FLEXIBLE TRAINING MODELS:
A RESPONSE TO THE CURRENT NEEDS

SHARING RESPONSIBILITIES IN LEARNING ASSESSMENT:

The implementation of self and co-evaluations

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1. **ABSTRACT:** This paper reports a case study into a criteria-based learning assessment being implemented within a management course of an engineering degree in a Spanish university. It outlines and analyses the three different tasks involved in assessing the learning outcomes: the role of the professor and the engagement of students in their self and co-evaluation tasks. The paper concludes that sharing responsibilities in engaging students into their learning assessment benefits the learning process.

2. **RESUMEN**: En este artículo se analiza un estudio de caso sobre una experiencia docente en un curso de ingeniería de una universidad Española, en la cuál se aplica una metodología de evaluación basada en criterios de aprendizaje autónomo. Describe y analiza los tres diferentes aspectos que se complementan en la evaluación de los resultados del aprendizaje: el rol del profesor, y la participación de los estudiantes en sus tareas de auto y co-evaluación. El documento finaliza con la discusión sobre la importancia de compartir responsabilidades mediante la participación de los alumnos en la evaluación, lo que beneficia el proceso de aprendizaje.

3. **KEYWORDS:** co-evaluation, student's engagement; learning autonomy, rubrics / **PALABRAS CLAVE**: co-evaluación, compromiso de los estudiantes, aprendizaje autónomo, rúbricas

4. DEVELOPMENT

a) Introduction

The concept of learner autonomy requires responsible learners who are able to 'consciously monitor their own learning processes' (Scharle et al. 2000:3). Do learning processes comprise grades? As long as grades are seen as sober assessments of past learner performances, this up and down of learner commitment is inevitable. Grades, however, need not merely provide retrospective evaluation. Grades can, and preferably should, function as prospective evaluation providing conclusive assessment as well as constructive information the learners can capitalize on to improve their performances. To achieve this, evaluation needs to be based either on comprehensive and supportive comments or a well-differentiated set of evaluation criteria (Dam 2000). Taking learner autonomy seriously forces us to allow learners even into the evaluation and grading process.

In achieving this learning autonomy, we may find articles that describe different techniques being used, especially concerned with the use of rubrics. In the context of higher education, rubrics are often used within a criterion- or standards-based assessment framework (Sadler 2005; 2009). One of the common models is the revised Bloom's taxonomy (Anderson and Krathwohl 2001) which provides a logical sequence of learning development (remembering, understanding, applying, analysing, evaluating, creating) and the Biggs and Collis SOLO taxonomy (Biggs and Collis 1982) for analysing student responses to assessment tasks in terms of their degree of their structure—pre-structural, uni-structural, multi-structural, extended abstract. Also, some flaws have been identified. Although a rubric looks like a scheme for explicating the implicit or tacit knowledge underpinning expert judgements, that very task is, in principle, impossible to do completely – especially in a summarised form such as a rubric (Sadler 2009).

Therefore, this paper wanted to develop further the complexity involved in exploiting and achieving an appropriate learning autonomy by means of exploring an experience being conducted within a management course embedded in an engineer degree. As such, this

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paper is structured as follows: firstly it presents the objectives of the teaching experience, then it describes the main components that were developed when preparing, implementing and evaluating this teaching and learning practice and finally, it discusses the main results in the light of the concept of the learning autonomy and its implication for achieving an enhanced learning process.

a.1) Objectives

Bearing in mind the relevance of enhancing the learning autonomy and the problematic mostly found in the use of techniques such as rubrics, this paper places its objectives on providing insights into the use of rubrics as an instrument of co and self-evaluation, not only used as a post assessment process, but as a mechanism of students engagement throughout the entire learning process.

