The New Media Juke Box - a multimedia project

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Abstract *The New Media Juke-Box is an experiment carried out at the University of Lugano in collaboration with the RTSI – Radio and Television of Italian-speaking Switzerland. The goal of the project was the integration and exploitation of archive media artefact into a new learning context. After a review of a general model of educational multimedia, a case study is presented, along with lessons learnt, general conclusions and some critical remarks.*

Introduction: Artefacts and Tradition

Remembering our past, comparing events that happened years or decades ago, recalling a particular perspective of our contemporary history and connecting events one with the other – that is what we do when we go to museums, to libraries, to cinema retrospectives or when we look for books or other cultural and media artefacts that connect present and past. With some luck, we would have access to archive collections of television news, documentaries or newspapers. A great part of our tradition and of the meaning of our society are silently stored into the collections of artefacts in these archives, and they emerge if we interact with them. But how can we provided young generations with a chance to interact with such artefacts, how can we make sure they not forgotten?

If we have the opportunity to access such rich sources, we could select and collect some media artefacts and organize them into something like a juke-box and present it as an instructional resource to first-year students of Communication Sciences. This happened at the University of Svizzera Italiana in Lugano in the academic year 2001/2002, when more than 170 students used and explored the New Media Juke Box (MJB) for educational purposes.

This paper aims at presenting the first year of experience with the MJB project. First we will provide some background on multimedia for education. Secondly, we will describe the course and the multimedia tools we used. Finally, we will present some results and critical remarks.

Some Background on Multimedia

Context and the Interactional Layer

For a better understanding of the issues addressed and the solutions proposed by the MJB project, we can consider some definitions of multimedia.

Doolittle (2002) collects a number of definitions by different authors: multimedia can be defined as the use of multiple forms of media in presentation; or as the combined use of several media, such as movies, slides, music and lighting, especially for educational or entertainment purposes; it is information in the form of graphics, audio, video, or movies.

Generally speaking, multimedia is the presentation of material using words, sounds and pictures, and a document is multimedia if it contains several media elements other than plain text. An example could be a computer program that includes text along with audio or sophisticated sound, music, video, photographs, 3-D graphics, animation, or high-resolution graphics.

Digital technologies have made multimedia (which is not in itself an IT-related concept) an accessible reality for a wide community. With a simple computer, people can use digital multimedia both to acquire ideas and to express their thoughts across diverse modalities such as the verbal, visual, auditory, and kinetic. As McClintock says 'Multimedia becomes an epistemologically interesting development' (McClintock, 1999, p.4).[1] But how can multimedia be extensively exploited in educational contexts? Currently, several theories are systematically concerned with educational multimedia design.

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[1] "(…) changes in educational possibility arise as new media alter the ways of knowing and the opportunities for participating in the creation of knowledge. Multimedia (…) is not merely a glitzy vehicle for educational hype. It is an epistemologically interesting development in our culture. For the most part, the work of thinking has appeared to take place as people manipulate their spoken and written languages, with the formal symbolization of mathematics and logic appearing to be extensions of more everyday linguistic forms. Multimedia make it increasingly evident that the work of thinking can take place through many forms – verbal, visual, auditory, kinetic, and blends of all and each. (…) The newness of the 'new media' lies in their growing suitability for serious intellectual works" (McClintock, 1999, p.4).

Boyle (2002) is one of the authors who has faced the challenge, when he recognized the need for *a construction of a systematic theoretical basis for educational multimedia design* (Boyle 2002). Boyle (2002) proposes a perspective based on three *layers of explanation*[2], taken from the psychology of the learning theory by Anderson (1990). The three layers are:

1. the psychological layer
2. the cognitive layer
3. the rational layer.

A focus on the *rational layer* could provide a helpful insight for the design of an appropriate multimedia learning environment, as it simplifies the relationship between learning theory and educational design.

Boyle (2002) identifies the *rational layer* as "the layer of explanation (that) focuses on the functional adaptation of the person to the environment. It might thus better be described as the *interactional layer*, through which considerable explanatory power can be generated by explanations expressed at this level." The key element in the interactional layer is *context*. *Context* is extremely important, because it "is a construction that makes selective, holistic sense of the environment of interaction. This construct then guides adaptive action in that environment, e.g. what kind of learning actions to undertake."

