The Role of Feedback and Co-Assessment to the Improvement of Students' Learning in Higher Education[1]

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Abstract

We present the main results of an investigation, under the PhD in Educational Sciences, which aimed to analyse the implications of the assessment methods in the academic success of students. We carried out 18 hours of classroom observation and semi-structured interviews to the teacher who taught the curricular unit and to 5 students, who attended it, integrated in the curriculum of the Degree in Optometry and Vision Sciences, in an institution of Higher Education. The data was analysed and categorized using the Web QDA - Support Software for Qualitative Analysis. The feedback given by the teacher allowed building dynamic learning environments that encouraged participation, sharing, collaboration, personal exposure, and constructive criticism, framed under the concept of active learning. The co-assessment provided rich experiences for the restructuring of knowledge of the students, favoring the regulation of their learning and the development of responsibility and autonomy, allowing them to develop met cognitive skills, assessment skills, intervention, and research.

Keywords: Higher Education; formative assessment; feedback; co-assessment.

1. Introduction

Bologna's regulations for Higher Education draw a new praxis for learning and assessment. Learning is a process of decision making, intentional and conscious, encouraging student's autonomy, making him an active element in that process (Simão, Santos & Costa, 2002; Simão & Flores, 2009). The assessment should be integrated in the learning process, making the student an active and responsible member. It is about an assessment for learning, with a strong formative dimension (Alves, 2004; Fernandes, 2005; Hadji, 1994), of learning control, making it more useful and significant.

Considered as an "informative" and "regulatory" assessment (Alves & Flores, 1996; Alves, 2004; Sá, Alves, & Costa, 2014), formative assessment provides information to teachers and students, allowing them to regulate their actions.

It allows the teacher "to observe students more methodically, better understand their functioning, in order to adjust in a more systematic and individualized manner their pedagogical interventions and teaching situations that it proposes, expecting the learning optimisation" (Perrenoud, 1999, p. 89). The student, on the other hand, is aware of his difficulties and seeks new learning strategies.

One of the stages of the assessment process consists in gathering information, which aims to understand the student's cognitive or metacognitive functioning towards a proposed task, paying attention to the strategies and procedures used to reach a particular result, emphasizing feedback, regulation, and self-assessment and self-regulation strategies of learning (Fernandes, 2006; Black & Wiliam, 1998; Stiggins, 2004). Among the formative assessment strategies, we highlight feedback and co-assessment (Biggs, 2003).

1.1 Feedback

Feedback helps to build student's self-esteem, because it is not focused on the error, but on the path that the student must follow to achieve quality learning (Alves, 2004). Furthermore, it guides the teaching processes for the construction of knowledge by students through a flexible planning. The feedback is materialized in the expression of an action or a set of actions that the student should develop to improve or assess their learning, i.e. the feedback used in the classroom by the teacher should be expressed in a balanced manner in oral, written or non-verbal forms, to support the student by stimulating their critical questioning (Alarcão, Piglet & Roland, 2009) and to focus on the specific subject contents and/or the learning of transversal nature.

Students must understand the feedback, connect it with the quality of work they develop and use it as a guide, which he should follow to continue his path in the construction of knowledge. This understanding may be more effective if carried out in pairs, since the language used is closer to the students (Vieira, Silva & Almeida, 2009).

1.2 Co-assessment

The co-assessment, whilst assessment strategy among peers, favours the assessment for learning, through communication situations that students are placed in: "situations of confrontation, exchange, interaction, decision, which force them to explain, justify, argue, expose ideas, give or receive information to make decisions, plan and divide the work, to obtain resources" (Perrenoud, 1999, p. 99). These situations constitute rich experiences in the restructuring of their own knowledge, in the regulation of their learning and in the development of responsibility and autonomy. The moments of co-assessment allow students to assist each other, observing what each one has made inappropriately and pointing out a possible solution, having the teacher as supervisor and mediator, who can take the different data from this assessment activity among students to carry out the learning assessment. The students will make decisions, interact, argue (Perrenoud, 1999), supporting themselves on the assessment criteria proposed by the teacher, previously negotiated, and/or other complementary sources of information.

