

# The Use of the Hipertexts and Hipemedia in Civil Construction Learning

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**Abstract:** : In this article a brief revision of the hipertextos concepts is presented and of the applications of the hipermedia and an application for the teaching of Civil Construction. In this revision can be noticed the educators' concern in the indiscriminate use of the new technologies in the educational area and the lack of existent sincronia between the fast development of technologies of information and the slowest to uncoil of the didactic-pedagogic adaptations. The hipermedia applications as teaching environment and learning has been object of considerations for the specialists of the area with the recent development of an infinity of applications in the most several areas. The prototype here presented it intends to colaborar in the teaching of contents of civil construction.

**Keywords:** Hipertext, hipermedia, multimedia, civil construction.

## 1. Introduction

In this article one can see how the hipertext operates between reality and virtuality and some of the characteristics are introduced that the hipermedia resources, mainly the hipertext should have to assist educational requirements, both from a conceptual point of view or in relation to certain precautions pointed out by the authors revised, relative to the use of hipermedia in the education. In the following text one can see the educators concern about indiscriminate use of new technologies in the educational area, although almost all of them are positively in favor of their use and more than that, they indicate that in the sequence a there could be a great improvement in the relations between teachers and students resulting from the employment of multimedia in the teaching-learning process.

This tries to show the details of a sketch (prototype) of hipermedia application for the teaching in engineering about productivity in civil construction sites. This study concludes highlighting the great importance that the researched authors attribute to the hipertext and the possibilities of hipermedia in didactic activities and of the need of preparing teachers for the appropriate use of the hipertext in teaching-learning process.

## 2 - hipermedia prototype

### 2.1 - *Choosing of the author program (software)*

During the development of the discipline it was intended to elaborate a hipermedia prototype by using a program of available authorship. The option was Assimetrix software Tollbook 6.0 because it is easy access (laboratory of PPGEP), it disposes of accessible bibliography and because of the possibility of counting with aid experts in the use of the software.

### 2.2 - *Choosing the theme*

The subject chosen is about labor productivity in civil construction because it is of the author's interest to develop doctorship research in the area of construction teaching in graduation courses in civil engineering.

### 2.3 - *Planning phases and production of the hipermedia prototype*

As the discipline proceeded in the topics related to the development of hipermedias and with expalnation of the students during seminars, the assembling of the elements needed for the hipermedia project occurred simultaneously. Initially, the structure of the application was assembled, where all the expected elements to be approached by the hipermedia, such as: content, texts, images, metaphor etc. After having been discussed, modified and approved, we departed towards to elaboration of a storyboard (sketch of the hipermedia screens presentation).

#### 2.4 - Access structure to the application

Initially a hierarcize sailing structure was idealized, so that it forced the student to travel an itinerary determined by the author. However, because of the considerations of classmates, of the teacher and of the researched authors in relation to the didactic-pedagogical aspects, the structure was modified, having a final form been obtained that is similar to the one shown in Figure 1. A structure with very little lineallirity and not-hierachized, in order to make it possible to the user to choose its own way inside of the application in accord with his/her interests and experience.

