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APPRAISAL OF THE EMOTIONAL INTELLIGENCE IN THE NATURAL GASES ENGINEERING EDUCATION

1. INTRODUCTION

The process of learning is one of the key elements of education. Without its unfolding, there is no legitimacy for any education institution.

When discussing about education quality, learning and foremost its results, proven by the students through various tests, competitions, exams, represents a central element.

In order to realise a quality education, it is necessary that students provide proof of a profound learning process. This is possible only if students are motivated to this end. In order to be motivated, it is essential to involve the students, especially in the relationship with the professor, a relationship which must be profound.

In 2006, in Romania was founded the Romanian Agency for Quality Assurance in Higher Education (ARACIS), an agency that required all universities to analyse themselves and to self-appraise themselves from the point of view of quality. The quality of education provided to the students by a certain faculty has as dimensions, among others, the quality of academic staff, a quality resulting from the analysis of three components: appraisal by the students (peer review), appraisal by the colleagues and appraisal by the institution's management.

All these types of appraisals reflect a facet of the professor and together they offer the whole portrait, as it is perceived in the educational environment. Without diminishing the importance of any of these appraisals, we consider that the influence of the interaction with students by means of the educational and teaching process, is a very important and precise one. Actually, it provides the professor's pedagogical and teaching dimension and justifies his/her presence in that educational environment. This aspect of the professor's image, as it is seen by the students, but also as it is reflected by the own emotional intelligence, is very

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important and of current interest for professors from the technical domain of a faculty of engineering.

The emotional–affective dimension of the education actor’s personality is rarely taken into account when evaluating the quality of the educational process. Usually, we tend to appraise the teaching process rather based on its scientific quantity and accuracy, on the amount of information of which the students, as future engineering specialists, could benefit. Often, professors are more preoccupied about “what they teach” than about “how they teach”, as if this would not matter at all [1, 2].

The engineering profession is a difficult one. The way towards the title of an engineer is hard and implies sacrifices, hard work, devotion. If the professors are not standing by the students during their training in the speciality, year by year there will be less and less people willing to go this way. Therefore, maybe more than in other professions, the engineering professor must possess also emotional intelligence.

Beneath these arguments, there can be added also further reasons for engineering professors to show emotional intelligence:

- from a psychological point of view, there exists a paradigm that introduces a relevant distinction between cognitive intelligence, with its testable IQ core and metacognition, as a symbiosis between the cognitive dimension and the affective-emotional dimension;
- from a pedagogical point of view, it can be explained scientifically that academic success is not always associated with social success, and that success in the professional life is a result of possessing social competences;
- the values of the emotional intelligence quotient, EQ, increase as a result of a person’s psychological maturation, as a result of the experiences with which he/she is confronted, of the trainings he/she goes through, so that emotional intelligence becomes a balance factor between personality, process and structure;
- a new direction of theory development has appeared as a median between the classical cognitive theory of intelligence, the three-dimensionality theory, the theory of multiple intelligences etc.;
- in order for a person to acquire the learning models through cooperation, team work, he/she must have the capability to analyse and valorise firstly him/herself and then the others, an aspect which is directly linked to the emotional intelligence.

2. APPRAISAL OF THE EMOTIONAL INTELLIGENCE AT THE FACULTY OF ENGINEERING OF SIBIU

Starting from the above-mentioned assertions, the research presented in the following aimed at determining whether these dimensions, which the students defined as characteristic for professors, can be found also in the results of the appraisal of their emotional intelligence, specifically for the Faculty of Engineering from the “Lucian Blaga” University of Sibiu, Romania.

The researchers define emotional intelligence as being the ability to perceive emotions, to access and generate emotions in order to help the thinking process. In other words, to understand emotions in order to promote emotional and intellectual development. Daniel Goleman [3] even speaks of the existence of two minds: a rational one and an emotional one. In the theory developed by Goleman, he emphasises the idea that success at work can be achieved by controlling following areas: self-consciousness, management of the own emotions, social consciousness and relationship management. He considers that EI is the base for learning competences, thus leading to success.

In a social enquiry on the competences required by employers from new employees, Goleman noticed the movement of the emphasis from academic competences to communication skills, interpersonal skills and initiative.

Thus, the 5 dimensions of emotional intelligence correspond to around 25 emotional competences, although nobody can possess them all.

