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# The active participation of students in teaching evaluation processes within universities

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## 1. Introduction

### 1.1 The European framework

The importance of students' participation in the quality assurance process has been recognized by Ministers of the participating countries in the Bologna Process since the Prague Declaration (2001), which states that "students are full members of the higher education community", and that therefore they "should participate in and influence the organisation and content of education at Universities". The value of involving the students in this process has been clearly understood from the start, and has been brought into practice with the participation of the National Unions of Students in Europe (ESIB) to the Bologna Follow-Up Group, and to many work groups and seminars, in which ESIB[1] has represented the voice of university students, and in this way become an active partner in the Process.

Despite the emphasis given to the contribution that students can make to the development of a culture of quality, their involvement varies not only from country to country, but also between the universities within the same country. A 2005 study by ESIB, "Bologna with student eyes" (ESIB, 2005), highlights the difference in the situations between countries and the different conditions for the participation of the students in the process of quality assurance.

Concerning the external evaluation of the courses and/or the university institutions, the students' participation can take place in two ways: either including them in groups of external evaluators, or consulting with them during their involvement in the courses and/or universities subject to evaluation. In the first case, only a limited number of nation's groups of external evaluators include one or more students (these countries being those of North-Europe such as Norway, Sweden, Finland, etc.). Gathering the student's opinion (together with those of the teachers and academic staff) in view of its use for the external evaluation is a procedure in line with the suggestions of Bologna Process; however, only in some

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[1] In 1982 seven *National Unions of Students* of as many European countries started up in Stockholm to the *West European Student Information Bureau* (WESIB), that became in may 1993 *The National Unions of Students in Europe* keeping the abbreviation ESIB. Today it represents interests of 47 national unions (more than ten millions students), and in may 2007 has changed its name again to *European Students' Union* (ESU).

countries, again Norway, Sweden, Finland, and also the Netherlands, Hungary and United Kingdom, is the students involvement perceived as being at the same level of involvement as the other University participants. In those countries, the representative students send written reports to external evaluators, are involved in the final report of internal evaluation that is drawn up, and may also be given responsibility for specific investigations addressed to all students, as well as participating in various meetings with evaluators.

The countries in which students are not consulted at any phase of the external evaluation are Italy and Malta.

Part of this document is also dedicated to students' involvement in internal assessment: their opinions are required in most countries, although there are a large variety of ways in which to incorporate the assessments made by students into a wider evaluation, as well as into the internal evaluation typologies (institutional evaluation, evaluation about faculty, degree courses, teaching). Furthermore the use of these results is much debated and especially as to whether or not they show an improvement or are a futile exercise.

We note that students' evaluations are requested at every level (institutional assessment, faculty assessment, assessment of the degree courses, and assessment of teaching) in all the countries of North-Europe, as well as in the United Kingdom, Belgium, Hungary and Bulgaria. In the Netherlands, Germany, Switzerland, Estonia and Italy students are involved only in the assessment concerning the lessons. The nations in which students are never asked to express their opinion within the framework of internal assessments are Bosnia, Serbia, Greece and Romania. From this comparative framework it can be easily inferred that, except for a few examples such as Norway, Sweden and Finland, the majority of countries participating in the Bologna Process don't have regularly implemented constant involvement with the students regarding the university evaluative processes. Consequently, in the 2007 document (ESIB, 2007) there are the following recommendations. It is necessary to:

- overcome the problem of the lack of rules managing the students' participation;
- increase the students' involvement within dedicated committees/Working Groups;
- change the mentality of those people who are not used to or not willing to consider the students' as being as important as the other stakeholders, and who don't consider their opinions;
- consider the views of the students even when they are in contradiction with the views expressed by other stakeholders;
- to not introduce within the University a model of governance based on management because could threaten the participation of everybody in the process of quality assurance.

Furthermore, when the students participate, this participation simply consists in some of the students completing a questionnaire about teaching on a specific course; the questionnaires, considered a very important method in receiving feedback on the teaching process, are administered in many universities even if in different ways and forms.

A report of the European University Association (EUA, 2006) highlights some issues relating to the questionnaires, and in general to the evaluations given by students: above all, it stresses the fact that the process fails when it leads nowhere, has no consequence, and does not result in an improvement. And this depends on how the process has been carried out; it should be designed to provide clear and useful results. The same document points out the wrong premise in the questionnaires development: it is assumed that the process of teaching

is one-dimensional and unidirectional, a teacher educating a student, whereas a premise that might be more appropriate would be one where the teaching process corresponds to a "transaction" or "relation" in which both student and teacher are involved. The last point would allow the design and development of questionnaires that would help the students reflect on their own role and performance as well as on those of the teacher, rather than focusing exclusively on teacher performance. It is therefore important to consider the teacher-student relationship as a fundamental aspect of the teaching process (its relational side), which allows to get the active part played by the student in the establishment of the relationship and in the learning process.

Another issue identified in the report is the poor use of the student evaluations results: meetings should be held, in order to discuss the data from the questionnaires data and prepare reports and improvement oriented action plans based on analysis of the results.

