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# Didactics and Self-Assessment: An Innovative Proposal for The University of Trento

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## ABSTRACT

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The university institution is called today to face challenges concerning the ability to recognize and pursue new formative goals (Grion et al., 2018). In the light of this, the research wants to reflect on the reality of the University of Trento, so far, the only Italian university, among the 35 evaluated, to have obtained the highest rating assignable by the Anvur. The aim is to highlight both the primary nodes in which the University requires renewal and its hinges points, and report in detail the results of quantitative analysis, commissioned and drafted by the Joint Committee of the Department of Civil, Environmental and Mechanical Engineering (DICAM), which saw the need to further analyze the reality of students of the individual courses of the Department. The contribution links, in conclusion, the points emerged from the direct observation of the students to a consistent response to the emerging literature review. Specifically, reflecting the field of post-compulsory education paths, with a strong connection with self-assessment (SA). The results seem to show that self-assessment (SA) can be a new key to the promotion of an education capable of experimenting, through participatory and innovative teaching, knowledge, autonomy, responsibility and soft skills: fundamental elements that the University of Trento needs to improve to achieve European and international standards.

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## 1. Introduction

Despite the higher education systems, in recent years, have been exposed to profound and radical changes (Pastore, 2017), the European Commission (2010) aims to achieve a 15% average participation of adults in the field of lifelong learning by 2020. To make effective the objectives set by the Constitution, there is a need to renew strategic priorities, introducing new forms of teaching and learning, most appropriate to the present time (European Commission, 2013; Ghislandi, Margiotta, & Raffaghelli, 2014), to encourage more significant learning and greater student involvement. In this perspective, a fundamental role is also played by the evaluation (Grion et al., 2018) focusing attention both on the "immediate" task and on its future implications (Stobart, 2010) to become a tool to be realized as lifelong learners (Boud, 2010). In the light of this, the research wants to reflect on the reality of the University of Trento, so far, the only university, among the 35 evaluated, to have obtained the highest rating assignable

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by ANVUR<sup>1</sup>. The first part of the research focuses on the analysis of the document<sup>2</sup> elaborated by the Student Council, which reports four sections. The aim is to highlight both the central nodes in which the University requires renewal and its hinges points. The second part of the research reports in detail the results of quantitative analysis, commissioned and drafted by the Joint Committee of the Department of Civil, Environmental, and Mechanical Engineering (DICAM), which saw the need to further analyze the reality of students of the individual courses of the Department.

The contribution links, in conclusion, the points emerged from the direct observation of the students to a consistent response to the emerging literature review. Specifically, reflecting the field of post-compulsory education paths, with a strong connection with self-assessment (SA).

## **2. Document analysis**

As explained before, the first part of the research wants to highlight the main salient points reported in the document in reference. From the analysis of the text, the main sections considered are 1) types of lessons, 2) evaluation methods, 3) structure of the study course and 4) didactics assessment. The first two points were connected to teaching methods.

### *2.1 Teaching methods: types of lessons*

From the analysis of the kinds of lessons emerges that, although the lessons turn out to be various, for the most part, they have a frontal nature and with non-interactive didactics for the students. Although the use of slides makes the lessons more interactive, the comparison and debate in the classroom are limited. The situation is less critical about seminars, workshops, and tutorials, where the correlation between teachers and students is more frequent, with more significant students' involvement. Under a different profile, it is to be appreciated the increasingly regular use of online platforms such as Moodle. From the summary of this part, elaborated on page 11 of the document, only four courses were positively considered as they use a more supplementary didactics, allowing greater participation of the student at the lesson.

### *2.2. Teaching methods: examination methods*

Inherent to the examination methods, it is possible to read that written, and oral examinations are the most frequently proposed evaluative methods by the teachers of all departments. In some of these, as in the Faculty of Law, these are practically the only ways of evaluating students. In other departments, the final evaluation is divided into the presentation of projects, or group work, or exposition of reports. Linked to the exam, it is emphasized in the document that the number of appeals for each session must be suitable for the number of exams. Currently, there are five calls per year per subject, with some exceptions (i.e., Faculty of Law, School of International Studies, Department of Economics and Management). It emerges that the number of appeals is still limited. From the summary of this part, elaborated on page 11 of the document, four courses were positively considered as the use of different and diversified examination methods is real and with a congruous number of appeals per year by subject.

