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Influence of assessment in the teaching-learning process in the higher education

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Abstract

The new European Higher Education Area (EHEA) involves a change in the way of understanding learning and the teacher's work. In this field, assessment is a very important aspect in education. It influences determinedly in the process of helping and encouraging the students to learn and understand their progresses in learning. This paper shows, from the results obtained in the subject "Concrete as a Structural Material", of fourth grade in Building Degree, the factors which affect the teaching-learning process through assessment.

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Keywords: assessment; motivation; autonomous learning; significant learning.

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1. Introduction

In the new European Higher Education Area (EHEA), the teacher and the student acquire new roles different to those they had before. In the new context, the teacher helps the student to learn, with the intention that the student not only acquires contents but also builds them. The new student, apart from learning contents, has to have initiative, oral and written communication skill, ease to work in team and ease to adapt to the new situations that the current job market demands (Álvarez, González & García, 2007). This has led to suppose a change in the way to guide the teaching, departing from specific and general objectives, which allow training professionals, as of general and specific skills which the student has to be able to develop and some learning results that the student has to demonstrate.

One of the most important facets in the teaching is assessment (Hannan & Silver, 2005). Contreras proposes a very complete definition to this term: *Assessment is a process that involves obtaining reliable information concerning the students' commands (objectives, knowledge, aptitudes, skills, behaviors, etc.), establishing judgments of value (acceptable, suitable, good, good enough, etc.) and making decisions (to accept, to pass, to recommend, to promote, to release, to recognize, etc.)* (Contreras, 2004).

What would be ideal is that assessing and grading intertwine benefiting the learning and relating to the planned objectives and the obtained results (Ames, R. & Ames, C., 1991). In assessment also affects, apart from the used method, the human factor, what is to say the perception the student has about the assessment method, whether it is appropriate or not (Bain, 2004).

Despite there are many researches that relate objectives and assessment (Contreras, 2004; Alonso Tapia, 1997; De Miguel, 2004), in this paper we try to study the factors that take part in the teaching-learning process through assessment, analyzing the human factor (the student and the teacher's skills) and the student's perception of the subject, as the force that increases their interest and motivation.

2. Approach to work

2.1. Stages of the research

The objective of this paper is to study the factors that take part in the teaching-learning process through assessment, in students who have studied the compulsory subject "Structural Concrete" of fourth year and with 6 ECTS credits, during the year 2013-2014. The factors which are going to be studied are: the student's ability, the student's valuation of the subject, the valuation of the type of assessment and the valuation of the teacher, in order to study how these factors affect in the teaching-learning process.

In the subject there are two different ways to pass, through continuous assessment or through a final test.

Continuous assessment lies in:

- Four partial tests, without a minimum score, done along the semester, which are equal to four points in the final score. Each test involves a particular part of the contents different from the other tests.
- Class practices, homework, group work, etc., done along the semester, which are equal to two points.
- A global test, done at the end of the semester, which contributes to the final score with two points. In this test, which is global and concurrent to all students, regardless of their group, all the contents of the subject are included and it is necessary to obtain a minimum mark of 3 out of 10 in order to pass the subject.

Final assessment lies in a final and global test which is the only reference to grade the student.

In order to be able to know how the student's ability affects the learning, the basis with which the students start to study the subject has been studied, taking data whether the students have passed the subjects from previous years or

not which are considered as basic to study the subject "Structural Concrete" or whether they have passed or not the subjects related to structures from previous years (construction structures and geotechnics and materials resistance).

In order to know how the student's perception of the subject affects the teaching-learning process, data of the correspondence of the spent hours with the ECTS credits that the subject has been assigned in the education program, the methods and means used in the teaching and his valuation of the reached objectives have been taken.

In order to know how the student's perception of assessment for purposes of motivation, interest and feedback affects his results, we have obtained data of his valuation of the type of assessment used, its usefulness to detect weak points and to work on them, the motivation it creates and the perception of the relation between the obtained scores and the effort and of the acquired knowledge.

Finally, we have also studied the influence of the teaching activities of the teacher in the teaching-learning process.

2.2. Data gathering strategy

In the data gathering the following documents have been taken into account:

- The students' scores, which are in the database of the teachers who teach this subject.