The issue of the evaluation of university teaching is particularly present in the Italian panorama. In Italian universities students are involved in internal evaluation procedures through their answers to a 15-item questionnaire concerning some aspects about teacher and teaching.

Moreover, the growth of a managerial model has been noted in these Universities, leading to the establishment of a "culture that is increasingly paying attention to the market principles as being key points of reference" (Semeraro, 2006a). This on one hand means a growing attention to the costs and benefits relation, and competitiveness, and on the other hand the company supremacy in the public services management.

Several authors (Semeraro, 2003, 2006a; Minelli et al., 2002; Coggi, 2005) think that we stand at a "crossroad" concerning youth education: we can choose the road which considers economic development a priority instead of the cultural one, and that therefore looks at education as the acquisition of useful skills to be used to progress society; or the focus may be moved from economic development to a social and cultural focus, and therefore individual and social growth of youth who respect their identity becomes the priority, and educational interventions aimed at the acquisition of useful skills to progress individually and socially.

## 1.2 A brief literature review

The international panorama has widely examined the question of the assessment of university teaching. Considering the many details surrounding this issue, we clearly determine the importance of:

    a)   involving the main players of the didactic scene, referring to a participatory model of the evaluation (Kember & Wong, 2000; Lecouter & DelFabbro, 2001; Giles et al., 2004; Scriven, 2003; Cousins, 2003);

    b)   having a complex multidimensional perspective about the teaching process (Semeraro, 2006a; Casey et al., 1997; Roche & Marsh, 2000; Saroyan & Amundsen, 2001; Rindermann & Schofield, 2001; Young & Shaw, 1999);

    c)   differentiating the various disciplinary contexts to determine aspects depending on context (specific to each Faculty) and aspects that are independent from context (transverse to Faculty) (Kekäle, 2000; Becher & Trowler, 2001; Carpenter & Tait, 2001; Palmer & Marra, 2004).

The participatory model applied to the evaluation, according to the formulation of Scriven (2003), is typified by a collaborative dimension leading to an integration of the evaluators

and assessed points of view (Semeraro, 2006c, 2006d). The model is actually linked to collaborative evaluation, also mentioned by Cousins (2003), which is based on strong principles, mainly the active role of all the participants involved, and the shared discussion of methods and evaluation tools.

Keeping in mind the participatory model, Kember and Wong (2000) point out how the opinions of the students themselves about learning represent an important indicator for teaching evaluation, as a student who has a conception of learning as an active process will negatively view a way of teaching that is based purely on a pure transmission of knowledge, and on the contrary an untraditional way of teaching will be negatively assessed by someone considering the learning process as a passive one. Regarding the method of inquiry, the authors choose to realize a qualitative study that investigates the students' point of view: therefore they draw up a semi –structured interview, to investigate various aspects, such as the relationship with the teacher, the method of study adopted, the teaching methodology, etc., and they submitted this to 55 students in Hong Kong University. The results show that students perceive the teaching quality depending on the interaction of two factors: the students' learning conception, and their perception of the teacher's conception of teaching. The study reveals that there can't be one absolute definition of "good teaching", as it changes depending on the conceptions one has about teaching. Therefore the traditional questionnaires are criticised, as they investigate the quality of teaching using conceptions valid only for those who think of learning as a passive process (teacher-centred). The study also suggests that research on the quality of teaching must necessarily move from the students point of view, rather than from the researcher's.

Concerning the importance of taking into account the views of students and teachers, there's a significant study by Lecouter A. and Delfabbro (2001), aiming to show a comparison of conceptions of teaching and learning amongst teachers and students. The authors use the Samuelowicz and Bain (1992) teaching and learning model, which contains five areas (Profiles of students outputs , Knowledge, Teaching, Students ideas, Content); this model was submitted as a 50 item questionnaire (10 for each area) to 52 teachers and 125 students, and the results were analysed through the Q-sort procedure.

The data shows that there is a huge difference in views between teachers and students on almost all the issues focused on; therefore, the authors suppose that the Samuelowicz and Bain model is too simple to capture the complexity of the teaching and learning process, and also, that we need to investigate more deeply the different concepts of teachers and students and the different ways in which they build their conceptions; they would encourage deeper investigation in this direction, in order to understand the differences in concepts due to the different contexts in which teaching practices take place.

Students are credited with a strong and active role in the study by Giles et al. (2004), in which the authors present a model for the participatory evaluation, in which teachers and students have worked together to organise a teaching evaluation process. The students' involvement in the evaluation process offers them a real and practical opportunity to develop professional skills.

With reference to the second specification that is set out, a multifactorial model of the university course quality is present in the study by Rindermann and Schofield (2001), which defines successful teaching as being dependent on several factors: a good teacher, prepared and involved students, and set appropriate external conditions (e.g. an appropriate level of difficulty and workload in the subject, teaching facilities and interesting course content).

