Modelling without Mathematics – Using JlinkIt modelling tool in educational settings

Fábio Ferrentini Sampaio, *ffs@nce.ufrj.br,* **Márcio Reis Teixeira,** *marcioreisteixeira@gmail.com* and **Marcos da Fonseca Elia,** *melia@nce.ufrj.br*
Programa de Pós-Graduação em Informática – Federal University of Rio de Janeiro

Description

For many years our research group on IT in Education (www.nce.ufrj.br/ginape) has been working with modelling in education in Brazilian schools. As part of this research we have developed a computer modelling tool called JlinkIt that allows any one (students and common people) to construct and simulate causal dynamic models without the necessity of knowing the mathematics that are normally used in analytical models (mainly calculus and differential equations). This modelling tool was developed in Java and runs in any browser (http://www.nce.ufrj.br/ginape/jlinkit/executa_jlinkit.htm). It also has a stand-alone version that can be run on computers not connected to the Internet. The software is free and can be downloaded from its website (http://www.nce.ufrj.br/ginape/jlinkit/download.htm).

The models constructed with JlinkIt are the type of cause-effect models. The software has a direct manipulation interface and it uses only two different building blocks (variables and links) to develop the models.

The graphical language of JlinkIt is based on the idea of causal-loop diagrams and it permits the users to construct, simulate and follow time graphs of different variables while the model is running over time. Also the software uses a semi-quantitative mathematics to relate the variables of a certain problem (Bliss & Ogborn, 1989).

The software permits the construction of a wide range of problems related to the syllabus of primary and secondary schools such as those in the categories of linear, exponential and oscillatory problems, in a disciplinary or interdisciplinary approach.

At the moment we are preparing a course based on Moodle LMS to introduce Brazilian teachers to the subject. The course will be launched in September 2010.

Keywords

Computer modelling in education, causal loop diagrams, literacy for computer modelling.

References

BLISS, J. & OGBORN, J (1989). Tools for Exploratory Learning. A Research Programme. Journal of Computer Assisted Learning, 5:37-50.