- The obtained data of the students, which have been provided by them through a datasheet fulfillment. This datasheet was fulfilled individually in the classroom, three months after having started the classes, but without having done the fourth partial test and the global test, in order to avoid that the obtained score could affect the valuation of the subject. All the valuations were made in a scale from 1 to 5, in this way: 1-strongly disagree; 5-strongly agree. The sheet was divided into four large blocks, which allowed the data gathering in the following aspects: The call in which they passed the basic and fundamental subjects for the understanding and the learning of the subject, the student valuation of the fulfillment of the learning objectives planned in the subject, the method of assessment used and the effectiveness of the system of assessment concerning the learning and the encouraging.

- The students' valuation of the teaching activities was done by the School of Building, in an anonymous way. These results were afterwards provided to the teachers.

3. Results

The global analysis of the gathered data from the students for this research is detailed below:

- The number of students to whom we have made the research is 182. 105 of them have passed all the basic subjects (57.7%) and 122 students have passed the two subjects related to structures from the previous years (67.0%).

- The average valuation of the students about the subject is 3.9 out of 5.

- The average valuation of the students about the assessment done is 3.8 out of 5.

- The average valuation of the teaching activities is 4.54 out of 5.

Firstly, we show the obtained results of the scores in both assessment systems (continuous assessment (Fig. 1) and final assessment (Fig. 2)), in the subject "Structural concrete" in the year 2013-2014.

In the continuous assessment method, the percentage of students who failed the subject is 13.7%. The percentage of passed students is 86.3%. This shows that many students pass the subject through continuous assessment because it is a very practical method and it is based in the continuous work (Fig. 1).

Fig. 2 shows the results obtained by the students through final assessment. As it can be seen, the students who are assessed by this method obtain much worse results. Only the 8% of the students have passed through this method.

Next we show the results obtained by the students depending on their abilities, tested by their ease to pass the subjects from previous years indispensable for the comprehension of this subject.

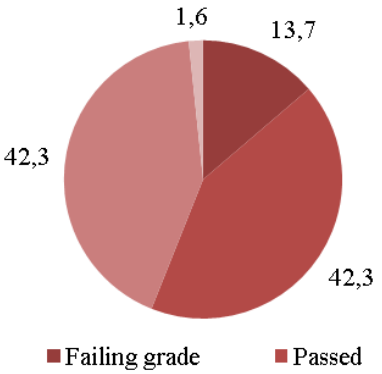

Fig. 1. Percentages depending on the scores in continuous assessment.

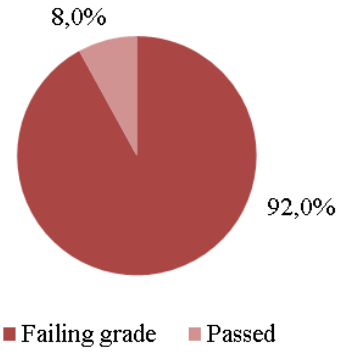

Fig. 2. Percenteges depending on the scores in final assessment.

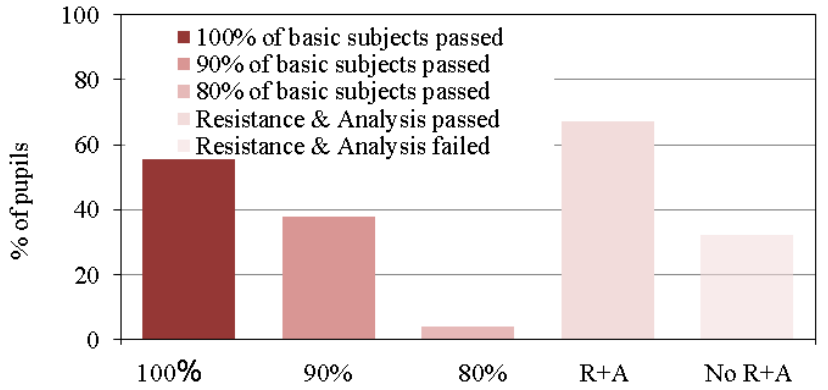

Fig. 3. Base of knowledge of the students.

Fig. 3 shows the knowledge base that the students who study the subject structural concrete have, through the percentage of students who have passed the subjects from previous years considered as basic (Mathematics I, Physical mechanics, Mathematics II, Facilities physics, Statistics and Technical projects) and as essentials (Materials resistance and elasticity and Construction structures and geotechnics).

