R as integrated engine in blended learning environment

Voirin P., Abou Khaled O., Senn T.

University of Applied Sciences of Western Switzerland, Fribourg, Pérolles 80, CP 32,
1705 Fribourg, Switzerland
(pascale.voirin@hefr.ch)

This paper presents the ongoing work[1] related to the realization of an introductory statistics course produced by a blended learning authoring environment. The main challenge of this work is applying a blended learning approach in the field of statistics using R as a main engine behind all related pedagogical activities which belong to the course materials (self-training exercises, homework, guided exercises, quizzes, etc.). Moreover the production of the course materials using this environment will be open, sharable and compliant with SCORM standard.

The authoring environment supports the tutor/professor during the whole production steps:

1) The design of the guided thread of the course structure: requirements, pedagogical goals, chapter elements, other materials and hyperlinks, etc. using the pacemaker system[2]
2) The realization of related R based interactive self training exercises, homework, guided exercises, and quizzes, based on Rpad
3) The easy deployment of the full course on a course management platform, Moodle in the present case.

This work will be validated, from a pedagogical and technical point of view, through a part of an introductory statistics course for beginners, presenting the concept of hypothesis testing. It will take place during spring semester 2006.
The leading idea is to investigate the pedagogical impact of the use of R engine in such integrated, easy to follow, interactive blended environment, which has mainly to stimulate the motivation of beginner students, not familiar with probability notions.

[1] project granted by Cyberlearn/ n° HES-SO 16043
[2] http://www.eif.ch/projets/eFBS/