Meanwhile, these factors interact in a specific cultural context, which in turn affects the quality of the course. The quality of evaluation of the course by students and successful studies depend on interaction between all these factors. Consequently, with a multidimensional view of the teaching process, the evaluation process should refer to these four factors. The authors propose a multidimensional instrument which is widespread in German universities, the Heidelberg inventory (Hilve, Rindermann & Amelang, 1994). It is a questionnaire with a seven points Likert scale (from "not accurate" to "accurate"), composed of four sections: Teacher behaviour (described in three aspects: organization of the course, didactic competence and enthusiasm); behaviour of the student (tasks, participation and debate are the three aspects in this scale); external factors (this scale is defined by: the course requirements and interest and importance of the course content); effectiveness (this assessment scale measures learning, and the global evaluation of the course). This questionnaire was distributed to students in different universities in Germany in different areas of discipline (humanistic, social and technical faculties), with a total of 24996 questionnaires. The results demonstrate that the Teacher behaviour section was assessed in relation to the teacher and his behaviour in class (their evaluation proved to be independent of the specific composition of the class and subject of the course), while the item relating to External factors was assessed with reference to the course and to the specific conditions in which it is taking place (for example, lesson typologies or the composition of the class).

The efficacy results of the course are more dependent on external conditions: this supports a multifactorial model of quality of the course that describes teaching as a process that involves teacher, students and external factors. Based on the perception of the students, the effectiveness of the lesson may not be entirely attributed to the teacher's behaviour and competency , as the intervention of contextual factors can influence the quality of teaching.

Saroyan and Amundsen (2001), presenting a study carried out in Canadian universities, suggest that the evaluation questionnaires cannot be the only method of data collection in order to have an appropriate vision of the multiples aspects of teaching.

Starting from a conception of teaching as a structured process that takes place, with the confluence of three elements (teaching and learning conceptions, knowledge of the matter and action, i.e. educational planning), the authors prescribe the use of multiple evaluation instruments to try to define the complexity of the teaching. They propose to use techniques such as "concept mapping", the free-writing, the technique of 'critical incident', that may provide important information on the teacher's concept, and the Teacher Behavior Inventory to investigate the size of the actions.

The multidimensional approach also emerges in one of the most used multifactorial tool, SEEQ (Students' Evaluation of Educational Quality), which investigates students perceptions on teachers effectiveness, and in the parallel instrument, the TEEQ (Teachers' Evaluation of Educational Quality), which investigates teachers perceptions about their own effectiveness (Roche & Marsh, 2000). The authors identify nine dimensions that define the concept of the effectiveness of teaching: learning, the enthusiasm of the teacher, organization of the lesson and clarity, interaction in the classroom, teacher-student relationship, breadth of subject (different points of view, various implications), assessment, tasks/readings, work load/difficulties.

Quality is a multidimensional concept, and therefore it is comprised of many indicators and criteria, which are found in the various methods widely used internationally (the SEEQ in

the USA, Australia and in England, the Course Experience Questionnaire-CEQ in Australia, the Heidelberg Inventory in Germany), to mention but a few. The structure of these means is multifactorial and the number of item attests to the different tools used to evaluate the university teaching quality.

Furthermore, the concept of multi-dimensionality concerns not only the structure of the questionnaires used and the multiplicity of the university teaching dimensions, but also the variety of the assessing procedures: in addition to the delivery of questionnaires, there is also the peer-evaluation and self-evaluation, reported both to students and teachers, or procedures involving the school (institutional self-evaluation), considering the plurality of matters involved in quality evaluation.

There are also proposals for original methods, such as the journalistic work suggested by Wagner (1999), or the use of metaphor noted in the study of Kemp (1999): the objective is always to invite the students to reflect on their learning process, as well as on the content and on the structure of the course, aiming to seize the evolutionary and procedural aspects of didactic itself.

The multidimensional matrix can be found in the attention to the various contexts in which teaching activity takes place: the studies presented below show the widespread tendency to consider contextual aspects as crucial in the educational process. The teacher operating conditions as well as the differences in relation to the particular discipline taught, are variables of context relevant for the evaluation of the university teaching, as they contribute towards determining the outcome of the teaching process.

Kekäle (2000) proposes, inside a model for the evaluation of university teaching, differentiating the disciplinary contexts, and considering these differences while evaluating the quality. In fact, the research subjects, goals and objectives, the prospects, the social values and the behavioural models inherent in each of the various academic disciplines are different. In his study, Kekäle takes into consideration four different disciplines (physics, biology, history and sociology) to see how the different features influence the type of approach to be chosen for the evaluation of the teaching quality .

The research took place in British and Finnish universities. The method used was the semi-structured interview, which the teachers and students of the four disciplines answered. Analysing the interview (carried out with two programs, WP-index and NUD*IST),three conceptual unit came out, and can be defined as polarity: individual work vs. group-work, degree of clarity of the formative objectives, importance (national/international) of the publications.

Enquiring about the specific characteristics of each discipline could avoid the risk of imposing the same evaluative criteria to each one.

