and curricula nowadays. The survey has, moreover, revealed the growing importance of networked education and communication via the Internet. Virtual museums and virtual heritage are other major fields of interest.

A couple of years ago, when multimedia was attractive novelty, the research focused on the technical development. The technology has become standard and is now a base for new developments. Multimedia is, furthermore, an essential feature of new things based on the innovative use of the technology. Virtual Reality is the most powerful among them since, unlike other forms of multimedia, it extends the domain beyond the realm of traditional communication technologies.

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