The function of the multimedia designer is therefore creating the best condition for promoting effective learning, and this can be achieved by creating a clear *context* in which learners can construct the meaning of the media elements proposed by interacting with them. Let's take an example: a video clip from a TV documentary could be effectively exploited in a learning context inasmuch its meaning is negotiated into the new context, i.e. the learning activity, the classroom, or the current discussion.

Interestingly, Boyle quotes Hodges and Sasnett, two authors that worked on the concept of context in film theory (Hodges and Sasnett 1993). The notion of context "can be carried over into multimedia design by using *context* as *the central organizing concept*. In film theory the tasks of creating and linking scenes are treated through the use of concepts such as *mis-en-scene* and *montage*." The first, the *mis-en-scene*, concerns the selection and framing of the content in a scene; the second, the *montage,* deals with the linking of these scenes to an overall consistent artefact. The two authors argue that the transformation of the central explanatory concept from *'scene'* to *'context'* can be further enhanced through the addition of the concept of *interactivity*. From this perspective, a *context* could be visualized as an *interactive scene*. From the multimedia designer's point of view, it is important to take this concept into account, because one goal could be engaging learners in *interactive scenarios*, i.e. scenarios that are defined also by the learners' actions.

According to Boyle, the central challenge for educational multimedia designers is thus creating *interactive contexts* that promote effective learning. The two major challenges in the design of *context* are the creation of the internal structure of the context itself and the structuring of different contexts in relationship to each other.

Contexts for Media Education

Once assessed that the creation of an interactional layer, i.e. of a new meaningful context of use, is the main step for an effective exploitation of multimedia elements in a learning environment, another issue is open: what kind of learning context is reasonable and adequate? The MJB project in fact considered a great number of TV news video clips, newspaper articles and interview that were to be reframed from the RTSI archive to a course on institutional communication (see below). This meant adding to them a new meaning, through a different kind of activities, changing the way these media artefacts usually communicate their content.

In the MJB project we constructed a new meaning and a new context with a constructivist and functionalist approach, accelerating at the same time a sort of visual literacy. This was done on the *fil-rouge* of the media education theory discussed by Rivoltella (2001).[3]

The history of media education has seen three important shifts, that underlined three different approaches:

1. The first approach concerns a critical context for the media use. The most important factor here is *educating to the media*, using the media as a *support* and as an *object* with a critical, moral, ideological and defensive approach.
2. The second shift considers the technological context. This corresponded to the discovery of a need *to educate with the media*, using the media as *resources*, with an instrumental, constructivist and psycho-social approach, to produce collaborative knowledge, to reflect about the relationship between media and social interaction.
3. The last approach considers the production context, and focuses on *educating for and in the media*, using the media as *language*, with a functional and expressive approach, and to for making people interact with the media in order to develop a sort of media literacy. One step further, this competence may be exploited for the production of knowledge creatively through the new language.

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[2] Boyle focuses on four requirements in order to propose a formal theory of educational multimedia design. (1) a universalistic attribute, that is to say that we should be able to assimilate valid knowledge generated from different research traditions; (2) the approach has to be expandable and open, meaning that the conceptual base ought to be able to capture new developments in a form that relates them in a clear, structured way to the established body of theoretical knowledge. (3) formalisable: the framework we use should support increasing precision in the representation of concepts and their relationships. (4) useful: the systematic representation of knowledge cannot be just about educational design, but ought to be also for educational design. It should provide a deep knowledge base to guide the design process.

[3] The media education theory is a combination of *Education Science* and *Communication Science* that has nowadays an important impact on the multimedia learning approach.

But what does it mean to apply the media education approach? It means learning to communicate, read and write with the media and their contents, mingling theory and practice, building the scenario we want to operate within. This can be learning by using media artefacts coming from our everyday experience (newspaper articles, radio or TV news, documentaries, etc.) and inserting them in an enhanced learning environment.