As can be seen, 57.7% of the students have the base of knowledge necessary to confront the subject and the 67% has passed the subjects from previous years considered as essentials.

Next the students' valuation of the different aspects of the subject (Fig. 4) and of assessment are shown. All of them valuable between 0 and 5 points (0-strongly disagree; 5-strongly agree) as explained in section 2.2.

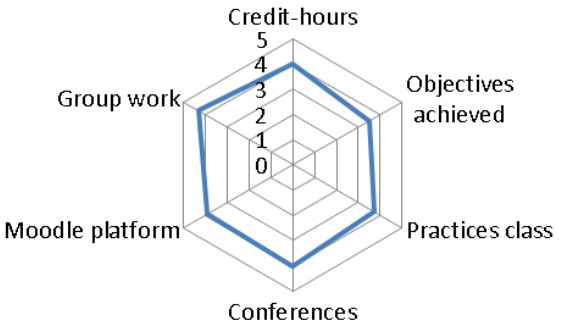

Fig. 4. Students' valuation of the different aspects of the subject.

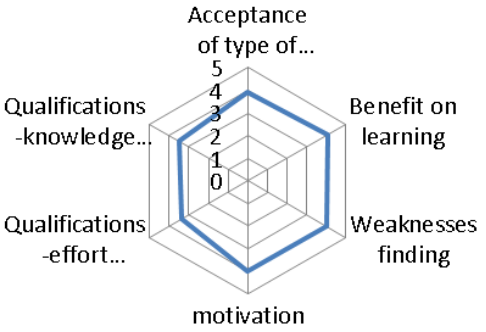

Fig. 5. Students' valuation of the different aspects of assessment.

Regarding the valuation of the subject, all the items are above 3 points, valuing the students in an especial way the usefulness of the conferences as support to the regulated teaching, the use of the computer platform "Moodle" and the group work and its usefulness to learn how to work in groups properly, as information searching and as possibility to explain orally their projects before their classmates. They also show their conformity with the relation spent hours-ECTS credits.

The student's valuation of the assessment done is very satisfactory also, especially valuing its feedback and weak points searching capacity and therefore, its benefits regarding the learning and the personal motivation.

Fig. 6 shows the student's valuation of the teaching activities, in which can be seen his satisfaction, reaching all the items valuations above 4 points in the different variables of the teaching-learning process.

4. Results analysis

In this section we are going to show how the variables, whose results were reflected in the section 3, affect the scores and therefore, the teaching-learning process.

Fig. 1 and 2 analyses show how a teaching-learning method based in the continuous work and continuous assessment improves the performance and the results of the learning in the students.

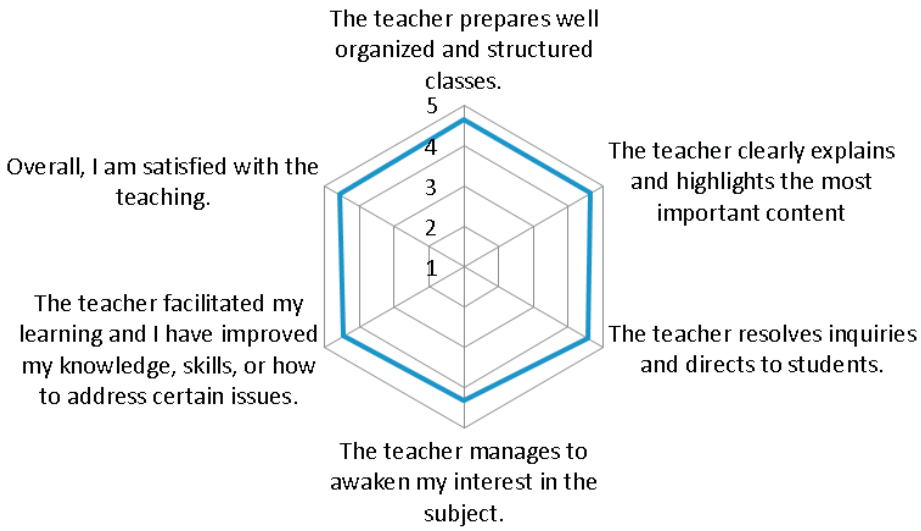

Fig. 6. Students' valuation of the teaching activities.