The Carpenter and Tait study (2001), based on 24 interviews conducted with teachers belonging to the three different faculties of Queensland University of Technology: Education, Science and Law, had the same goal. The interview questions concern the "good teaching", both at the level of underlying concepts and at the level of didactical good practice. The data demonstrate that the process of teaching and learning has varying features depending on the faculty where it is analysed: in fact, the authors concluded that it is not possible to define absolutely a "good teacher" , as this concept is something different depending on the institutional context in which the teacher themself operates. This is important because if effective teaching is "contextualised", the university would have to

review the 'monolithic' framework of politics and programs in which the evaluation of the teaching quality have been inserted up until today.

Palmer and Marra (2004) have focused their attention on the differences between students' epistemological conceptions in different disciplinary sections. In this study, the authors analyze the teaching and learning conceptions of sixty students in the Engineering field and another sixty students in Humanistic field (by semi-structured interviews analyzed using the software N-VIVO). The results confirmed the suggestion that the epistemological concepts diversify depending on the disciplinary context. In fact, the authors were able to observe from the interviews more complex conceptions in students from the humanistic area; furthermore, the activities proposed during the courses, teaching strategies of the teacher, and the various experiences of students influence the change of teaching conceptions and create new conceptions in terms of meaning of learning.

Starting out from these premises the objective of this research has been to enquire into the issue of teaching evaluation in higher education drawing interaction between theories top-down and bottom-up. We believe that the evaluation of university teaching depends on factors independent from the context (top-down) and at the same time on factors context dependent (bottom-up). In other words, there are some characteristics that define a "good teacher" in all the contexts, and others depending on the specific situation. The main intention is to obtain these information directly from students and teachers according to a participatory model.

## 2. The research

Starting from those observations the following general objectives of the research can be identified: 1) to prove the adequacy of complex evaluation models of university teaching; 2) to prove the reliability of the participatory model of evaluation through the involvement of direct participants; 3) check the incidence of some variables (in particular regarding the chosen faculty).

Our research was developed in two separate stages:

1) the first phase is the Project of Relevant National Interest (PRIN) "Teaching evaluation in higher education", coordinated by Prof. Raffaella Semeraro, and more particularly the work done by the local research unit of Padua;

2) the second phase, connected, and resulting from the previous, in which part of the results of PRIN was examinated, thereby represents the basis for the departure to further investigation.

The research purposes can be better defined, by differentiating them according to the stages. The specific objective of PRIN (and in particular those of the local research unit of Padua) has been mainly the intention to explore the views of those who work daily in the university (through semi-structured interviews with teachers and students of four different faculties at the University of Padua) in order to bring out a dimensional map on which attention can be focused while evaluating the didactics, in addition to making a detailed enquiry and systematise existing literature on this issue.

Starting from this dimensions plan in the second phase of the research we decided to turn them into items of a questionnaire to be submitted to a larger sample of students. The specific objectives of the second stage are the following:

- to build a questionnaire from the matrix of qualitative indicators identified through the analysis of the interviews;
- to submit the questionnaire to a sufficiently large sample of students (a sample diversified by faculty);
- to deduce, from the answers given in the questionnaires, the aspects considered by the students as the most important to assess in a university professor, to obtain a set of competencies that define a "good" teacher;
- to monitor the existence of differences between the students' answers considering the independent variables (in particular the Faculty of origin).

### 2.1 First part of the research

The participants involved in the first stage of the investigation were 70 in total. The teachers interviewed numbered 31, distributed as follows: 10 in the Faculty of Educational Science, 9 in Arts and Philosophy, 6 in Psychology and 6 in Mathematical, Physical and Natural Sciences. The students interviewed (39) belonged to those four faculties, and were divided as follows: 10 in the Faculty of Psychology, 10 in Education as well as in Mathematical, Physical and Natural Sciences; and 9 for the Arts and Philosophy Faculty.

These participants were given a semi-structured interview. The interview was composed of 13 questions with different secondary articulated questions, and referred to the same aspects, in order to make comparisons between answers of the two groups possible later. As underlined by Santi (in Semeraro, 2006b), the dimensions considered in the interview concerned several aspects, including:

(a) educational *intention*, its purposes, objectives, motivations and interests and expectations;
(b) the instructional *design*, in its elements, areas and essential methods;
(c) the personal *interactions* among the individuals in the various communicative directions (teacher-student, student-student, teacher-teacher, etc.) and with the context - not only the institutional one;
(d) the acquisition and processing of *knowledge* in terms of disciplinary content and professional skills;
(e) the processes and products *evaluation* , intended as control of the results, but also as a self-assessment activity.

The software used for the analysis of the interviews was Atlas.ti.

Overall 135 "codes" have emerged (in the Atlas.ti language) from the interviews to teachers, relating to all areas of interest and 142 from the interviews to the students. The identified codes were subsequently grouped into so-called "families", that were configured as containers of objects classifying the codes in macro-categories.

Within this research, the identified families of codes meet the questions posed in the interviews, as well as the themes that emerged encoding.