The MJB: From the Archive to Multimedia Enhanced Learning

In order to exploit media artefacts stored in an archive, from its original mass media context to a new educational one, we had to create and to redesign a new *scenario*. The case study we present here considers an introductory course to Institutional Communication offered by the Faculty of Communication Sciences at the University of Lugano as compulsory course for freshmen (ICeF 2002). The course was given in summer semester 2002 with about 170 students. Our partner was the Archive of the Radio and Television of Italian-speaking Switzerland (RTSI) in Lugano. A special contract was signed for accessing and selecting some broadcasted media artefacts, digitalizing them and designing thematic collections to be integrated in the course[4].

The following paragraph will briefly introduce the course context – our *interactional layer* – while the one that follows will present some lessons learnt.

The course

The general objectives of the course *L'Istituzione nel quadro della società* (The Institution in the Framework of Society) can be summarized as follows:
1. Offering general concepts of organization theory to be applied to institutions, such as *mission, resources, goals, organizational structure*, etc.
2. Providing a categorization of institution and learning to classify institutions. e.g. typologies according to mission, context, financing, etc.
3. Acquiring the ability to understand complex institutional situations and to figure out possible actions in an institutional environment, e.g. develop a governmental campaign against gender discrimination.
4. Raising interest for institutional communication also as a potential professional field after graduation.

The basic tenet of the disciplinary approach was that, due to their degree of complexity and heterogeneity, institutions could hardly be described in one thorough model, while experience can be a good teacher. The course tried to provide opportunities for a "direct look" into real institutions, guided and integrated with some theoretical concepts.
This aim was translated in a double-track program:
1. Presenting some general concepts about institutions and institutional management and communication;
2. Providing a most possibly lively picture of the life of real institutions.

The first track was pursued mainly through classroom lectures (two lectures of two hours each per week, in a 14-week semester). Lectures were used for frontal explanation, discussion, examples, and all the activities usual to this setting. After the lecture, the lecture slides and the other materials were available on the course website. Moreover, each week students had to fill in a weekly feedback form on the course website, composed by two elements: a wrap-up of the lecture (five keywords and a ten-line summary) and the assessment of the lecture and of the materials used in it. This was done to gather feedback from the students and to provide them with a chance to consolidate the lecture concepts.
The second track was developed into a set of 22 *multimedia case studies*, each presenting a single institution (such as the UNO, Amnesty International, CERN, etc.) through a collection of digital documents (texts, audio and video clips, websites - from 10 to 60 per institution)[5]. Technically, the case studies made available with *Media Juke-Box* (Botturi 2002). They could be accessed online in a password-protected area of the course website, which also provided the slides presented during the lectures, a reference list, and an online lecture synthesis and assessment form for each lecture. By the week before the end of the course (if the exam was to be completed in June; after the summer if in October – this was up to the student's choice), students had to perform a double analysis of the case studies:
1. An *extensive analysis*, i.e. analysing three documents for each institution in a selection of 17 out of 22 (the selection was up to the student);
2. An *intensive analysis*, i.e. of a whole case study and all its multimedia documents. The results of the two analyses were to be submitted in the form of a written report.

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[4] *L'istituzione nel contesto della società*. The New Media Juke Box started as the ADLER project (Audiovisial Digital Library for Educational Purposes), developed by Terry Inglese and Prof. Edo Poglia. For copyright reasons, in selecting our media objects to put in the tool, we used only media artefacts produced by the RTSI.