The use of the rubric is done in the framework of a peer evaluation process, where students share between them and together with the professor the responsibilities of the learning assessment.

b) Description of the teaching and learning practice as an integrated learning assessment

b.1) Background information of the course

This paper reports on an activity of evaluation applied in a management course for engineering students. The course was divided in sessions that comprised theory and practice, complying 4,5 credits. The name of the signature is "business management", with 12 enrolled students. The evaluation system described in the course-teaching guide comprehends three different grade systems: 25% is dedicated to assess the tasks developed in the practice sections, 20% is concerned with assessing the theoretical concepts and 55% is devoted to assess the development of the course assignment (creation of a business plan). The following table (table 1) shows the evaluation techniques used to assess each of these tasks:

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Table 1. Evaluation methodologies described in the course-teaching guide.

PRACTICE (25% Weight)	THEORECTICAL CONCEPTS (20% Weight)	FULL COURSE ASSIGNMENT (55% Weight)
Students portfolio development	(Partial examination) An analysis of a business case	Development of the business plan, with the implementation of the co and self-evaluation tasks (use of the rubrics). The different weights for the this task are divided as follows: 10% oral presentation, 45% written plan (22.5% professor evaluation, 11,25% self-evaluation, 11,25% peer evaluation)

The main objective of the course is to familiarize the student with the vocabulary and the different business models found in organizations. Therefore, to pass the course students should be able to position the company in its environment and to know the management tools that support organizations to achieve its business objectives and to manage any problem that might arise. Thus, the program is structured in a way that intends students to build their own conceptual map on the economic environment of the businesses and also about the most common business management methods and techniques. This configuration is done by exploring case studies of various companies in different sectors (theoretical sessions). Additionally, students will individually conduct a simulated business plan. This exercise is particularly relevant for the development of generic competence in entrepreneurship and innovation.

Specific competencies explored in this course are linked with obtaining adequate knowledge of the concept of business and its legal and institutional frameworks. Therefore, throughout the development of the course, students are submitted to three types of evaluation activities (table 1), both summative and formative assessments (Black et. al. 2003; Sadler 1998), embedded in a framework of learning autonomy: i) students practices portfolio; ii) partial examination and iii) the development of the business plan. Therefore, this paper will address more in detail the evaluation activity of the development of the business plan, which entails the elaboration of specific rubrics and the application of co-

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assessment (self and peer assessment). The integration of the three activities in building up the final examination of the signature is explained in table 1.

By the beginning of the course each student is invited to share a Dropbox file, which is called “Student name Business management Portfolio”. The student all through the course has to develop 7 practices, together with the elaboration of the business plan. These practices are uploaded and commented within the Dropbox file, where the students shall comment on their feedbacks and provide further improvements in each task being delivered in their portfolios. The development of the business plan also integrates the student portfolio file which details will be followed discussed.

b.2) The development of the business plan and the application of the co-evaluation process

As previously mentioned, the business plan is an individual work requested at the beginning of the course and for its preparation, students were facilitated with a rubric that contained the main aspects that their work should take into account and also it served as a guide for getting acquainted with the elements that were to be assessed. Two types of rubrics were developed for assessing this activity. One is a rubric that contained elements to assess the business plan (peer evaluation - see appendix 1) and the other was addressed to support the student self-evaluation of their work being achieved (see appendix 2). The *peer evaluation rubric* had three main functions: 1) serve as a guide for the students in developing the plan; 2) serve as a criteria for the professor to evaluate the written plan, 3) serve as a guideline for the students to evaluate the work developed by their colleagues. The *self-evaluation rubric* had the function of providing a framework for the students in evaluating their own work, but also reflecting on their learning process.

Both rubrics were shared with the students by the beginning of the course, and the functions and content of the rubrics were discussed with the students, in order to identify if any concept or aspect were not being well set or understood. Importantly, as the theoretical sections advanced, specific concepts were then associated with the rubrics with the aim of

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better contextualizing it. Thereupon, the rubrics developed in a Word table format, were uploaded in the course Moodle and also in the student's individual course portfolio.

