Live! I-Learn @ Home

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Abstract – **In this paper we present a live CD based on GNU/Linux (Knoppix), customized in order to supply a complete working and studying environment for the students of the Corso di Studi in Informatica. In particular, it supplies the Moodle course management system for e-learning complete of the courses of the first year. The aim is to enable the use of such resources off-line and without requiring special skills that will be achieved by studying but that newbies do not have.**

I. DESCRIPTION

In the last years Italian Universities have shown a growing interest into the electronic support to open-distance teaching. This approach requires a technological support to the development and fruition of the learning materials and also to the distant interaction between students and professors and, finally, among students themselves. The use of such tools requires technological expertise, on the one hand, while, on the other, if the support is given on-line, it demands for a technological infrastructure, ensuring effective connectivity, that not always is available for various reasons: cultural inadequacy, infrastructural deficiency, economical reasons. *Live! I-Learn@Home* is our first proposal aimed at solving these problems, concerning the teaching activities at the Corso di Studi in Informatica, of the Università degli Studi of Torino (http://www.informatica.unito.it), with a particular focus on first year curricula.
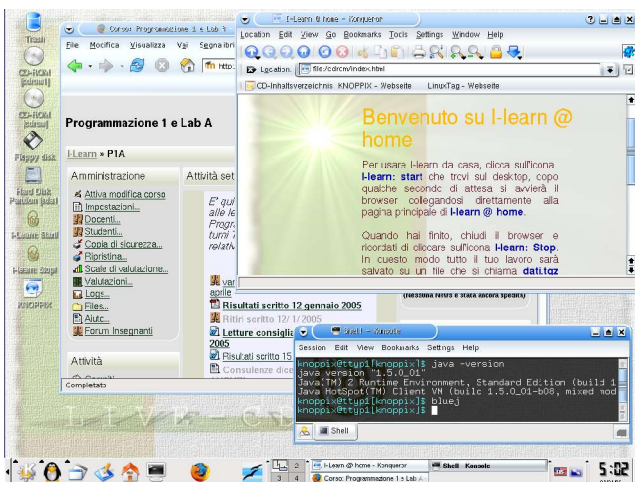

Fig. 1 The basic environment, a snapshot.

Live! I-learn@home is a customized CD-ROM of the Knoppix live version [1] based on GNU/Linux OS. The customization contains the platform for open-distance teaching, used at the Corso di Studi in Informatica, which is based on the *open-source* platform Moodle [2]. It also supplies the basic environment for learning programming principles by studying the contents of the courses stored on the platform and by practicing with the Java language (Java SDK, editors, etc.). Being based on Knoppix, *Live!*

I-Learn@Home does not need any installation on the hard disk, that is: the PC works exactly as before after the CD has been ejected. It is a bootable CD-ROM with automatic hardware detection. The advantage is that, in this way, the skills of an average beginner are sufficient to use it, even though the system supplies simultaneously the same functionalities of the on-line working environment and the laboratory practicing tools.

Moodle is a course management system, written in PHP and relying on a MySQL RDBMS, oriented to open-distance teaching. The main steps of the customization have been: (1) the selection of the software packages, (2) the configuration of the web server Apache and of MySQL in order to allow the off-line use of Moodle by means of the loopback interface, (3) data persistency, which is necessary for maintaining the data along the working sessions.
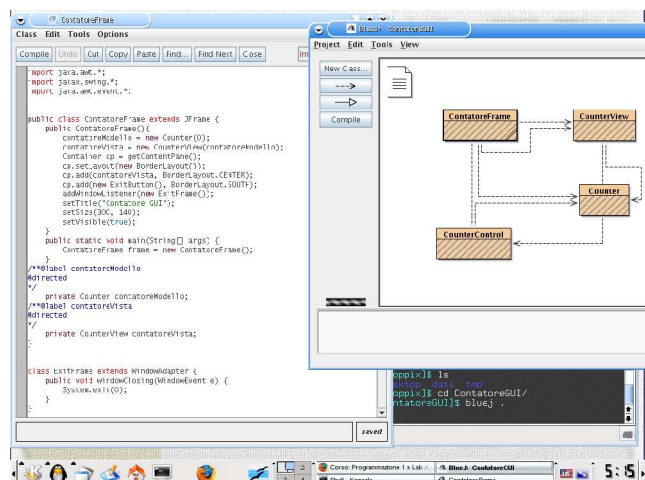

Fig. 2 Programming with BlueJ [5].

Finally, the tool supports a single-source-material-generation model vs. an heterogeneous use model, that varies from on-line deployment through inclusion as an integral part of the teaching materials (lecture notes, chapters of a work-in-progress book, etc.). This result is obtained without increasing the production costs.