[5] A demo version of the case studies is available at www.lu.unisi.ch/icef/istituzioni
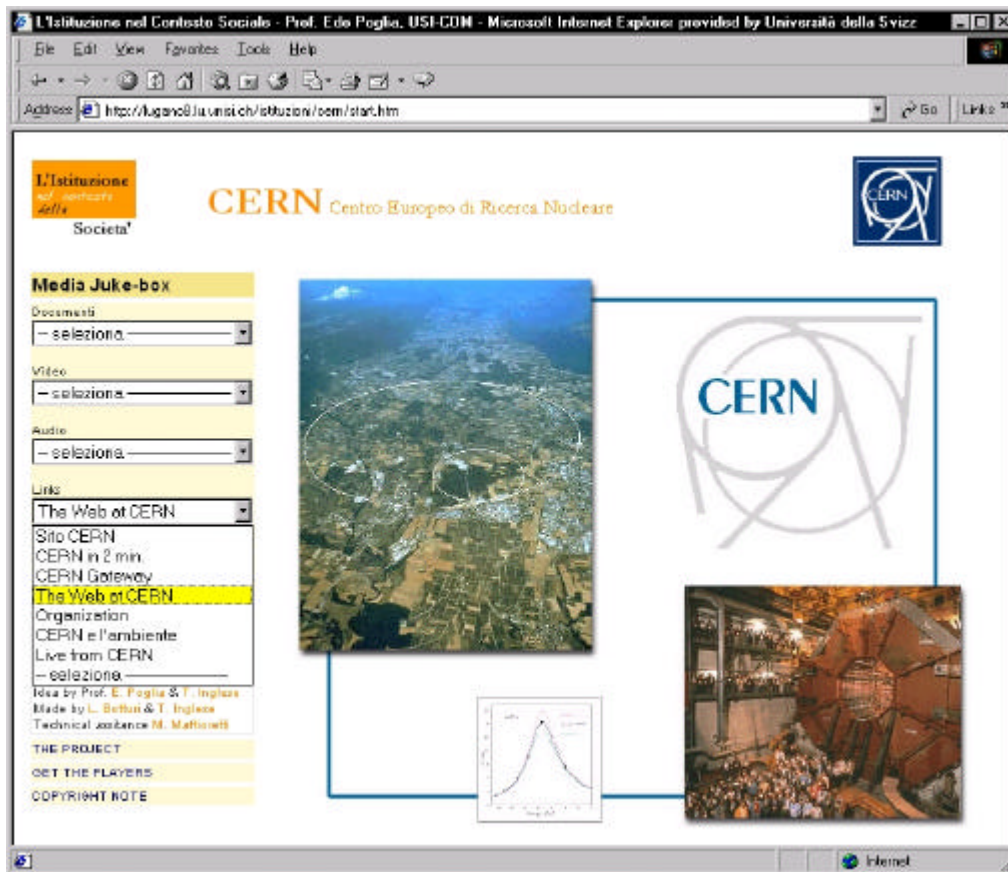
Figura 1 - A screenshot of a NMJB collection

Lessons learnt

Learning through critical case study

Multimedia provides the possibility of a new way of learning and combining information coming from different sources on one screen. Different elements can be combined for representing one topic, a single example or a case for the analysis. The content of these 22 institutions was selected and presented to the students through media artefacts taken from daily life, such as newspapers or TV news. The main difference with respect to the daily news consumption was that the students could also see them together and share comments also in class with the professor, enhancing the generation of critical insights.

Thematic collections

In order to enhance the re-contextualization effect, multimedia projects should be focused. The MJB does not aim at being an encyclopaedic project, but started as a thematic collection of informational media artefacts from 22 institutions, internationally, nationally and locally known. Each institution was enriched by newspaper articles written during the last 5-8 years, and by TV news, documentaries, institutional materials, and web references. This combination and the convergence of different kinds of information sources about the institutions themselves increased the ways the institution is represented by the media and through its own narration of itself.

Integration in the course: feedback and guidance

For the new context to be actually operative, and represent a real *interactional layer*, multimedia elements should be deeply integrated into the learning activity. The metaphor behind the MJB experiment was providing the students with "*tools for thinking and doing*", i.e. learning to access information about an institution, to collect documents, and to develop communication models of that institution (the structure, the functioning, the nature). This was achieved by providing guidance to the students and by asking feedback from them. In order to have feedback after each lesson, students were able to give their views about the lesson itself and about the multimedia collections through an online form. More on this topic is reported in Botturi, Inglese and Rozalèn (2002).