### *2.3. Study course structure*

The section related to the study course turns out to be a further point treated. In the University in question, students are free to customize their own "path" only for a minimal number of credits, seen as a limitation for the student. However, when it is possible to personalize the study plan, the bureaucratic procedure necessary to have the project approved is often extended and often requires approval from the Department Director. From the summary of this second

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<sup>1</sup> The document is available at: <https://pressroom.unitn.it/comunicato-stampa/unitrento-scores-big-anvur-assessment>.

<sup>2</sup> The document in reference is online at [www.unitn.it](http://www.unitn.it), called "Documento didattica".

part, shown on page 16 of the document, only the course of Environmental and Mechanic Engineering seems not to have a sufficient “free” number of credits to fill with activities also outside this department; meanwhile, the others seem to have fewer limitations.

#### *2.4. Didactics assessment*

An essential element of the educational system is that of the evaluation by the students who, at the University of Trento, are carried out mainly through the administration of questionnaires proposed by ANVUR at the time of enrollment in the exams. On this system, there are some critical points. First, there is a need to raise awareness among students about the importance of their answers, to avoid that the questionnaires administered are filled in superficially and hastily. This is also connected to the modality and timing of the administration of the questionnaire, which must put the students in a situation of calm and serenity. Secondly, students often do not realize the importance of their opinion because they do not see in the teachings the improvement that should be by their evaluations. Third, the structure of the questionnaire could be improved, leaving more free space for the students to be able to comment. The summary of this section, on page 20 of the document, reports the four courses that have received a positive evaluation, as they use alternative tools for the collection of students' opinions.

### **3. The Research**

The second part of the study is the practical core of the work. The aim was to collect the opinions of the students of the Department of Civil, Environmental and Mechanical Engineering (DICAM), as this Department has shown to have both an active role on further analysis and the purposes in line with this research: innovating teaching methods and experimenting with innovative forms of learning<sup>3</sup>. This second part wants to verify if the points that emerged from the analyzed document are identified and shared by the students, through their perspectives.

#### *3.1. Courses, subjects, and methodology*

The research examined 56 courses, taught in the second semester of the 2017/2018 academic year, in the Department of DICAM, of the University of Trento. The subjects who took part in the research are students enrolled at DICAM, of both Bachelor and Master degrees. As a student may have completed more than one questionnaire, if attending more than one course in analysis, the reference in this research will be made to the 56 courses analyzed, instead of the number of students. Data collection was carried out by the Joint Commission of the DICAM department, which saw the need to further examine the reality of current students, through the use of a questionnaire. Its online form was sent to the students present in the classroom at one of the last lessons (end of May 2018) by the professor: access to the questionnaire was reserved for those in possession of the university mail and was closed after a few hours. It is characterized by a set of 35 questions, both open and multiple choice. For this research, only four-item had been selected because in connection with the themes described in chapter 2. Specifically:

- 1) What are the teaching methods most used by your teachers?
- 2) At the beginning of the course, did the teacher clearly present the exam procedures?
- 3) Have you attended other courses this semester?
- 4) With which percentage did you attend this course?

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<sup>3</sup> Purposes set out in the integrated plan 2018-2020 at DICAM, in the Document 11/18, available at: <https://www.unitn.it/ateneo/129/nucleo-di-valutazione> .

Item 1 is connected to *Types of lesson* theme, item 2 to *Examination methods*, items 3 and 4 to *Study course structure*. The *Evaluation methods* theme has not been linked to any specific item of the questionnaire. From the answers of the questionnaires, an Excel sheet was created, divided by each course. The analyzes were carried out course by course, calculating the response rates.

#### 4. Results

About the first item, connected to the teaching methods their professors use, the answers were different despite they all reflect a type of lecture. Specifically, the majority reported the use of slides and blackboard ( $n$  courses = 25). The second item asked if, at the beginning of the course, the professor had clearly presented the examination modalities: to this question, 56 courses out of 56 gave an affirmative answer. The third theme, linked to the study course, had two items in reference:  $i3$  and  $i4$ . In  $i3$ , 45 courses out of 56 reported not having attended other courses during the second semester. In  $i4$ , the students of all 56 courses claimed to have attended more than 50% of the course in reference.