2. Methodological Options

The study was guided by the following questions: to what extent is the use of feedback and co-assessment part of the educational life of classrooms? How do teachers and students use feedback and co-assessment? What is the nature of the feedback used in class, either by teachers or by students? What co-assessment behaviours are observed in classrooms? We observed 18 hours of classes of a Curricular Unit (CU) which integrates the curriculum of the second trimester of the first year of the Degree in Optometry and Vision Sciences, in an Institution of Higher Education (IHE). The CU is attended by 70 students and the approval rate is 100%. At the end of the observation, to understand the perspectives of teachers and students on the assessment process that we had observed, we conducted a semi-structured interview to the teacher, that we coded by D and a focus group interview with five students, that we coded by E, whose content was recorded, transcribed *verbatim* and then subjected to a content analysis and categorized (Bardin, 2011). Both the teacher and the students gave their consent to participate in the study and validated the content of the interviews.

The CU classes observed were composed, weekly, by 1 theoretical session and two theoretical-practical two-hour sessions. The students were divided by turns (35 per theoretical-practical session) and in groups of 5. In the latter, the fundamental activity was the production of a magazine by the group, covering the topics addressed in the CU, aimed at target audiences defined in each group[2], with a weighting of 35% in the final classification.

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[2] Curricular Programme of the CU, provided by the teacher.

This assessment was conducted in pairs with the following weighting: 5% work structure, 5% introduction, 15% news, 5% conclusion, 5% heading, 15% theme deepening, 15% originality, 35% presentation to class.

The classroom observation support grid to the dimensions of the theoretical framework listed four areas: education, assessment, learning, and classroom environment.

The encoding and categorization of data was performed with support of web QDA, we conducted three recordings, and the one accepted is presented in Table I.

Table 1: Categories, subcategories and definition of subcategories

Categories	Subcategories	Definitions
Nature of *feedback*	Oral and Informal	Responses generated in a discussion to encourage participation or to direct the discussion.
	Written and Formal	Comments made in the evaluations provided in the subjects planning, in which student's performance can be "measured".
Use of *feedback*	Questioning as clarification of doubts	Interpellations whose answers are of descriptive or explanatory nature.
	Critical or stimulating questioning	Interpellations whose answers are of critical-reflexive nature.
	Support/encouragement	Expressions of incentive, encouragement, and support.
	Recommendation	Expressions which denote alternatives, hypotheses, arguments, and insights.
	Synthesis / Balance	Expressions which denote trends, conclusions, syntheses, aspects to improve and developments.
	Clarification	Expressions which denote clarification, reconfiguration, the conceptual simplicity, practical visibility of theoretical concepts or vice versa.
Co-assessment Strategies	Decision	Expressions which denote resolution after discussion or prior examination.
	Interaction	Expressions which denote communication exchange or displaying of ideas that takes place among students.
	Argumentation	Expressions which denote statement of the reasons which support a conclusion or action, reasoning, or reference to the evaluation criteria.
	Investigation	Comments supported from research of other sources other than the evaluation criteria.

4. Presentation and Discussion of Results

The data of the observation and of the interviews was triangulated to give them more consistency.
Table 2 presents both the number of times feedback was registered, in the observed classes, (reference numbers[3]) and some references from teachers and students.

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[3]They are register units that can be the sentence or set of words that make sense.

Table 2: Feedback - number and examples of references from the students and the teacher

Categories	Subcategories	Number of References (Student)	Example of References (Student)	Number of References (Teacher)	Example of References (Teacher)
Nature of feedback	Oral and Informal	35	It's fine like this	40	It shows study, perfect.
	Written and Formal	0		0	
Use of feedback	Questioning as clarification of doubts	10	To the teacher: will you synthesise? To pairs: will you make the search in ERIC?	2	How would you suggest we do it? What was the idea?
	Critical or stimulating questioning	15	Can we come to that conclusion?	15	Which path should we follow?
	Support/ encouragement	50	Can you summarize?	27	Do not stop...very well
	Recommendation	13	Follow the structure	5	You should try to follow the model… otherwise you will get lost
	Synthesis / Balance	8	I am going to present the abstract of our work	4	I am going to present this map of concepts as a summary
	Clarification	7	We are going to show a video from youtube where you can see the application	15	And now you ask what is this for… the application of ... it is for the organisms

Although there were comments written by the teacher and by the students (written and formal feedback), we didn't have access to them, but they often happened, as the statement shows: "I give written feedback because the student cannot know what's wrong, if he has no feedback of what is wrong, it is also not worth it… If he has done wrong and still without knowing why he has done wrong, I do not think it is very useful ... "(D).