In our case we considered it useful , even in adequacy to the specific objectives, to create 33 families of codes in the "hermeneutic unit" of teachers and 37 in the "hermeneutic unit" of students.

The students' interviews were analysed using the same codes and the same families as identified in the teacher's group (also because the questions asked in the interview were identical) in order to create common ground to use for comparison.

Reviewing the identified the following dimensions appear to be important: 1) the image of the teacher (including the personal, professional and educational characteristics); 2) the

teacher's organizational choices (containing the detailed rules adopted by the professor in the organization of the course content and of the course materials and of the lesson); (3) students' skills (related to their personal and professional growth); 4) the procedures used by the professor to assess the students (what and how the teacher evaluates).

Further issues emerged from interviews with the teachers and were grouped in a topical area containing the proposals for improvement: this area includes suggestions on how to facilitate the teachers work and the involvement of the students in didactics, and proposals for a better structured work organisation. Meanwhile, while reviewing the students' interviews, the identification of a new family "Criticism in teaching", that wasn't present in interviews with the teachers arose, and this contained elements concerning criticisms relating to teaching methods and provided evaluations of the teacher, in addition to specific difficulties in relations with the teacher .

The analysis through the software Atlas.ti has given us the opportunity to highlight some interesting dimensions that can be considered to be indicative of university teaching evaluation (Ghedin & Aquario, 2008).

In the first area, related to the aspects that characterise a good teacher and an interesting course, we can see that the teachers and students interviewed bring the researcher's attention to a series of questions that refer to a complex concept of the university teaching, not reducible to an isolated process of a transmission of contents. From the interviews there emerged a multiplicity of aspects to reflect upon and a series of requests that give us back a kaleidoscopic image of the teaching and learning process that takes place within the university classrooms, where the effective teacher (we borrow a terminology that we noticed to be very widespread in Anglo-Saxon world) is not only on time to the lessons, and provides clear explanations and makes himself available during reception hours, but he also designs and directs the lesson, programmes the activities, considers the content proposed and its correspondence with the results expected at the end. This means that his being a teacher begins before entering the classroom, at the very moment when he's beginning to think about the course content, the educational goals, the tools and resources that he will make available for students, the way in which he will attempt to achieve the objectives set. Once in the classroom, he will have to demonstrate he is including, as well as the students competences to promote learning, also new competences, such as connecting the new knowledge with the previous acquired knowledge, understanding the complex and troublesome dimension of knowledge, re-working critically the lessons learnt and understanding these in an autonomous manner. These skills are based on the student's training and are connected not only to the dimension of contents and knowledge, but linked also to the student's evolution as a person, and to his personal growth. Alongside the student's personal training, the importance of paying attention to their professional training has also been noticed, and the conviction, expressed both by the teachers and students, is that in today's world it is increasingly necessary and urgent to acquire, on one hand, transverse capacities expendable in different contexts (like problem-solving capacity, or understanding the professional use of knowledge), and on the other hand, also the capacity to be strictly bonded to the professional skills and therefore to the application consequence of the disciplinary contents.

Besides, the whole set of characteristics that define the teacher also includes features referring to the teacher as a person, as a good teacher is not defined just by competences relating to teaching, but also by their personal aptitudes such as open mindedness,

receptiveness, flexibility, consistency, motivation, etc. This point seems very important to us, as it is consistent with models developed by other research groups (Tigelaar et al., 2004; Roche & Marsh, 2000), in which the personal characteristics of the teacher come into play in addition to his teaching and professional skills.

## 2.2 Second part of the research

### 2.2.1 The construction of the questionnaire

At this point the finalisation of a tool formed from points of view collected in the first phase, and which considers all the aspects that are important to assess in a teacher, becomes the specific subject of investigation. It should be drawn to the attention of a sufficiently large sample of students, from a participatory perspective of reference. The aim is to discover, by consulting once again the main participants in the university teaching, the levels of importance assigned to the aspects of teaching previously identified by the interviews, to try to understand which elements characterize a good teacher from the point of view of the students.

Starting from the already described investigative stage, and based on the matrix resulting from the analysis carried out with Atlas.ti on interviews with students, a questionnaire that collected all the dimensions that emerged in the pre-Search converting them into item was created. The wording of item themselves was discussed within a group made up of some of the participants involved in PRIN, and the first draft of the instrument was submitted to a group of 15 teachers skilled in the subject of the evaluation of university teaching. In this way, after considering these teacher's feedback, and after several revised versions, the questionnaire was edited to the final version which was actually submitted to a sample of students.

The questionnaire reflects the results from qualitative analysis of the interviews, meaning that it consists of a section on the teacher's characteristics and the teaching process.

The first page of the questionnaire includes a series of questions intended to collect general information, for example about the age of the student, the gender, the degree course attended and the level of the course (triennal/specialist).

The questionnaire is composed by 72 item, relating to the personal/professional and didactic characteristics of the teacher, the choices relating to planning and organisation of the course, and details relating to evaluation procedures used to assess students' learning.

The students had the opportunity to answer the questionnaire using the five points Likert scale (from *1=totally agree* to *5=totally disagree*), and expressing their degree of agreement on the importance of each item for the evaluation of the teacher.