II. USERS

Live! I-Learn@Home has two kinds of users: students and teachers. Both kinds of user take advantage of the characteristic of the CD-ROM of being plug-and-play. Students can bring with them a complete learning environment, that does not require enhanced skills for its setup; in the same way, teachers will be free to develop the learning materials wherever they have a computer available, even without network connection. These characteristics widen the set of possible users of the modern open-distance teaching technologies: people who live in areas that are not reached by broad-band

connectivity, students and teachers who are not akin to technological equipment. As a very important side-effect, families are not compelled to an unforeseen allocation of resources for a technological updating. Another advantage of *Live! I-Learn@Home* is that it allows "timid" users to familiarize with this kind of technology harmlessly. On the other hand, the productivity of experienced users is increased because the CD-ROM helps both students and teachers in making a more rational use of their time.

As a further side-effect we aim at making a wider set of people experience the use of a different operating system, in this case GNU/Linux, practically showing that it is possible to work with it without being initiated experts.
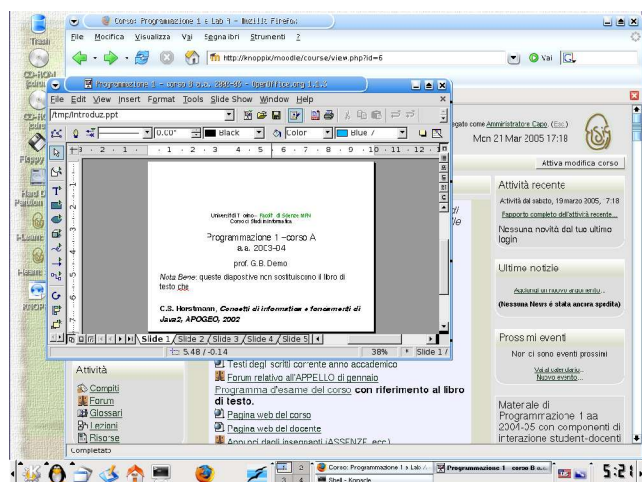

Fig. 3 Reading the lesson slides by OpenOffice.org.

III. USES

The first prototype version of *Live! I-Learn@Home* has been tested by a group of students and teachers, encountering their favour. The iso image available on the Web [3] has been downloaded by over one hundred persons despite its roughness. As a consequence the Corso di Studi in Informatica has decided to use *Live! I-Learn@Home* not only as a tool for supporting the first year students but also as a valuable instrument during the orientation meetings with high-school students and high-school teachers. The twofold aim is, on one side, to introduce computer science to teenagers by means of a computer science product, based on a medium (an interactive CD-ROM) that is akin to their way of living communication. At the same time high-school teachers, by having the possibility of extensively reading about curricula description and learning materials, are oriented towards the University view of computer science and of teaching computer science. The purpose in this case is to overcome the diffused, though defective, idea that computer science is the "capability of using software", which is pervading our high-school, rather than a real science. For these reasons the official release will also contain the movie "Dip, a digital penguin for introducing computer science to beginners", developed by an initiative of the University of Turin and its Department of Computer Science [4]. This movie means to introduce in a playful manner the basic concepts of computer science to newbies.

The first official release is scheduled by July 2005, the Corso di Studi in Informatica will fund the publishing of *Live! I-Learn@Home* in the form of CDs, that will be distributed to all the first-year students of the next academic year (2005/2006). Besides the printed copies, the iso will be available for download to whoever will desire to try it [3]. Besides the platform Moodle and the courses, the customization also contains Java 5.0 (jdk and documentation), BlueJ, Mozilla Firefox, OpenOffice.org and Adobe Acrobat Reader. Moreover, it will offer a replica of a part of web site of the study course [6], containing the documentation about its organization, the structure, the student's guide, that students can browser and acquainte with in the comfort of their homes.
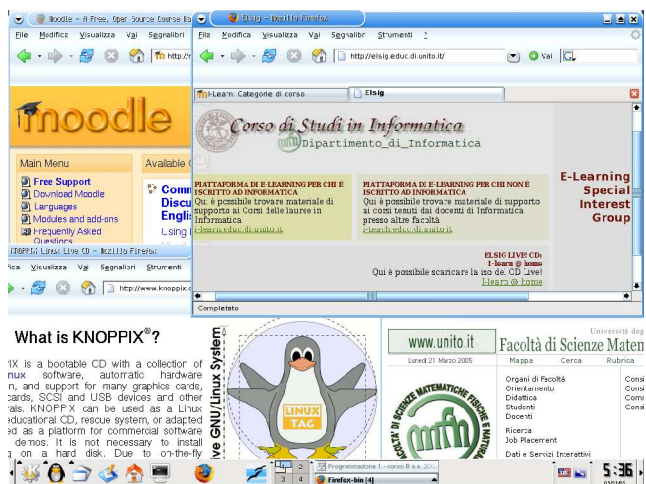

Fig. 4 Credits.

III. AVAILABILITY

Live! I-Learn@Home is open source and can be freely downloaded from http://elsig.informatica.unito.it (ELSIG stands for E-Learning Special Interest Group of the Corso di Studi in Informatica of the Università degli Studi di Torino).

ACKNOWLEDGMENT

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[5] *BlueJ, the interactive Java environment.* http://www.bluej.org.
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