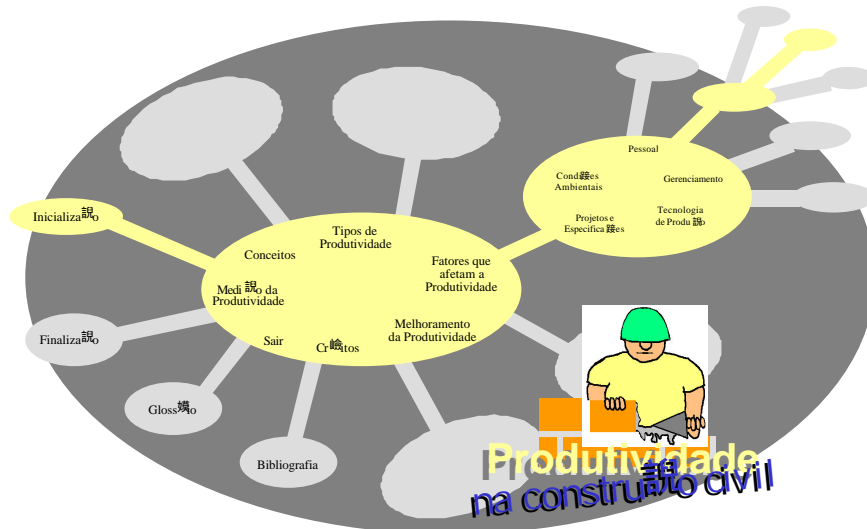


Figure 1 – Proposed structures for the hipermedia prototype

#### 2.5 - Metaphor proposal

Since the subject treated in the hipermídia application occurs in a construction environment, the author opted for working a metaphor of a site (construction site), trying to make that the elements of the application were explored under these terms. The opening of the program display a brick wall being built a certain rhythm, as can be see in the Figure 2, with background music that suggests progress (Vivaldi in Allegro - The four Seasons - Baroque Festival Orchestra). At the starting point a civil construction worker - an official bricklayer - that makes a plea for the learning with the prospect of productivity improvement at the work sites. The other elements linked to the work site metaphor are the backgrounds used on the screens; the cursor simulates a tool (see Figure 3) with its characteristic noise; and the language that is used is closer to that of a work site than the academic environment.



Figure 2 - Opening of the application

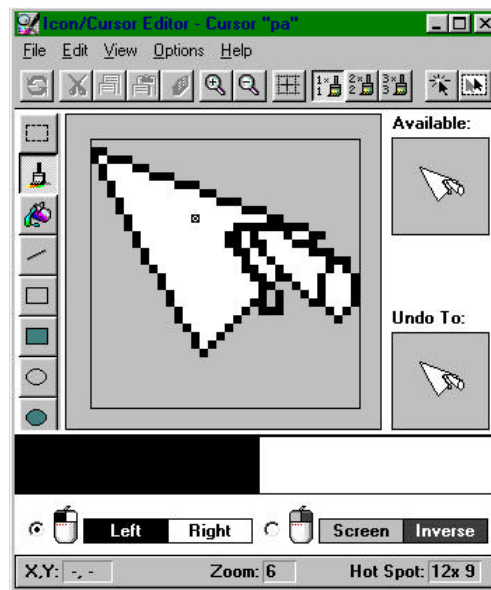


Figure 3 - The cursor used in the application

### 2.6 - Main menu and other screens

In Figure 4, below, the main menu of the proposed hipermedia is shown. The sailing options were arranged without a logical order (spread across the screen). They have been arranged like that on purpose so that the user (student) can choose any of them with no need of pre-requirements. From the main menu on it is possible to verify the authors of the project (credits), as well as to exit the application. The options lead to indicated pages with a simple click on desired text which is highlighted by the entrance of the mouse.

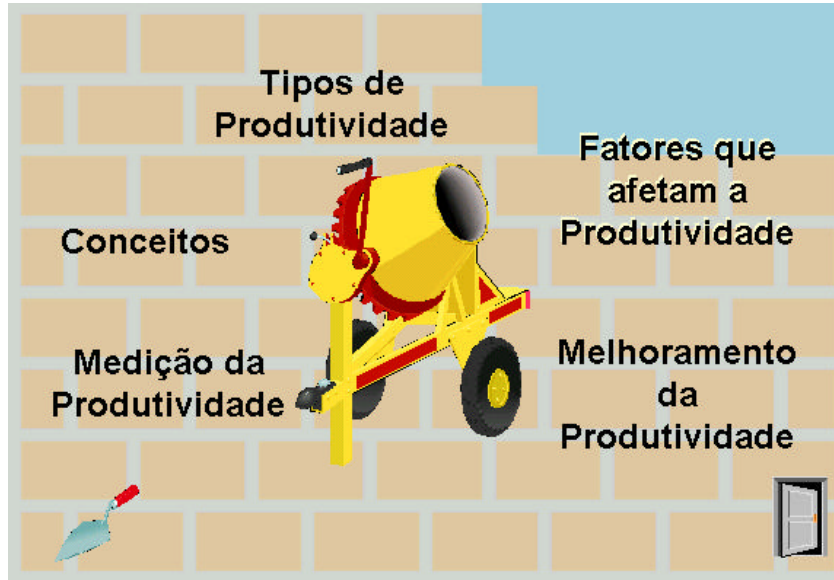


Figura 4 - Main Menu

As with the main menu, the other secondary screens present texts (sailing options) spread across the screen. On the secondary screens appear options to return to the main menu, to a glossary (dictionary of technical terms and usual ones in civil construction environment), as can be seen in Figure 5, below.

