**Abstract**

Hypertext is an ideal tool to teach building design inasmuch as it allows both teacher driven and student self driven learning. It allows to link every type of informations (texts, sounds, images, films) with associative mechanisms much like those utilized by our brain. Hypertextes built up for teaching purposes can be usefully employed in professional occurrences.

An example is shown dealing with the rehabilitation of the Fiumetorto Palace in the historical centre of Palermo. It manages in a simple but efficient way the many complex interconnections between analysis of the state of decay, history, town planning rules and technology focusing all the information on the rehabilitation task.

**Introduction**

In every teaching curriculum simulation of professional occurrences is a phase through the learner has to pass. The only difference with an actual professional situation is the Lack of the following realization of the produced project.

Consequently it happens that tools developed in theaching environments con be usefully employed in the current professional life.

This can be the case of the kind of hypertextes constructed manly for teaching purposes.

The main aim in teaching design is to suggest the right behaviour in front of a design problem, supply the designer with the right methods to deal with it. No method cannot start otherwise than from the analysis of the problem structure. No problem structure is linear. In building engineering the nature of design problems always borders, often overlaps the nature of architectural problems. And those ones have always very complex structures with many facts crossing and combining their influence in shaping the solution. The hypertext tool seems especially apt to represent this kind of problems. In them both objects and links are of many types and of different strength. The first range from history (documents, examples, writings, etc.) to technics, regulations, environment descriptions and a lot more. Links are sometimes tight and sometimes loose; quite never their nature is well defined. This makes very difficult to reconstruct in one single way the structure of a design problem. Rather than *reconstructing* one ought to speak of *constructing* this structure going round the net of the links, selecting and giving significiation and value to a some of them. This is yet more true when the matter is the rehabilitation of a building of particular historical or architectural value.

**Teaching with hypertext**
Didactic has fundamentally two models. The first entrusts the teacher with the responsibility of giving order to the information related with the topics about which the didactic is going on. The second gives the learner the possibility and the responsibility of organizing the didactic material supplied to him. This second way finds in hypertext the ideal tool allowing the learner to choose the sequence in which he reaches the various information. It is he/she that builds the set of relationships that, tying together the single information, give way to the conceptual structure of the studied topics. The first way however, the teacher directed navigation, always allows a certain amount of digressing: hypertexts are then apt to sustain also this way of teaching. Given the usefulness of the tool a question arises. Who has to implement the hypertext: the teacher or the pupil? In other words the most pregnant didactic effect is to be searched in exploring the set of relationships the teacher has built up or rather in entrusting the same student to hypothesise abstractly relationships, implement them building up an hypertext and then verifying their signification running it. In short is hypertext a way of speaking to oneself or to the others? The first hypothesis is fascinating as it assumes that the passage from programming a link to avail oneself of it is a relevant cognitive act inasmuch as it changes the quality of the knowledge about that relationship, both in appreciating and in discarding it. The only trouble is about the quantity of work that one has to spent in order to build up a not trivial hypertext.

**From teaching to professional work**

The same trouble, ever enhanced, is present in the professional employment of the hypertextual tool. In teaching an hypertext, if built up by the teacher, can be repeatedly used. In professional life every occurrence needs a quick resolution and is often disconnected from other ones. Thus preventing the repeated use of an hypertext specially built up for a single occasion. Different can be the case in which a relevant amount of information is important for a whole class of cases. Such a situation can be a rehabilitation plan in which the information regarding history, rules of intervention, condition description and technical solutions can be common to many cases. The work to be done is only the description of the peculiarity of the case and the implementation of the relationships between of the work can remain unchanged. Another case of such an hypertext could be the communication between the Technical Board of a Municipality and the private entreprenuers wanting to act in the environment of a rehabilitation plan.

**The Fiumetorto Palace Hypertext**

The hypertext presented is an example of the way the illustration of a case can give enough methodological information to allow to extract from it a general knowledge about the way to deal with this class of problems. It deals with the rehabilitation of a XVII Century Palace in Palermo, The Fiumetorto Palace. Like many buildings of this type it is in condition of great decay both physical and spatial. The façade has been heavily altered with the closure of some windows, the opening of others, the substitution of railings of different style. The plaster is partly detached. The architectural frame is painted in an incongruous colour. Not better is the state of the interior. The partitions have been changed in order to divide it in a number of flats as big as possible. The theme of the hypertext was on the one hand to suggest a methodology to be followed in a rehabilitation intervention, on the other to give all the information necessary understand this methodology.
Fig. 1 - The general structure of the screen.