At the end of the course, once the plans were submitted via the course Moodle platform, the process of peer evaluation began. The first step was to establish the pairs that were to conduct the peer evaluation. The criterion was based on creating a public list, where the peer review pairs were arranged with the aim of not be evaluated by the student that you were evaluating. So all knew who was evaluating whom. Students were given two weeks to carry out the task (this period was previously set in the course calendar). The feedback of the peer review was uploaded to the Moodle platform which was made public available to all students. Additionally, students conducted a self-assessment exercise supported by the self-assessment rubric, which once filled in; it was uploaded to the student portfolio and then commented by the professor (the self-assessment was only visible to the student). The professor also issued a final appraisal based on the joint assessments. A feedback session was organized after the two weeks assessment exercise, where students were invited and prompted to discuss and reflect on the performed activity.

Finally, this activity had three ratings: one from the professor and one from a colleague (peer evaluation assessment) and the third evaluation came from the student's self-assessment.

c) Results and conclusions

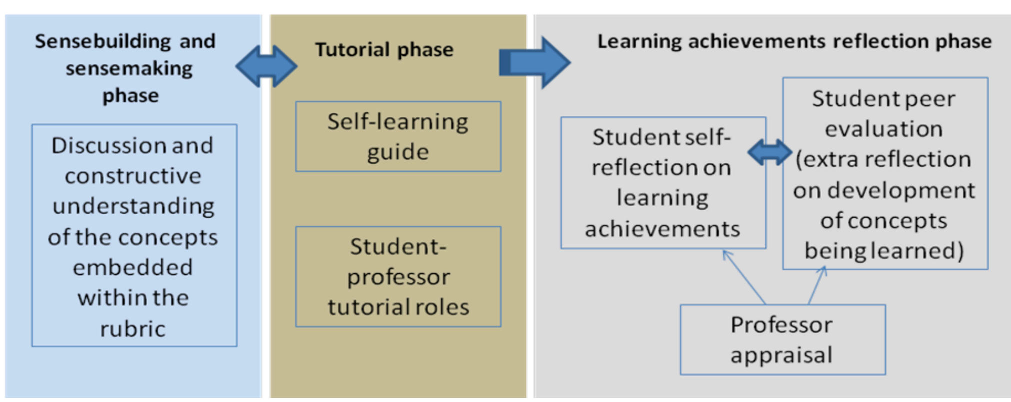
c.1) Overview of the main conclusions

At the beginning of the course when students were informed about the evaluation criteria and the process, they did quite not understand why they should also evaluate the work done by a colleague. For them, it was an "extra activity" in which they should put their time on and they were not willing to do it without having also and "extra grading". As such, a relevant work had to be conducted on explaining the rubrics, its uses and most importantly what they would win by doing it. This pedagogical exercise included the joint assessment between the professor and the students of the rubrics that were to be used. All the concepts and associated grades were discussed and agreed upon. The students where explained that the use of the rubrics for them had a twofold value, on the one hand it had to be conceived as an assessment tool to be understood in a different context compared to a conventional assessment task.

Therefore the rubrics were addressed not only to assess the knowledge of the student, but also it should serve for them as a reflection tool that allowed them to acknowledge their own learning achievements. On the other hand, it also served as a guide for students in order to support them in the completion of the activity, in this case the development of a business plan. Indeed, for the professor, this last function also supported the tutorial action throughout the development of the activity. Consequently, the use of the rubrics supposed for the professor a new way to understand and carry out the evaluation process, and at the same time it favoured a closer approach by the student to the tutorial role he would play.

Accordingly, in this interactive process, the assessment of the activity have been done in several steps during the constructive understanding of the concepts that were to be acquainted, the exchange of feedbacks during the completion of the activity within the framework of the rubrics and lastly the reflection of the students upon their own learning achievements based on their self-reflections and on their colleagues peer review (see figure 1).

Figure 1. Framework of shared responsibilities in learning assessment



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Finally, it should be noted that the development of this activity which had the aim of focusing on carrying out a learning assessment where the responsibility of assessing learning was being shared with the students, helped students to accurately position their doubts and identify problems faced in the course of their learning activity. It changed the focus from a passive role of the students to an active role when bringing in their opinions on rating and commenting their own work and the work carried out by their colleagues. Additionally, it served as an exercise of learning achievement benchmarking when they commented and rated the work done by a colleague, always in comparison with their own work and putting in practice their learning accomplishments.