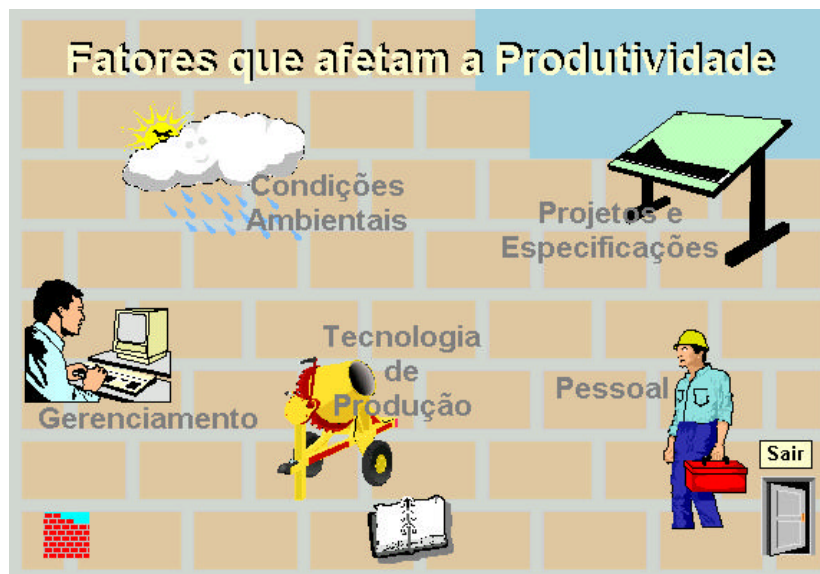


Figure 5 – A screen example of the second level

Screens of the third level display hotwords (words that make boxes open boxes or that direct to another page), besides the option to return to the previous screen, as can be seen in Figure 6, below.

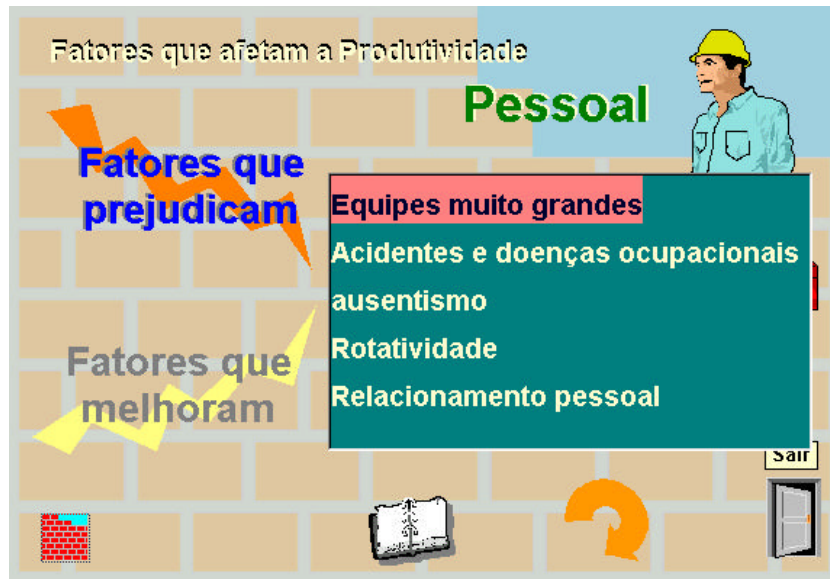


Figure 6 – A screen example of the third level

As for the fourth level screens, they show a detailed text on the subject, besides allowing options to the user of visualizing pictures and charges of work sites, videos with helpful hints from the foreman (master builder), videos showing the works being done, charts and tables and research advices (video suggesting academical research done by researchers).