The distribution usually took place at the end of the lessons and took about fifteen minutes; before allowing the students to fill it in, the questionnaire was briefly presented as well as the instructions on how to complete it (in particular it was recommended not to pass over any item), and clarification was provided, whenever requested.

### 2.2.2 The participants

There were 440 students who answered the questionnaire, and they were divided as follows: 148 from the Faculty of Engineering, 143 from the Faculty of Psychology and 149 from Faculty of Education, all of them in the Padua University.

The characteristics of the participants are the following:

- 300 female and 140 male;
- four age groups were identified: from 19 to 21 years (45%), 22 to 24 years (47%), from 25 to 27 years (5%) and over 28 (2.3%);
- 310 students were studying for a triennal bachelor and 130 were studying a specialist degree course.

In particular, the choice of the course is connected to our objective, also in this second phase of the research, which is to analyse the differences between the various contexts, in order to verify if there are some differences which are due to the particular "culture" typical of each faculty in the definition of "good teacher" and to the characteristics that a teacher must possess according to the students and which are considered important to assess. Many studies explore this direction (Kekäle, 2000; Carpenter & Tait, 2001; Palmer & Marra, 2004; Ylijoki, 2004; Hakala & Ylijoki 2001; Becher & Trowler 2001), and also many initiatives inside universities have been started which aim at the construction of flexible instruments which can consider the differences between faculties (like the *Course-Instructor Survey* used at the University of Texas, Austin).

## 3. Data analysis

The data gathered after submitting the questionnaire was subjected to factorial analysis (principal components and Varimax rotation) using the statistical package SPSS. Afterwards we proceeded to naming and interpreting the factors emerging from factorial analysis (considering a variance >.40), and to the review of internal consistency (or reliability) through Alpha of Cronbach (α). The factorial analysis highlighted the five following factors, which globally define a complex set of dimensions to evaluate in a university professor.

*Factor 1: Care for course discipline (a = .84)*
This factor includes items that refer specifically to the course discipline, and, in particular, according to the students who have answered the questionnaire, one of the main aspects to be evaluated in a teacher concerns their level of competence in the course discipline, their ability to deepen the student's knowledge of the course topic using teaching supports that facilitate the learning process, and promoting the students' capacity to acquire the theoretical models of the subject. Therefore, first of all, it's clearly very important, for the students who participated in the survey, evaluating all the aspects which are closely connected to the course discipline and that the teacher's aptitude in the course broadens it in all parts, managing to gather and transmit the complexity of knowledge to the student. According to the students, the main aspects to evaluate in a teacher are firstly his ability to thoroughly explain the disciplinary contents, so that students are able to acquire the theoretical models of the discipline under all aspects in a complex and problematic perspective, and, secondly, the teacher's commitment to connecting the disciplinary contents with the activity of research, highlighting a close link between research and teaching, between empirical studies and surveys on one side and educational and training implications on the other hand. This presents the image of a teacher who is attentive to the course content in it's whole, attentive not only to presenting the matter in a clear and accurate way, but also and especially capable of having the students see the multiple connections and interconnections of the subject with a series of aspects in a global and complex perspective.

*Factor 2: Revision of knowledge in a critical key (a = .84)*

Items included in the second factor pertain to the importance given to the fact that the teacher arouses critical reflection on knowledge, encourages critical sense, and is capable of motivating questions on reality. For those students it is important to assess in the teacher, in addition to the elements in the first factor, the ability to critically present the course arguments and to promote in the student a critical use of the knowledge. Secondly, students consider it important to evaluate the teacher's attention to student achievement particularly regarding the students' ability to attain a level of achievement and criticism which would enable them to rework what has been learnt and to use it in a constructive way. This aspect is clearly very linked to the previous one, as it is always related to the contents of the disciplinary course, with the addition, in this factor, of one more specification: not only must the "perfect" teacher be able to offer a complex view of the course, linked to the world of scientific research, but they must also promote in the student the ability to revise these same contents for critical use.

*Factor 3: Care for relational aspects (a = .81)*

The items incorporated in this factor are all related to the relational dimension: students judge that it is important to assess in a teacher not only the capability to develop a relationship with the students, but also the ability to encourage the development of relations which may result in the creation of working groups, or class debates, and in general all situations based on a collaborative working method. In this set of aspects that we are composing, the teacher relational competence becomes more important in this third factor: once they have paid attention to the disciplinary contents and to their critical re-processing, in fact, the students also attach importance to the teacher's ability to foster relations within the class group, between the teacher and students and also between the students themselves.

This means that it is important to students that the teacher is capable, beyond the competence in his own discipline, also of assuming a position where he can encourage and create in the classroom an atmosphere which fosters relations through a didactic methodology allowing exchange, participation and, in general, all situations that encourage the starting of exchange and development of relationships.