#### 5. Discussion

Concerning the four main themes extracted from the University's document, from the data analysis, several reflections emerge. Starting from the first theme, *type of lessons*, from the first section about teaching methods, the use of a frontal teaching method is another element that emerged. Although the frontal lesson has a long tradition and undoubted advantages especially when you want to offer, in a short time, a lot of information to a large number of students (Andrich et al., 2001), there is a need to integrate them with new forms of teaching and learning, today referred to as social urgencies and strategic priorities (High Level group, 2013). A more engaging didactics, through inclusion in significant initiatives, projects, and collaborations, would see the student as a more active and more involved subject (Grion & Cook-Sather, 2013). The second theme of teaching methods, *methods of examination*, has had a positive response to the reference item in which was asked if the professor clearly presented the examination modalities at the beginning of the course. It is positive to note that the syllabus of the course is not only presented by the teacher at the beginning of the course but is clearly absorbed by the student body. Access to the evaluation criteria and the training path was described as early as 1996 by Goodrich as a fundamental condition capable of favoring self-assessment and therefore learning (Goodrich, 1996). Since in the syllabus there is clear reference both to the assessment criteria and to the proposed training process, it can be stated that the courses in reference reflect positively some underlying conditions that favor learning. Besides being official documents accessible to all, it also reports the methods of examinations. As Andrade and Valtcheva (2009) affirmed, students need to have access to the criteria from the beginning of the task. As long as professors clarify these criteria, students can more effectively select the learning strategies. The third theme, about the *study course's structure*, was based on two items of the questionnaire. Regarding the first, 45 courses have stated that they have not attended other courses of other years during the second semester. This demonstrates the high educational load that the DICAM students are subjected to, as the representatives of the students show, for which it is necessary to delay the attendance of a course a year to be able to keep up with the study. This phenomenon particularly affects the last years of the course, especially in the Master's degree courses, making it more complicated than the established time frame. About the second item for this section, all the courses in analysis, in their majority, said they had attended the course for more than 50%, as it confirms their concentration on the single course. The fourth theme, linked to the topic of *Evaluation methods*, has not been linked to any specific item of the questionnaire. Based on the Didactics assessment, presented in paragraph 2.4, the essential elements of the educational system is the evaluation by the students, carried out

mainly through the administration of questionnaires proposed by ANVUR at the time of enrollment in the exams. The questionnaire completed by the students can be read as an evaluation tool because are presented very direct and specific items. The literature review highlights that a "good" evaluation, when integrated into the teaching process, can positively act on teach (Brown, 2014). In this way, a more active role is assigned to the student, since the task of evaluation is not to certify but to bring an improvement in their learning processes (Sambell et al., 2013). Doing so, in addition to a more transparent evaluation process and aligned with learning outcomes, it highlights the need for an evaluation aimed at supporting students' learning. Self-assessment, seen as the formative assessment in which students reflect on their work (Andrade, & Valtcheva, 2009), emphasizes the Formative Assessment that involves students thinking about the quality of their work, rather than relying on the teacher as the only source of evaluation judgment.

## **6. Conclusions**

Although it is considered one of the best universities in the Italian context, the University of Trento should focus on creating more engaging teaching capable of evaluating students' knowledge and skills in an all-encompassing way through a more structured and multidisciplinary study program. Specifically, from the analysis of the document elaborated, there is the necessity of correct functioning of the assessment mechanisms and complete implementation of the assessment methods. Self-assessment, in this context, turns out to be a fundamental key to implement the learning processes (Andrade & Du, 2007), able to improve student engagement, to produce adequate feedback, to foster collaboration between students and teachers, to give an active role to students, to train useful skills in real-life contexts and in future professional life (Dochy et al., 1999). The results emerged by analyzing the reference items, within a more general framework such as that of the entire University, give reasons for the effectiveness of SA both as an educational tool and as a highly formative moment. This statement finds support and confirmation from the literature review that identifies SA as a necessary tool to emphasize the active involvement of students, especially at a time when responsibility for learning, metacognitive skills, dialogic teaching, and collaborative learning environments have become essential elements in the higher education sector (Pastore, 2017). Educational training needs to be renewed using innovative methods. Among these, the research suggests teaching methods with more collaborative lessons and focusing on debate and comparison, with more practice and experience to encourage deeper learning, less related to mechanical memorization. The continuous work of the Joint Commission is also supported to maintain the already present verification method, through questionnaires and open spaces where students can express their opinions. Further research work could be designed to compare students' views with those of the teaching staff, the main witness of knowledge and skills. These perspectives could open essential opportunities for teachers and students to change the teaching/learning model, moving from a transmissive model to a more participative one (Nicol et al., 2014), capable of giving greater responsibility to the student and "lightening" the role of the teacher.

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