Multimedia elements should also be integrated in the course assessment, which in our case was composed of three activities:

1. Students had to write a brief text after each lesson, focusing on five key words used in the lesson.
2. During the four months of the course they had to assemble a written dossier containing the analysis of 17 institutions seen through the multimedia documents, and explaining why the reasons for their choice.
3. A final written exam

<u>Back-effect on TV archives and copyright issues</u>

The first experience with the MJB is also considered an attempt to increase reflections about the production and the archiving process of a television company like RTSI. Normally, once a media object is produced, it is broadcasted and then archived, usually forever. Our experience shows that, beyond the benefits of major organizational efforts for creating a steady collaboration between a TV company and a University, the practice of re-using media objects increases their value: media objects may become educational objects, and this can be perceived as a potential added value to media (or TV) content production as such.

Of course, it was not easy to have access to the rich RTSI archive; personal trust was concretely a success factor in order for the media company to give permission for such a project. On the other hand, media companies understand that with the increasing penetration of new media, television and radio companies can cooperate with universities and research centres in order exploit a great opportunity. Copyright considerations forced us to protect the MJB collection with a password and led us to reflect on this issue.

Indeed, copyright issues will be a very hot arguments for distance learning environments[6], exactly as the use of media artefacts and university contents or modules proposed through the net. In our case, the exploitation of media elements were controlled by a mutual agreement negotiated with RTSI.

Results

Positive outcomes

In terms of learning outcomes, the main result was the connection between the *theory*, proposed by the professor during traditional lectures, and the *practice*, triggered by the different combination of multimedia information sources. This was appreciated by the students, because the collection of multimedia artefacts as learning tools provided a direct look on real institutions (although through the eyes of mass media). In more detail, student feedback pointed out that

1. It enriched the theoretical lessons, creating a shift from an unstructured way of watching TV, listening to the radio or looking for information on the Internet to a re-contextualisation in a higher educational context like a university;
2. It provided another way of perception, through vision, reading and audio experience, helping to raise interest in institutions;
3. It helped locating the institutions into an everyday life experience and provided some concrete, practical and factual case studies, that could be integrated into the theoretical lesson;
4. It helped creating interesting and lively lessons, through a dynamic atmosphere enriched by expectations and interest. Moreover, a number of interesting discussions arose.

Critical remarks

In order to enhance the re-contextualization effect on multimedia elements, and so to improve the overall learning quality, we are planning to remodel the MJB for the next academic year.

1. Generally speaking, we wish to propose a more structured way of using the MJB tool as overall context, with some guidelines, avoiding the fragmented approach that students pointed out. Namely, we wish to give the students concrete goals;
2. From a multimedia authoring view, we will work more to narrow down the selection of multimedia documents, for example, choosing more concrete documentaries or newspaper articles, proposing examples of summaries of the institutions, in order to give students the opportunity to carry out more focused research topics; we will work on editing the materials in order to make them more understandable and clear;
3. From a technical standpoint, we wish to test and improve the infrastructure in order to avoid the technical problems we had in class, such as sound and audio problems. We would also like to give students instruments, such as a video camera or audio device, to enable them to produce interviews or collect data that could be part of a multimedia dossier and to present it in class. This will be an experiment in educating *for* and *in* the media, as pointed out above.
4. To integrate the materials in the course, we wish to invite some other institutional representatives to enrich the representation that the students have of the institution: multimedia can be put in interaction with other "out-of-the-screen" elements.
5. We also would like to apply a constructivist approach, helping students to work in little groups on one aspect of a selected institution.

Conclusions

A university has a number of advantages in exploiting a project such as MJB. First of all, it is a tool that provides content that makes students aware of real aspects of institutions. Coming from a visual and TV experience, the MJB supports students in re-contextualizing reflections and meta-reflections on everyday experiences of media consumption within another 'space': a space of learning and critical observation of the surrounding world. This includes the connections and implications highlighted by a university course about Institutional Communication such as

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[6] See also (Diotalevi 1999)

L'Istituzione nel quadro della società. Secondly, it enhances a sort of visual literacy through the media education approach, especially using the media as a *language,* in order to make people interact with and through them, to produce knowledge creatively and critically.

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