INTELLIGENT ALGORITHM AN ACCOMPANYING MECHANISM IN BLENDED LEARNING

H. Pablo Leyva[1], R.B. Silva-López[1], I.I. Méndez-Gurrola[2]

[1]*Universidad Autónoma Metropolitana (MEXICO)*
[2]*Universidad Autónoma de Ciudad Juárez (MEXICO)*

Abstract

In blended learning, is essential to have a continuous and fluent communication to ensure adequate interaction with students, seeking to be accompanied during the teaching and learning process. What can minimize the desertion in the course? Monitoring can be done in several ways. The typical is: the teacher reviews learning activities and assigns grades, can send comments and feedback to students, including, can detect students who have not made their deliveries and require more attention. However, the teacher can have a large amount of work and only focus on qualifying the learning activities, without giving due importance to the feedback and specific communication with the student. Before this scenario, it is proposed to integrate an intelligent algorithm, which monitoring the performance of students based on their deliveries and grades obtained, so that notifications and personalized comments are sent according to the context and situation of a scenario.

The methodology considers:

a) the learning process can be characterized as a curve similar to a bathtub function;

b) the objective is to maximize the average rating of a group;

c) the test is done in engineering courses;

d) the average grade of the group, considers the arithmetic average of the average grades of the students enrolled in the course;

e) the qualification of each student is obtained as a weighted average;

f) the learning activities integrate mind maps, problem solving, self-assessments and exams.

This algorithm allows to see the performance of the students, according to the grades obtained in each unit and the performance obtained. The communication and feedback is established with the students through the automated sending of messages to motivate and improve their grades, so that they desist from cancelling the course, to give clues to the realization of problems. The implementation is made through the communication mechanisms offered by the LMS Sakai, both for the evaluation feedback of learning activities, self-evaluations and exams.

12 tests of the implementation of this algorithm were carried out, in the period of the quarter 14-P to 18-I. The results show that it is an adequate mechanism to monitor the performance of students during the course, it can be observed individually if the student is doing well, or has problems that affect their progress, therefore, you can act in time to treat that the student successfully concludes the course.

Keywords: Higher education, intelligent algorithm, evaluation, learning accompaniment.

1 INTRODUCTION

In four campus of the Universidad Autónoma Metropolitana, the Numerical Methods course is taught to students of different engineering degrees. Only in the Azcapotzalco Campus, this course should be offered to approximately 500 students in each quarterly period. Sometimes the students demand exceeded the offer offered, which could be covered with human resources and facilities that are available in the Institution. In order to meet the demand, a conducting teaching and learning process method called Big Academic Open Course has been implemented, which aims to serve a large group of students (between 70 and 250) that must conclude in the quarterly period. It makes use of an LMS in a blended-learning scheme. In this type of courses there is the problem that some students feel lonely or abandoned, since they do not have as much personal contact with the teacher in a continuous manner, as in a traditional school course. That situation causes the dropout rate in this type of courses to increase. Therefore, it is necessary to establish a communication mechanism with the student, which supports the student's accompaniment during the course.