These conclusions were draw based on the responses of the students, which were given when filling in the self-assessment rubrics, and also by the observations of the discussion carried out during the feedback review workshop at the last section of the course. In the self-assessment rubric, it was added a specific part that aimed at exploring the learning assessment experience from the point of view of the students. Two main questions were introduced to explore this specific aspect: What were the main difficulties faced when developing the project? What do you think it was the most important learning that you have gained with the development of this exercise and experience? The following table (table 2) provides an illustration with an overall gathering of the student's responses to these questions and points being discussed in the workshop review.

Table 2. Evaluation methodologies described in the course-teaching guide.

Issue assessed	Students perspectives and feedbacks
Difficulties faces in carrying out the activity	- The main drawback for me was the fact that being an engineer student I was not familiar with management concepts, so, for me it was a completely new thing that I had ever done and therefore most things covered in the course and in the development of plan I had never touched before. - The main handicap for me was that developing this kind of activity was a completely new thing, which is difficult to be able to contextualize and fully understand in the period that covers the course alone. - The main difficulties were associated with developing specific parts of the business plan, specially associated with skills that were related to the management concepts and areas, such as marketing clients.

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	- For me the part that covered all the aspects of the financial management was quite difficult to implement, as I did not have comprehensive background knowledge of these types of concepts. - One of my main problems was linked with the difficulties in finding the proper channels to gather information to develop my business plan, and I was able to comprehend that it is not very easy to find reliable information to back up a good market research, especially if we need international data also. However, it gave me on the other hand a fully comprehension of what do we mean when we are talking about innovation and entrepreneurship skills. - A great problem was the lack of knowledge from the start associated with management theories and concepts. And further more, the lack of association of the sector that I've chosen to develop my practical activity that is the conception of the business plan.
Relevant learning aspects	- The most important learning achievement was related to have obtained the knowledge associated with the main aspects of what means a business plan and what are the complexities involved when starting a business. The way of how the activity has been conducted, specially with the different feedbacks being provide and comments were interesting, because it allowed us to have a different perspective on what we were doing and why. - To have different perspectives of the difficulties an entrepreneur face when starting a business idea implementation. - Allow having a better comprehension of the activities and tasks that are needed when developing a business project, as well as of the different variables involved (positive and negative points). The interesting and complex thing was to evaluate a colleague, definitely it was not an easy thing, but it was nice to have the opportunity to compare the work being done and to reflect upon it. - The way we had to do the assessment it was something different but fulfilling, due to he fact that we could receive the feedback from a colleague, and all together it was a positive way, even if at the beginning it looked like a joke, but that ended being very rewarding and playful.

c.2) Some implications and limitations

One of the main implications and contributions of this paper is the conception of the analyzed experience as an innovative proposal, by proposing changes to the traditional conception of evaluation. In addressing the use of the rubrics as self and peer assessment instruments extracted from a concrete experience, difficulties emerging when proposing the students to these different methods of co-evaluation and self-evaluation are exposed. Finally, the main contribution of this paper is related to bring forth a framework for thinking about a potentially interesting conception of

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evaluation that are able to stimulate and provide a more dynamic learning environment and experience, in which students may assume a greater role in assessing their own learning achievements.

Furthermore, it should also be noted that the experience main contain some limitations and restrictions. One aspect is associated with developing further the integration of the use of the rubrics within the other assessment methods used in the course (such as the portfolio and the partial examination) in order to have a better appreciation of their implication in building the course final grading. Also, there is the needed to expand different ways of building the rubric with the students, as the current proposal is based on a previous defined model that is explained and discussed, but not completely build with the students. Finally, the experience did not contemplated a method to fully evaluate different aspects of the activity development, which further developments in this aspects could be able to provide extensive feedbacks on the students assessment of these types of interactive learning assessment practices.