In the questionnaire for the professors’ appraisal by the students, we tried to put into relation the appraisal items with the emotional competences, so as to easily determine their correspondence, as can be seen from Table 1.

Table 1
Emotional competences

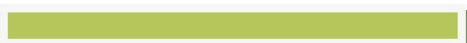
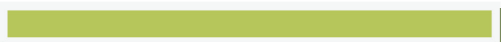
Emotional competences	Items from the questionnaire for the professors’ appraisal by the students
Empathy	Notices the students’ reactions and takes them into account Provides individual help when students are requesting it
Assertivity	Displays enthusiasm and interest for the teaching Clarifies the problems raised by the students
Communication	Clearly states the objectives of the course/seminar etc. Encourages the involvement and the questions of the students
Cooperation	Encourages team work Provides topics that can be tackled in a group variant

The questionnaires were filled out for the current university year, in the 1st semester, and during the 2nd semester the research focused on determining the dimensions of emotional intelligence.

In order to determine these dimensions, the authors used a research software designed by the US company Talentsmart (www.talentsmart.com) [4], renown for the quality of researches in the domain of emotional intelligence and for the trainings offered to big corporations in this domain. This time, the EI dimensions were grouped by the way in which emotions are acknowledged and managed, and by the manner of managing internal and external relationships. The engineers-professors took part in the research by filling out

online questionnaires within a predetermined timeframe. From applying and assessing the questionnaires for determining the dimensions of the group’s emotional intelligence, following elements resulted [5] (Tab. 2).

Table 2
Scores achieved for the various emotional dimensions

Dimensions	Graphical representation	Score
Emotional Awareness		80
Emotion Management		75
Internal Relationship Management		71
External Relationship Management		73

Emotional Awareness – The team’s ability to accurately identify the emotions in the group as they happen and understand each member’s general tendencies for responding to situations. For our team it is 80.

Emotion Management – The team’s ability to respond to each other constructively in emotionally uncomfortable situations and influence emotions in constructive way. The score achieved here is 75.

Internal Relationship Management: The team’s ability to interact effectively with each other in order for the team to be able to react to difficult or challenging situations. In this case, the score is 71.

External Relationship Management: The team’s ability to interact effectively across the organisation boundaries and with outsiders parties. For our team, the score is 73.

The result of the enquiry regarding the team EI dimensions confirmed the suspicions in this regard.

To what extent are the dimensions of emotional intelligence found in the teaching activities of the professors from the engineering education programmes? This was the question which prompted the design of another set of questionnaires, this time for the appraisal of faculty members by the students from the Faculty of Engineering.

It is interesting to analyse how students perceive the display of these dimensions. They are the main beneficiaries of this type of intelligence, when it is displayed, not only because it brings good relationships between the actors of the educational process, but also because, coming into contact with this kind of intelligence, a sort of “contagion” occurs. Coming into contact with the best practices concerning emotional intelligence, a person gets to interiorise it and to practice it.

The objectives of this questionnaire were centred on the dimensions of emotional intelligence, as can be seen from Table 3.

Table 3
Objectives of the appraisal of professors by the students

Questionnaire objectives	Number of items allocated to the objective	Dimensions of emotional intelligence
Quality of teaching	6	Emotional awareness
Quality of the course support materials	3	Emotional awareness
Self-discipline of the professor	2	Emotional management
Assessment of the students' knowledge	4	Internal relationship management
Relationships with the students	4	Internal relationship management
Image promoted about the institution	2	External relationship management

Each of these objectives was allocated a number of questions, for which the students had to indicate an answer as a number within the Lickert scale (from 1 to 5, 5 meaning the highest approval). The appraisal was carried out online and the results were processed with the SPSS software.

The Faculty of Engineering of the “Lucian Blaga” University of Sibiu, Romania comprises several departments, indicated in the appraisal by acronyms. The professors' appraisal was notified to the departments and discussed within them, just as the appraisal of the emotional intelligence. The main departments are:

- Fundamentals of Machine Design (BPM);
- Machine Manufacturing Science (TCM);
- Machine-Tools (MU);
- Natural gases engineering;
- Electrical and Electronics Engineering.

The results of the appraisal of faculty members from these departments by the students are shown in Figure 1 [6].