The structure of the general image on the monitor is comprised of five rectangles. The upper one contains the title of the hypertext and it remains unchanged all the running of the hypertext along. The second, a big square, is the main window in which the images are presented. The third rectangle on the right of the display contains the icons of six paths or image stacks: History, Inquiries, Project, Rules, Pictures and Bibliography. The fourth rectangle, bottom left, contains information about the image in the main window. The last rectangle, bottom right, contains eight buttons: Audio, Photo, Video, Information, Exit, Next, Back and Help.

The content of the stacks is clearly expressed by their title (see fig. 1). For a better understanding a short explication follows.

Clicking the Photo bottom appear a panel from which is possible analyze the photographs, chosing it by their point of shot (see fig. 2); clicking the Video bottom appear a panel from which is possible the selection of films to see (see fig. 3).
Each stack icon if clicked upon opens a window with a scrollable index and each window is a *Windows* one. Hence it can be reduced to an icon and remain present in such a form in order to be recalled in any moment in concomitance with any other opened window. Clicking on the name of a document, in the index, provokes its being shown on the main window.

The *History* stack contains a certain number of old maps of Palermo and of documents referring to the studied Palace. When a map is displayed a magnifier icon allows a zoom on the spot of the map representing the environment of the Palace. When displaying a textual document hot words lead to contemporary maps or to bibliography (see fig. 4).
Fig. 3 - The films panel.
Fig. 4 - A multilevel image of the *History* stack showing description of plans and button of details.

The *Inquiries* stack contains drawings and textual documents (see fig. 5). The first are plans and elevations in which the decayed parts are marked. Buttons on these lead to the images of *Project* stack describing the technics of intervention and further from these to the way the parts appear after restoration. From the representation of the decays textual descriptions of the repairing technics can be accessed.

![Image of History stack with plans and elevations](image)

Fig. 5 - An image of *Inquiries* stack showing the linking between representation of decays and presentation of remedies

The *Project* stack contains drawings (plans, sections, elevations) representing both the interventions and the state of the building after the rehabilitation. Buttons on the zones where the interventions have been done bring back to the inquiries in which the corresponding decays are shown. If a plan is displayed buttons on the exterior walls lead to images of the elevations. Buttons on parts of the latter lead back to the drawing of the elevations were the decays are marked.

In the *Rules* stack the index windows shows the names of (see fig. 6):

- excerpts of the town planning schemes referring to the site;
- norms ruling the aforesaid town planning schemes and other rules.

In the text of the norms some words needing further explanations are hot, as for instance non defined terms or norms leading back to other norms. Of course clicking on them leads to other texts containing the needed explanation.

The images of the *Photograph* stack are cross referred to the *Inquiry* stack and to the *Project* stack (see fig. 7). Furthermore the pictures can be recalled in any moment via the small button in the fifth rectangle of the display.
Finally the **Bibliography** stack. It is cross referred to all the stacks but to the **Photograph** one. It contains both a list of books and articles, the traditional bibliography, and excerpts of the former referred to by the other stacks.

The small buttons in the lower right corner of the screen operate respectively the audio (on/off), the pictures, that one can recall any moment, the animations, information, exit, next, back and help. The animations are made by solid modelling of the building. They can be stopped and any other stack can be recalled.

The help button can open the indication of a suggested route through the hypertext; of course it is very likely that no one will follow exactly it, but the suggestion can be useful as triggering of a navigation that will gradually become personal.

**Conclusions**

The presented hypertext is only an example, and a simple one. However it has been built with the aim of ensuring the most natural and likely references, the ones that shape the suggested route, which is to be able, also if strictly followed, and consequently, in a sense, contrary to the rationale of the hypertext, to thoroughly explain both the way the case has been dealt with and the general methodology than can be extracted from it. Of course, as many other references besides the strictly necessary ones have been implemented, a free navigation can give a much richer and a much more useful help to a professional work.
Fig. 7 - An image from the Project stack showing the connection with another stack.

References


