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Study of the achievement of university students and their relationship with the selection process

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Abstract

This paper explores the performance of students from four university careers of scientific orientation, per the qualifications and the effective progress achieved in their corresponding curricula, as well as their relationship with the variables of the admission process and the subsequent performance. Under the assumption that grades are less representative than the progress achieved by the student, the returns are measured mainly in terms of the progress achieved by the student in his / her respective curriculum. The analysis was approached by means of the application of the test of equality of average and the coefficient of correlation of Pearson, in subgroups of students formed per their condition of novices or previous experience in the university, its career and its type of school of origin. The results show little connection between the variables of the selection process and the academic performance, as well as a poor relationship between the indicators related to the secondary education grades and the performance of the students in their respective careers. Finally, a particular conceptual approach for the solution based on neuro-management considerations as a model to conceptually aboard complex dynamic routines that need to be redirected.

1. Introduction

Characterizing college students is a difficult task. One of the favorite aspects for this purpose is to consider academic performance understood as the success, speed, and depth of learning that a student achieves. Currently, various indicators are used to interpret academic performance based on grades, length of stay at the university, levels of competence achieved, etc.[1][2] [3]. However, most are not for predictive purposes and are only known after a time has passed more than prudential that although it has allowed to building a history of

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the academic trajectory of a student, does not allow remedial actions. Many universities nowadays face social and governmental pressure that demands not only quality training, but also that their training process is consistent with the admission requirements included in the selection process, considering that, in theory, the students have been selected because they are able to successfully complete university studies. [4] [5][6].

Admission processes vary by region and continent. Some countries, such as the United States, apply a selection test that is based on the determination of superior skills in students, which are assumed to be keys to success in higher education. This test is known as the Scholastic Aptitude Test (SAT) [7], which is given once students complete the so-called College and consist of specific tests in the areas of language and mathematics.

In Europe, England and Germany apply the selection process when the student finishes secondary education, in England,the process is known as Advanced Level (A-Level) and in Germany as Abitur (which also facilitates access in other countries in Europe and the United States). Spain uses a mixed selection system, which is based on the qualifications of the last cycle of studies called Baccalaureate and two special tests. In the case of France, the process begins at the age of 15 or 16, when the best students go to high school to prepare a kind of research linked to science, literature or economics, known as Baccalaureate (BAC).

In South America, Chile uses a similar procedure known as the University Selection Test (PSU), which evaluates a mixture of skills and knowledge in three tests corresponding to three specific areas of knowledge (language, mathematics, and science) [8]. The current University Selection Test (PSU) was implemented in 2003 and focuses on measuring the so-called Minimum Mandatory Contents (CMO) of the Curriculum Framework of the Chilean Education and the academic key skill to success in Higher education. The present study focuses on the experience of four university careers, whose students have been selected through the single admission system established by the universities attached to the Council of Rectors of the Chilean Universities. The selection process is based on the choice of the best-weighted averages obtained from the high school grades of the applicants and the university selection test.

2. The retention and academic achievement of students in higher education

The increasing global demand for higher education and the internationalization of this type of services [9]have led to the retention of students [10]and their academic performance [11] as key factors in many institutions of higher education.

While the retention is due in part to the institutional effort to provide an educational service that responds to the interests and needs of students, it also accounts for the concern and efficacy with which an institution takes over weaknesses and weaknesses with which receive its new students. As stated in [5], the values and practices of an institution of higher education have an impact on student retention and, consequently, it is necessary to review the training process from the beginning [12].On the other hand, as stated in[13], achievement and retention are also related to family background and the student traits.

"Academic achievement represents performance outcomes that indicate the extent to which a person has accomplished specific goals that were the focus of activities in instructional environments, specifically in school, college, and university" [14]. Several methods have been tried to try to predict students' academic performance based on variables and tools that can be incorporated into admission processes [15][16]. In this paper, we opted to measure the academic performance in the field that concerns the progress that a student experiences in his curriculum because it seems to relate better to student retention.

3. Context of the study

The study presented in this work was based on the information of the students of the cohorts from 2004 to 2014, of four careers of scientific orientation belonging to one of the main traditional Chilean universities. The