Fig. 7 shows the relation between the scores obtained by the students and the base of knowledge they had when they started to study the subject. Fig. 8 shows the relation between the scores obtained by the students and the fact of having passed or not the subjects considered as essential. As can be seen, the number of passed is higher in the students who have passed all the basic subjects, as in the students who have passed the two subjects considered as essential and therefore, the intrinsic ability of the student in the teaching-learning process is very important.

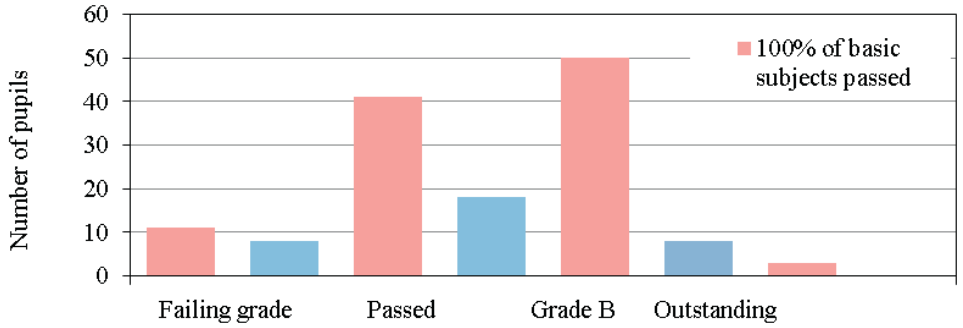

Fig. 7. Relation between the scores and the basic subjects passed.

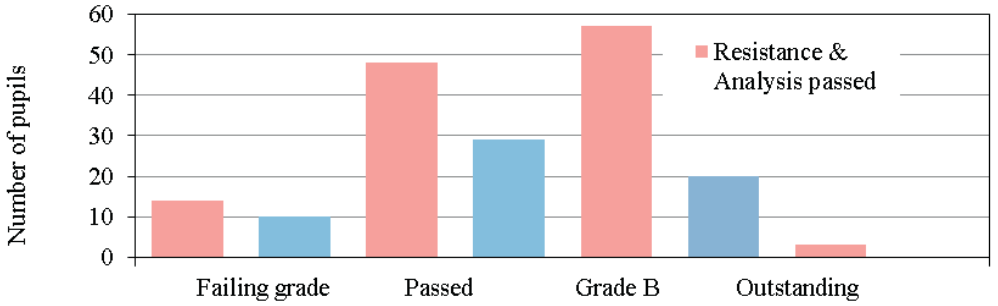

Fig. 8. Relation between the scores and the essential subjects passed.

Fig. 9 shows the relation between the scores obtained by the students and their perception of the subject. As can be seen, a good perception of the subject favors the student's answer, obtaining better scores the students with better valuation of the subject and therefore, it is important to interest the student in the contents of the subject, as make them active part of the teaching-learning process in the classroom and through the new technologies.

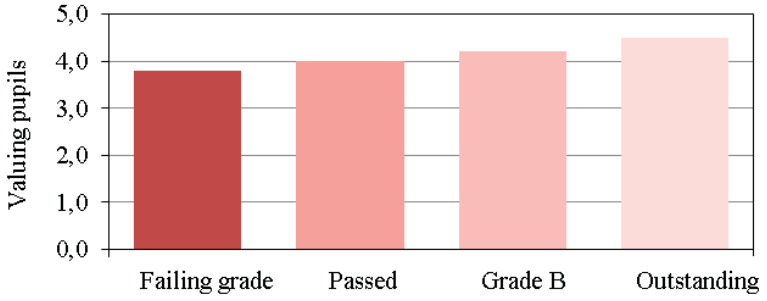

Fig. 9. Relation between the scores and the perception of the subject.

Fig. 10 shows the relation between the students' perception of the type of assessment used and the obtained scores. As can be seen, the students who obtained better results also had a better perception of the type of assessment. Because of this, it is fundamental that the assessment encourages the motivation and the feedback, in order to help the student to see it as one more part of the teaching-learning process.