From this chart it can be seen that for the items 2, 3, 16 and 21 almost maximal scores were achieved, whereas for the items 6, 13 and 14, the scores are the lowest. The contents of these items is as follows:

- Item 6 – the professor encourages questions coming from the students.
- Item 13 – the professor makes sure that the students have understood the transmitted information.
- Item 14 – the professor uses student-centred teaching methods.

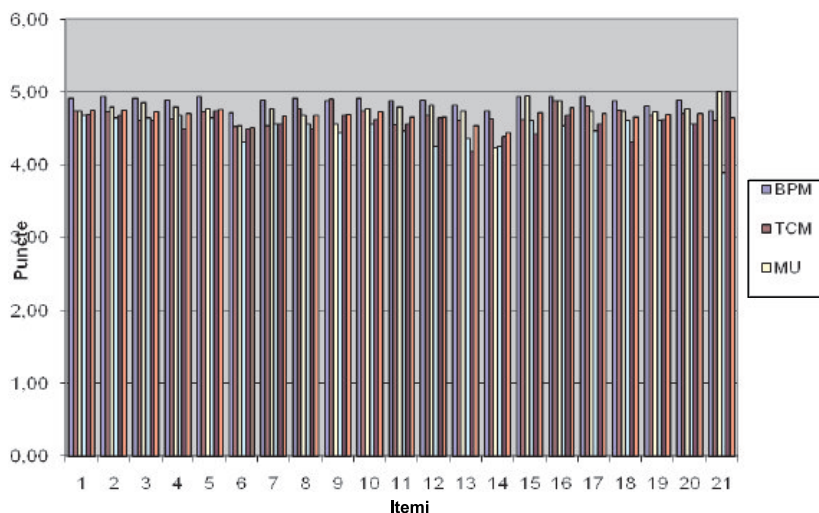


Fig. 1. Results of the appraisal of faculty members by the students

Item no. 6 refers to the manner in which the professor communicates and realises communication channels with the students. From the students' appraisal, it is clear that the communication problems between engineers-professors and students do exist and that they are common, in all departments of the Faculty of Engineering.

It is obvious that the students easily identified the deficiencies of their professors concerning the communication part and the interactions they realise. Also, students did notice critically the traditionalism displayed by the faculty members in teaching, as they do not manage to put the students in the centre of the learning activities. This conservatism indicates the formal authority which the professor still holds when teaching, he/she being the keeper and transmitter of most of the roles in the teaching process. Surely, we don't need to be very critical when talking about these deficiencies, as there are no lower limit scores. Still, it brings the Faculty of Engineering team very close to the average situation, which is not pleasing.

The items with the best scores achieved in this second research are almost the same with those EI dimensions that are shown also in the first research among faculty members to have yielded the highest EQ values.

3. CONCLUSIONS

The results of the two appraisal types did not create satisfaction or contentment. The mirror put in front of us does not always please us. Sometimes we are not willing to admit that the image in the mirror is ours, we might tend to believe that someone did this intentionally to cause us psychic discomfort. But in the end, we all have to accept reality. And the reality is that the academic staff of the Faculty of Engineering of Sibiu has still a lot

of work to do until achieving the status of true teachers, towards which all long. And those who are most affected by the manner in which the professor realises the educational process are the students.

The students' answers indicate the seriousness and even responsibility with which they treated the matter of appraising their professors. This seriousness is actually contradicting the fears expressed more or less openly by the professors at the beginning of the process of implementing the provisions of the law regarding the quality of education.

There existed, and still exist, even at the Faculty of Engineering of the "Lucian Blaga" University of Sibiu, Romania, professors expressing themselves totally against such an appraisal. There was talk about a lack of competence of the student-appraisers, about the subjectivity they would display, some even considered such appraisal as being an attack at the image and authority of the professors. And the emotional intelligence was regarded as just another pointless novelty. After all, if we analyse the multiple facets of intelligence, as mentioned by Howard Garder [7], surely engineers have a very good mathematical-logical intelligence, in most cases doubled by a spatial intelligence. Does this not suffice to be a good professional?

The obvious answer is: "certainly not!". For us and for those who come after us, for those whom we are training and for the world that we are preparing, we have to accept the idea of change. And for the engineering school, this change must be focused on the direction of emotional intelligence. Which is not and cannot be a problem. After all, throughout the history of science, engineers have proven they can deal with such challenges.

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