PRACTICING WIMS: HANDS-ON TRAINING

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WIMS (Web Interactive Multipurpose Server) is a collaborative, open source e-learning platform hosting online interactive exercises in many different fields such as mathematics, chemistry, physics, biology, French and English among others. The pedagogical specificities of WIMS were shown, such as a bank of exercises readily available, the deeply embedded random feature, a wide variety of exercise types, including formal answers and personalized student monitoring tools. We also presented how to make custom exercises with an interactive editor.

INTRODUCTION

WIMS, Web Interactive Multipurpose Server, described extensively elsewhere in these proceedings (Kobylanski,~2017), is a collaborative, open source e-learning platform hosting online interactive exercises in many different fields such as mathematics, chemistry, physics, biology, French and English among others. A bank of exercises is readily available on each server.
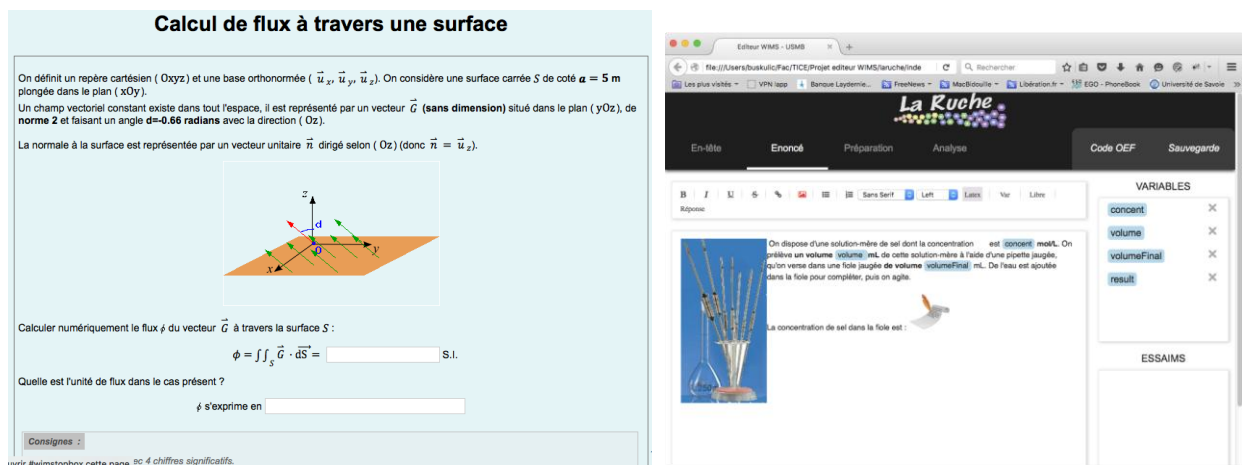

Figure 1: Examples of WIMS interfaces.

WIMS has some unique pedagogical specificities, such as

- An extensive bank of interactive exercises in various fields (around 4000 exercises, mostly in French, but also in English)

- WIMS is open source. Custom exercises produced by the users can be shared with all the WIMS servers in the world

- A deeply embedded random feature, providing the possibility to do an exercise in different ways and to test a large number of students simultaneously

- The possibility to configure a wide variety of exercise types such as multiple choice questions, drag and drop exercises, selecting a graph, drawing interactive curves, exercises requesting a numerical value or a formal answer, and many others.

- Support for many languages

- Support for external packages / software (JSMol, JSXGraph Povray, maxima, Pari/GP, Octave…)

- Support for LaTeX, HTML, Javascript, MathML

- Personalized monitoring tools for filtering student results: success rate, quality of work, results by skill, …

The WIMS platform complements various other platforms and Learning Management Systems such as Moodle or Chamilo.

GOALS OF THE WORKSHOP

The goals of the workshop were to learn how to create a virtual class on the WIMS platform by selecting exercises readily available from the exercise bank, learn how to create custom exercises and show how some of the specific pedagogical aspects of WIMS can be integrated in the exercises.

TOPICS AND ACTIVITIES DURING THE WORKSHOP

After a general presentation of the interface, we presented the following features:

Creation of a class with worksheets and documents

A class is the basic frame in which a teacher puts exercise sheets, students do their exercises, read documents and answer questions. A teacher is able to view the student activity, marks, difficulties and can process the overall results of all the students.