*Factor 4: Practical and professional implications of the course (a = .80)*

This factor includes the item on the practical and professional implications of the course: students consider it important to rate the attention paid by the professor to the students professionalisation through the commitment to connect the theoretical presentations with practical experience during the course, and to promote in the students the capacity to move from theory to practice. A fourth dimension seems therefore to be related to the teacher's ability to show the professional effects of the course in its practical and operational implications. It's important for students that the teacher pays attention to the connection between the course and the concrete reality they will confront after the course, by the promotion of knowledge and skills that are expendable in the working field. Great importance is attached to the professor's ability to always connect the theoretical contents with practical experience clearly showing the application of the same content, and therefore also to his ability to check students capability to move from theory to practice. It therefore appears there is a strong need for the students who participated in the survey to understand the occupational use of the knowledge proposed, in order to acquire skills that will be useful in the field of work.

*Factor 5: Focus on the student (a = .81)*
This last factor gathers the aspects concerning the capacity of the teacher to be available to the students, as it seems that students consider it important to evaluate the teacher's willingness not only to get involved in the debate and to accept criticism, but also to be open to dialogue and to have respect for them, which could be proved for example by applying different didactics and examinations to students who attend the lessons or do not (this aspect shows attention towards the students).
We can assume from this last factor a certain attention on the teacher features which we could define as "personal" in the sense that they refer to teacher skills and personality. In this dimension we can find items such as "person who is capable of self-reflection" or "person who is willing to accept criticism", or "person open to listening", these define a teacher with certain characteristics which reveal a significant amount of attention is paid to the students. These are the peculiarities of a student-oriented teacher, from which we have the idea of a teacher who's open-minded, flexible, attentive to student reactions, frank in their ability to listen and engage in dialogue, motivating and respectful of the students. This dimension integrates, in our opinion, the framework of an efficient teacher, integrating the relational component already described, and proving the students' need to feel listened to and considered as an active part of the formative process in which they are involved.

## 3.1 The influence of the faculty

As previously stated, the interest of the research was also to verify if the faculty chosen is a variable which influences the level of importance given to the aspects to assess in a teacher, i.e. if, as different searches have highlighted (Kekäle, 2000, Carpenter & Tait, 2001; Palmer & Marra, 2004), the characteristics of an effective teacher and a interesting course are considered different, depending of the faculty of reference in which the lesson is provided. To this aim, statistical analysis was conducted using the statistical procedure of variance (ANOVA), and it appeared that, except for the first factor the faculty does influence student responses to the questionnaire. In particular, the comparisons post-hoc (to identify which means present statistically significant differences) show that it is always the Faculty of Engineering which shows averages which differ from the two other faculties, the other faculties having generally very similar averages.
The Faculty of Engineering stands aside from the other two in the following factors (by presenting higher averages, disagreement oriented): *knowledge review in a critical key, relational aspects, practical-professional implications of the course and attention to the student*.
It can therefore be said that, according to what emerges from this investigation, the faculty in which the teaching is provided, with its specific culture, has an influence on and determines which characteristics should be evaluated in a teacher. In fact, students in the faculty of Engineering consider that the main aspect of teacher evaluation should focus on all aspects closely connected to the course discipline, considering as secondary all other dimensions contained in the other four factors. Whereas in the first factor the means are similar, in the other four the Faculty of Engineering always presents a lower degree of interest in the importance of those aspects.

## 4. Discussion

The aim of this investigation, as already mentioned, was to examine the points of view of students from different faculties compared to a map of dimensions resulting from a previous stage of research, dimensions corresponding to a series of aspects which characterise the university teaching. Students have been asked to express their opinion on these aspects in reference to their degree of importance. Furthermore, we had the intention of verifying if there were some differences in how much importance is given to different dimensions depending on the faculty the students are a member of in order to understand if the evaluation of teaching in the university has to take place indistinctively in all faculties, or whether it should consider methodologies and tools composed of two parts: one in common and one part different according to the course discipline areas.

Concerning the first objective, the students involved expressed that they classified in importance the various aspects, starting with the priority given to teacher attention in regards to the disciplinary contents, to the identification of the personal characteristics of the teacher that are relevant in establishing a good didactic-relational climate.

This suggests that, although the main criteria in evaluating a teacher would be his focus on transferring a thorough knowledge of the discipline course to students (in all of its components, from the theoretical content to the links with the dimensions of research and professional level), other relational and personal elements intervene, and are connected not so much to teaching skills but to his personal qualities. It seems, therefore, that students feel the need to have a teacher who is positively competent on the disciplinary level, but who is also capable of taking their requirements into consideration, and capable of listening and establishing a dialogue with them and a relationship which constitutes the basis for a good climate of learning. In particular, students consider it to be important for the teacher to apply a methodology of work including the creation of student groups and participation in debates and integration activities, and also for the teacher to be an open-minded person, open to discussion and change.