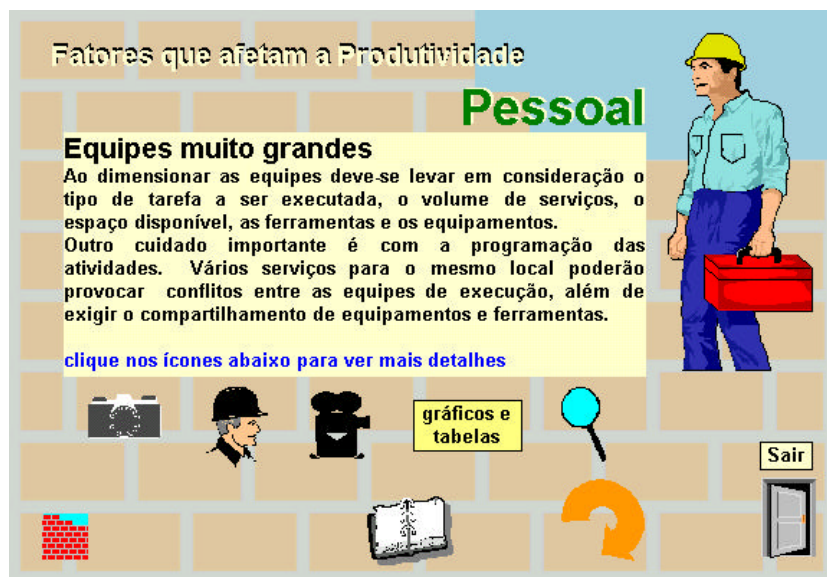


Figure 7 - Example of fourth level screen

On the fifth level screens (photos, videos, helpful advices and charts), the student can see the multimedia elements as he/she places the cursor on the desired option, as shown in Figures 8 and 9, bellow.



Figure 8 - Example of a fifth level screen (photo album)

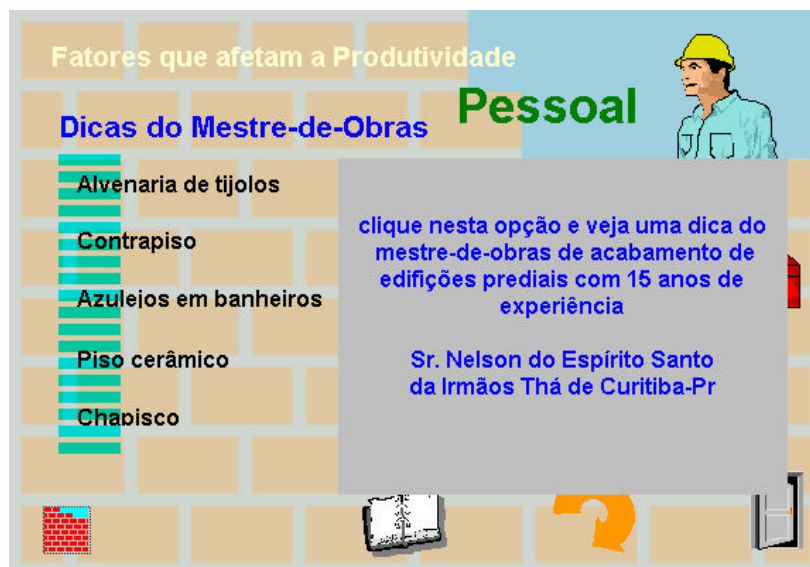


Figure 9 - Example of a fifth level screen (video with hints of the foreman)

Finally, in Figure 10 is show the screen - Credits - with the indication of the authorship, the orientation and the accomplished technical support.





Figure 10 - Screen with the authorship indication and orientation (credits)

### 3 - Conclusion

The authors researched generally propose the accomplishment of teaching projects (at a distance or presencial) that incorporate the hipermedia resources, combining them to physical resources already available. There is certain consensus that printed (paper) continues being, for some more time, the most important means in the teaching-learning process, although there is already a lot of emphasis on the use of hipertexts in education. Many didactic-pedagogical concepts are being adapted to technological apparatus that in their turn had a quite accelerated development.

Because of this it is supposed that the hipermedia is here to stay and it has characteristics totally in tune with the teaching-learning processes guidelines. The interactive class is, no doubt, the intended goal, with students working departing from a text with images, diagrams etc., developing their own knowledge structure. The teacher is the guide, the expert of the subject, who will guide (them) by means of questioning, directioning the individual learning of his/her students. In this sense, hipermedia, seen a synergetic totality of the multimedia resources and of the hipertext, if used in an appropriate way provide a greater attractiveness and consequently a greater return, because the sounds and images combined to informations cause favorable sensations to the teaching-learning process.

Any way, the change is also needed in teaching methods, in didactics and in the pedagogical focus of the teachers and the curricular programs. The use of more sophisticated resources will be useless if the teacher does not incorporate the new teaching means. The educator should, rather than impose a new teaching system to his/her students a, try it himself/herself, to feel the emotions that this new way of learning can provide. This way, he/she will understand the students anguishes and uncertainty better, emotions that certainly linked to novelty, and if this case, to the euphoria that an appropriate learning so seldom provides.

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## 6 - Miscellaneous

This papers can be see in this URL: <http://www.cce.ufsc.br/~ulbricht/hipermidia>