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APPENDICES

1. Rubric for peer review assessment and for the development of the business plan

Criteria assessment	Fully compliance (10-9)	Partial with inaccuracies (8-7)	Confusing or unclear (6-5)	No evidence (4-1)
Business Opportunity (Locate the idea, market, mission, vision and objectives of the business)	The project presentation is easy to read, has enough data about the company and its characteristics, it provides a clear description of the idea, exposing its original or innovative characteristics.	The project presentation only acknowledges partly the data about the company and its characteristics, resulting in a partial description of the idea.	The presentation of the project only yield an overview of the company, but the idea is not innovative and presents a lack of originality.	Do not contemplate further and appropriated evidences.
Market research	It extensively presents a market study, which covers the future of the company, justifying the decisions and conclusions. A detailed technical description of the product / service is developed. The study conducted defined the market clearly by describing the behaviour of the product goods or service, and by clearly identifying the competition (companies) and obstacles in their development. The study argues on the use of the 4Ps	It has a market study, which covers the future of the company justifying the decisions and conclusions. It presents technical description of the product. It defines the market, describing the behaviour of the product goods or service and also identifies the competition (companies) and obstacles in their development.	It partly presents a market study that covers the future of the company justifying the decisions and conclusions. Introduces a brief technical description of the product. It partly defines the market, with the overview description of the behaviour of the product goods or services.	It has a market study, which covers the future of the company justifying the decisions and conclusions.
The commercial approach (Screening and sales policies)	Explain and provides graphs about the fixed and variable costs, it defines its selling price, sales projections elaborations by using the break-even point. It draws up a list of possible providers, presents a flow chart for explaining the process by which the product or service will be delivered.	It presents the graph of the fixed and variable costs, defines the sale prices, makes a list of potential suppliers, and explains the process in making the product or service.	It partly presents graphs with the fixed and variable costs, defines its selling price, sales projections, and presents a flow chart with the overview of the process in delivering the products or services.	It presents the graph of fixed and variable costs and the breakeven point.
The technical description	It provides completed data in terms of the needs of material resources in order to assess the feasibility of the project. There is fully assessment of the investment costs under realistic assumptions. It contemplated a detailed schedule with the phases of the project	It provides some data in terms of the needs of material resources in order to assess the feasibility of the project. There is an overview assessment of the investment costs under realistic assumptions. It contemplated partly a schedule with the phases of the project	It provides partial data in terms of the needs of material resources in order to assess the feasibility of the project. There is a partial assessment of the investment costs under realistic assumptions. It is not contemplated a	Insufficient data were available about the resource needs and the costs of the necessary investments were not valued.

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	implementation.	implementation.	schedule with the phases of the project implementation.	
The providers plan	It precisely defines the raw materials needed to carry out the activity. A detailed listing of providers is presented. Conditions concerning the relationship with suppliers such as discounts, payment periods and deadlines are included.	It defines the raw materials needed to carry out the activity. A listing with some providers is presented. Some conditions concerning the relationship with suppliers such as discounts, payment periods and deadlines are included.	It is partially defined the raw materials needed to carry out the activity. It is included a very incomplete listing of providers. Conditions concerning the relationship with suppliers such as discounts, payment periods and deadlines are not included.	Information on this section is rather superficial and incomplete.
The organizational structure	Requirements of human resources for the implementation of the Business idea are fully detailed. Also it fully specifies the contract types for the required specified personnel.	Requirements of human resources for the implementation of the Business idea are partially mentioned. Also it mentions some information in terms of the contract types for the required specified personnel.	Requirements of human resources for the implementation of the Business idea are very briefly mentioned.	Information on this section is rather superficial and incomplete.
The legal structure	It presents in detail the legal form that is intended to comprise the company. A detailed list of procedures for setting up the company with its corresponding assessment.	It presents some information about the legal form that is intended to comprise the company. Also includes some information about the procedures for setting up the company with its corresponding assessment.	It presents very partial information about the legal form that is intended to comprise the company. It includes very brief and partial information about the procedures for setting up the company.	Information on this section is rather superficial and incomplete
The financial and economical study	There is a clear explanation of the forecasts when presenting the financial statements. There is the fully inclusion of convincing evidence to venture the project profitability.	There is some explanation of the forecasts when presenting the financial statements. There appear some evidences to venture the project profitability.	There is some explanation in a very superficial way of the forecasts when presenting the financial statements. The evidences to venture the project profitability are insufficient.	Information on this section is rather superficial and incomplete.
The risk assessment	Risks are fully evaluated and alternative actions are contemplated.	Risks are partially evaluated and some alternative actions are contemplated.	Risks are very superficially assessed, and there is no mention of possible alternative Solutions to the	Information on this section is rather superficial and incomplete.