It must be stressed that these aspects emerging from the research as indicators of university teaching, are consistent with other studies conducted in the same subject. We can consider for example the work of the research group at the University of Maastricht (Tigelaar et al., 2004), in which the proposed framework of teaching skills is composed not only of the disciplinary contents mastery and of organizational skills and continuous education, but of the personal characteristics of the teacher as well. Concerning the last context, the items assessed as the most important has been: the communicative capacity, the positive attitude and showing respect towards the students. Moreover, within the other areas, important results appeared in spheres such as thorough knowledge of discipline course, a student-centered focus, and the ability to adapt and possibly revise the teaching according to the student's feedback. We can therefore recognise that some of these dimensions are associated with those identified in our investigation.

The Domenech and Descals study (2003) reports an overlap in aspects related to the relational field: based on Rivas (1994) MISE model (Instructional Model of Educational Setting), in fact, the authors identify interpersonal relationships (teacher-student, and students-students) as one of the variables involved in the teaching/learning process, to be regarded as a relevant element in the teacher self-assessment as well as in the student evaluation of teacher. Our research has also identified the teacher's attention to the relational aspect as one integrant part of the defined framework.

It is necessary to add, in reference to the second objective of research, that, as shown by the analyses (analysis of variance), significant differences appear in reference to the factors identified, according to which faculty students attend. For the humanistic faculties involved (Psychology and Education) all the dimensions are at a similar level, but the Faculty of Engineering differs from the other two in the second factor . The only transversal element in which the three faculties have not shown significant discrepancies is in the element of the teacher's focus towards the discipline course: on this aspect all the students generally agree and deem it a priority when they evaluate the university teaching. In regards to the other four dimensions, the Engineering students differ and instead always assign it a level less important than their colleagues in other faculties. This result suggests that, in all of the aspects to be taken into account, the thorough knowledge of the discipline course and the capability of the teacher to adequately present it in all its parts, by promoting in the student acquisition of theoretical models, is the main issue and has the greatest importance. All the others items are considered by Engineering students involved in the survey not only less important than the first one, but also less important than the degree of importance assigned by students of other faculties.

In international literature there are numerous studies that move in the direction of identifying the specific nature of disciplinary fields starting with the studies of Becher and Trowler (2001), and also in the evaluation of teaching in the University (Kekäle, 2000; Carpenter & Tait, 2001; Palmer & Marra, 2004), who are convinced that it is not correct nor useful, in relation to the purposes of the assessment, to apply the same evaluative indicators to all fields of discipline equally. Therefore it appears essential to consider these differences when an evaluating activity is designed and implemented, as with the involvement of direct participants in the University scene clearly different priorities emerge and therefore meaning attributed to various aspects are different. Focusing on a participatory model the indicators for the evaluation should emerge from those who are actually involved in the formative process in the university by drawing up from their opinions and points of view a map of aspects in which to focus on and build evaluative tools which are well suited and born from the participation of the subject in the process. This "expression of meanings" must necessarily be the basis to proceed onto an "interaction" (Semeraro, 2006a) which is the evaluation process in its essence.

## 5. Conclusion

A limitation of the study can be identified in the use of only one instrument in the second phase of the research. Therefore, more work has to be done to confirm the results, starting from the utilization of another questionnaire and also from the involvement of more participants from both within and outside the Padua University. Certainly only one administration of the questionnaire is not sufficient for its validation: it seems fundamental to administer the instrument to a larger sample of students in order to verify the appropriateness of the items.

The data emerging refer to a complex and multidimensional conception of university teaching. Therefore this complexity must be the premise for the design of evaluation activities, which must be carried out while taking into account two considerations: on one hand the importance of the involvement of those who work daily in universities, first in an initial phase, from which the dimensions to evaluate may emerge, then in the use of the

evaluation data results ; and on the other hand, the importance of the aim of the assessment activities themselves, that must be represented by the processing, and then from the improvement and innovation of university teaching itself. Starting an evaluation system based on these premises means considering it as a concrete possibility of renewal and positive change in the teaching, aiming at a better quality in the educational offer provided by Higher Education.

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**Technology Education and Development**

Edited by Aleksandar Lazinica and Carlos Calafate

The widespread deployment and use of Information Technologies (IT) has paved the way for change in many fields of our societies. The Internet, mobile computing, social networks and many other advances in human communications have become essential to promote and boost education, technology and industry. On the education side, the new challenges related with the integration of IT technologies into all aspects of learning require revising the traditional educational paradigms that have prevailed for the last centuries. Additionally, the globalization of education and student mobility requirements are favoring a fluid interchange of tools, methodologies and evaluation strategies, which promote innovation at an accelerated pace. Curricular revisions are also taking place to achieved a more specialized education that is able to responds to the society's requirements in terms of professional training. In this process, guaranteeing quality has also become a critical issue. On the industrial and technological side, the focus on ecological developments is essential to achieve a sustainable degree of prosperity, and all efforts to promote greener societies are welcome. In this book we gather knowledge and experiences of different authors on all these topics, hoping to offer the reader a wider view of the revolution taking place within and without our educational centers. In summary, we believe that this book makes an important contribution to the fields of education and technology in these times of great change, offering a mean for experts in the different areas to share valuable experiences and points of view that we hope are enriching to the reader. Enjoy the book!

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