There was also written and formal feedback from the students, although not observed, as a student commented: "we wrote a justification of what we thought about the work of the group of colleagues who we had to assess" (E). The feedback given by the teacher was very frequent and provided a classroom environment that encouraged sharing between students and between them and the teacher, as we can infer from the discourse: "If I think that we are talking about a subject and they do not understand, but I see a student nodding his head, I say: Tell your colleague what you thought, what you understood, it may help him understand better" (D); "We were always at ease and participated a lot" (E).

We observed the co- assessment among students, with duration of 1h, apropos the assessment made by one group of students - the evaluators, regarding the proposed articles for the scientific magazine of another group - the evaluated. The work subject to assessment (article) had been delivered, in writing, one week before being subjected to assessment. The assessment parameters were previously explained for negotiation, but the students did not propose any changes. During the co-assessment, the teacher registered on a grid the data of the students' behaviour, having presented their assessment based on the same parameters.

Table 3: Number and examples of references of the co-assessment strategies of the assessment group

Category	Subcategories	Number of References	Example of References
Co-assessment Strategies	Decision	9	*Yes... right... so you cannot just say it, you have to support the text statements*
	Interaction	11	*your theme is a consequence of ours and instead presenting an analysis of the causes, you are presenting the causes themselves, you'll get into our work and avoid the theme*
	Argumentation	35	*This title is appealing, but it has nothing to do with news content. You announce that you will give solutions ... where are they? Ten solutions for drinking water ... it should be ten advantages of drinking water. I think that it is more like that*
	Investigation	2	*We got this book that helped us understand better the originality parameter*

The teacher used a variety of assessment methods, favouring rich experiences in the restructuring of students' knowledge: *"I try to make assessments at various moments, of different typologies, in which I assess, the students also assess themselves ... we perform a mixture of self, hetero and co-assessment, always how it is possible" (D).* The teacher focuses on the development of responsibility and autonomy: *"I realize... that students can... learn or better learn concepts when they are the authors of their own research" (D).*

The assessment is an act of learning regulation: *The assessment must always be a way of also having an idea of what we learn" (E)*, contributing to its progression or its (re) direction.

The students have always shown openness, providing a pleasant environment in the classroom: *"I always went to classes willingly ... and I even never missed a theoretical class." (E)*. this constant interaction environment led them to receive help from peers, as *"sometimes it was easier for us when we heard the explanation of our colleague" (E)*.

The permanent interactions among students constituted rich experiences in restructuring their own knowledge, *"we realized better what our colleagues said than what the teacher said." (E)*; in the regulation of their learning, *"when our colleagues assessed us it was much easier for us to know where we went wrong and where we could improve and we all even got good marks" (E)*; and in the development of responsibility and autonomy, allowing them to develop met cognitive capacities and assessment skills, *"this way we knew the* assessment *criteria because we trained them and really applied them and we could better compare with the teacher" (E)*.

5. Conclusion and take home tasks

The feedback used in the CU, as a formative assessment strategy, increased motivation and willingness of students to study the contents, resulting in an improvement in their performance; it was an integral and continuous part of the classroom's pedagogical life, in an interactive and constructive manner, enhancing the intrinsic motivation to an active learning. The feedback and co-assessment acquire a crucial importance in the meaningfulness of learning and encourage dialogue between teacher and student and among students, printing in the assessment an essentially formative nature. The dynamic classroom environment provided stimulation to put questions and to learn.

The co-assessment provided permanent interactions among students, rich experiences for the restructuring of knowledge of the students, favouring the regulation of their learning and the development of responsibility and autonomy, allowing them to develop met cognitive skills, assessment skills, intervention, and research. The appropriation of the assessment criteria of the task and the debate, the interaction and argumentation are necessary conditions to develop self-regulation, i.e., an assessment *of* and *for* learning.

In similar contexts, the use of constructive and interactive feedback by teachers and students, as well as co-assessment practices, should be a teaching-learning-assessment strategy, as it has advantages in motivation, in the student-teacher and student-student dialogues, self-regulation, and the development of critical thinking, acquiring a crucial importance in the meaningfulness of significant learning's.

The feedback given by the teacher allowed to build dynamic learning environments that encouraged participation, sharing, collaboration, personal exposure and constructive criticism, framed under the concept of active learning.

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