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			problems that might emerge.	
CONCLUSIONS	**1) Does the author of the project include an executive summary that contemplates the key figures that allow a clear view of the project and its objectives?**			
	2) Is the business plan realistic, logical and convincing? Why?			
	3) What are the strengths and weaknesses of the project?			
	4) Is the whole project chaired by an internal consistency between the data provided by the market analysis and by the decisions, which are contemplated for the implementation of the project?			
	5) In view of the promoters resume (CV), do you think they will be able to successfully implement the project? Specify the argument.			
	6) Do You think it is a business idea that brings forth some kind of innovation? If yes, what kind? Is this clearly stated in the project?			
	7) Would you invest in the project? Why (yes or no)?			

2. Rubric for self-review assessment

Assessment Criteria		**Comments**
The project presentation	The information included in the project is updated enough?	
	Are the information sources appropriately mentioned in the project?	
	It was included in the project a complete description of the CV of the person or team who is in charge of the project?	
The IDEA	Is there a clear and complete description of the business idea plan?	
	Do you find original and ambitious the idea in which the project is based?	
	What do you think are the main innovations that bring forth the project?	
The market research	Do you think it has been conducted an in-depth market analysis, especially relative to its size, structure and future trends?	
	In view of the market, can it be considered that the project developers are specialists in the market in which they want to compete?	

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	Does it provide a good argumentation on the goodness of the market in order to invest in it?	
	Is there a clear identification of a gap or space to introduce the product or service in the identified market’	
	Are the innovations proposed in the project really appreciated by potential customers?	
	Does the market study provides clear conclusions that support and justify the management decisions at various levels (technical, commercial, organizational and financial)?	
The marketing and commercial description	Does it describe what are the competitive advantages that account to enter the niche market that is intended to capture?	
	Is there a clear positioning of the new company?	
	Are the marketing variables consistently analyzed?	
	Are there any projections of sales referred to in the timeframe that the project is contemplated?	
The technical description	Do you think sufficient data were available concerning the needs of material resources to assess the feasibility of the project?	
	Is sufficiently valued the costs investments?	
	Is there a schedule with overview of the phases of the implementation of the project?	
The providers description	Is it precisely defined the raw materials needed to implement the project?	
	Is there a list of potential providers?	
	Is it contemplated any conditions concerning the type of supplier relationships (discounts, payment term and delivery, etc.)?	
The organizational structure	Are the human resource requirements detailed?	
	Does the profile and the numbers of staff that are forecasted are adequate?	
	Is the type of personnel types of contract specified?	
The legal structure	Does the legal form to be taken by the company is	

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	indicated?	
	Are the main formalities of the company constitution contemplated and valued?	
The economic and financial study	Are the forecasts contemplated consistently when reporting financial data?	
	Are the forecasts realists?	
	Do you think that convincing evidences to venture on the profitability of the project are contemplated?	
The risk assessment	Do you think the risks are appropriately assessed?	
	Are the alternative actions to counteract some of the possible risks being mentioned?	
CONCLUSIONS AND OBSERVATIONS	What do you consider to be the relevant strengths and weaknesses of the project?	
	If you were an investor, would the project seem attractive for you?	
	What were the main difficulties faced when developing the project?	
	What do you think was the most important learning that you have gained with the development of this exercise?	

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