Figure 2: The class preparation interface

Finding an exercise or activity

WIMS integrates a search engine that allows to find exercises and activities by name or field. There is also available a taxonomic classification (Fig. 3).
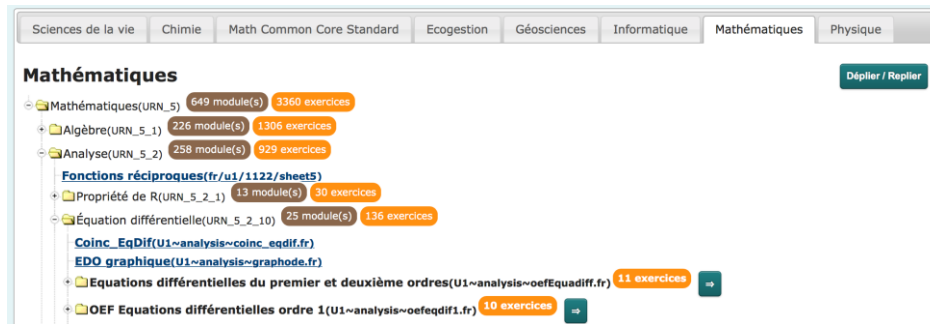
Figure 3: An interface to a taxonomy of mathematical subjects

Integrating existing exercises in the class.

Creating an exercise or a pedagogical sequence is time consuming. The WIMS embedded mechanism for sharing the teacher's creations, exercises and activities allows for a reduction of the exercise development time. The simplest way to create an exercise sheet is to gather the exercises among the existing ones in the available database. This is the way used by newcomers to quickly understand all the potentialities of the WIMS platform.

Creation of an exercise using an interactive editor in WIMS.

The creation of an exercise may be done in three different ways. The first is a set of simple exercise models which can be modified according to several variables. The second way is by means of programming in the Open Exercise Format (OEF) language. This allows for the building of almost any kind of exercise. When a user wants complete control over the appearance and functionalities of an exercise, he can use the Modtool mode which gives him complete control over the html code.

However, except for the prepared models, there is still a need for programing knowledge, which all teachers are not able or willing to learn. The WIMS developers are in the last stages of the development of an interactive editor which should greatly simplify the programming of OEF exercises. The user will be able to use a web word editor as well as a simplified graphical programing interface. This is shown in figure 4.
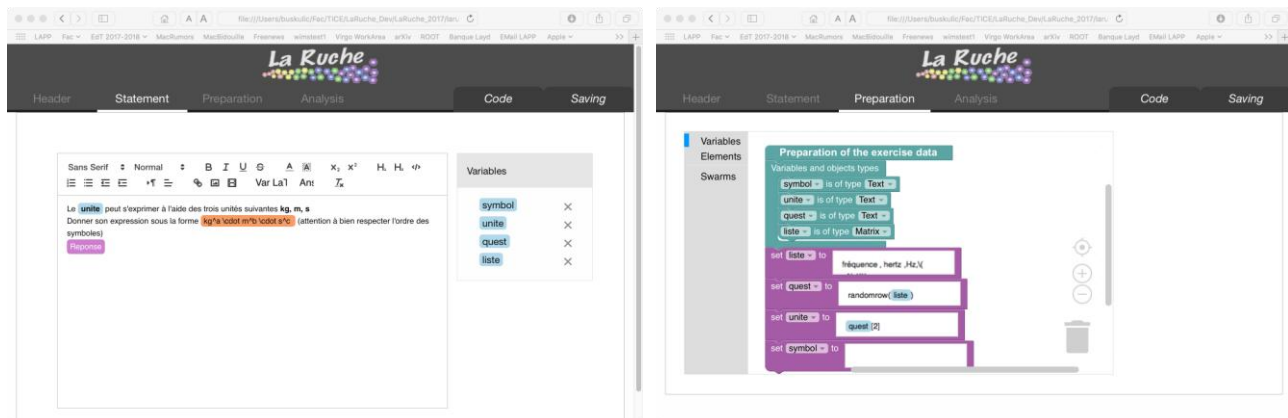

Figure 4: The interface of the exercise editor

RESOURCES

Server at the Université Savoie Mont Blanc: https://wims.univ-savoie.fr/

Server at the Université Paris Sud: https://wims.auto.u-psud.fr/wims/

CNRS Server: https://wims.math.cnrs.fr/wims/

Tutorial for the creation of classes: https://wims.di.u-psud.fr/wims/wims.cgi?module=help/teacher/docbeginner.fr

Site of the WIMSEDU NGO: http://wimsedu.info

REFERENCES

Kobylansky, M. (2017). WIMS Www Interactive Multipurpose Server an interactive exercise software that has 20 years and still is at the top, *Communication at the ICTMT13 conference, Lyon, France.*