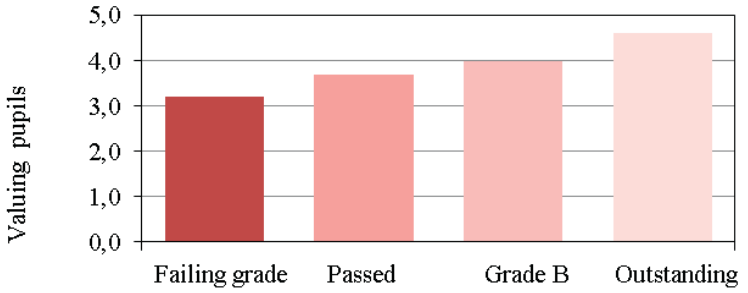

Fig. 10. Relation between the scores and the perception of the assessment.

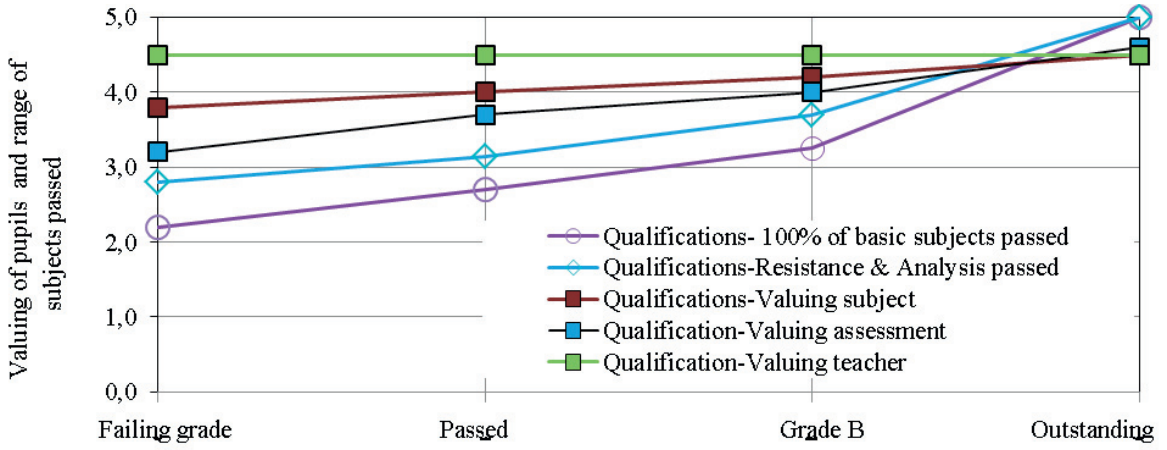

Fig. 11. Relation between the scores and the perception of assessment.

Finally, Fig. 11 connects all the variables studied before (base knowledge of the students and their perception of the subject, assessment and of the teacher) with the obtained scores.

As can be seen in figure 11, except the valuation of the teacher, which is anonymous and therefore cannot be related to each group of students, all the other lines are ascendant from the passed to the outstanding. This indicates clearly that the analyzed variables affect directly in the level of learning reached by the students and therefore can be used as orientation to guide our efforts as teachers.

It can also be seen how even being positive all the valuations, the one related to the teaching activities is better, followed by the one related to the valuation of the subject and the assessment valuation one.

5. Conclusions

As a response to the objective of the research, the conclusions are detailed below:

- Continuous assessment improves the performance and the results of the learning in the students, encouraging their work in a continuous way, the easiest way to acquire the necessary skills.
- The overcoming of basic and fundamental subjects from previous years affects, clearly, the marks.
- The student perception of the subject is a determining factor in his motivation, obtaining better results the students who have a more positive valuation of the subject.
- It is fundamental that the assessment benefits the learning, encouraging the feedback, the motivation and the comprehension ability of the student of his own learning process. This way, the students will assimilate it as one more part of their learning process and they will improve their results.
- The valuation of the teaching activities affects in an important way the teaching-learning process and our knowledge of its perception has to give us hints to know how to improve continuously.
- Despite the students' valuation of the subject "Structural concrete" was very positive we want for the next year to improve the usefulness of the practices done in the classroom and influence in a better achievement of the planned learning objectives.
- As a general conclusion it can be affirmed that the student's ability and his perception of the subject and its teacher affect in a determining way in the teaching-learning process.

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