

# IMPROVING MANAGEMENT SKILLS THROUGH BUSINESS SIMULATION

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## Abstract

A survey was conducted among students of the Accounting and Administration undergraduate degree at ISCAP – IPP (School of Accounting and Administration of Polytechnic Institute of Porto) in order to understand their perception value of their course Business Simulation (BS). This course is provided in a business environment where students can learn by doing through the management of a company as they were in the real life, but risk-free. The learning tasks are provided in an action-oriented format to maximize the learning process. Students learn by doing a set of tasks every session and have also to produce reports and presentations during the course. BS is part of the undergraduate degree of Accounting and Administration at ISCAP – IPP since the beginning of 2003.

The questionnaire we used captured the students' perception about general and specific skills and competencies considered important for managers and accountants in the real life, about the methodology used in the course, which is totally different from the traditional form, and also about the adequacy of the course included as part of the undergraduate degree.

The results showed that students' perception is highly positive and almost all of them think they improve the skills needed for a job during the course. These results are consistent with [1] Adler and Milne's research in which the authors found that students agree with the use of action-oriented learning tasks in order to provide them the needed attitudes, skills, and knowledge. The improvement of group skills is the most important issue for students, which can be understandable as BS is the only course from the degree in Accounting and Administration they really have to work in groups.

Keywords: Business simulation, learning by doing, action-oriented learning, work in groups, management skills.

## 1 INTRODUCTION

We are living in exponential times. The book "Future Shock" by Alvin and Heidi Toffler published in 1970 is still relevant today. The Toffler's central premise is that the pace of technological change is influencing a psychological state they call Future Shock, equivalent to the disorientation people face when visiting another culture, commonly called culture shock. They defended that society has given little consideration to intentionally managing our future and how individuals deal with change.

In these turbulent times, with a increasing level of specialization and professionalization, higher education in accounting and management areas is also under pressure, especially for failing to impact useful vocationally-related competencies to students. This pressure comes not only from the actual customers, who are the students, but also from employers, alumni, business leaders and opinion makers. One of the justifications for criticisms and pressures is the high level of unemployment, which is constantly increasing as the time goes on. The focus of the criticisms has to be with the inadequacy of the vocational competencies acquired by accounting and management graduates ([2],[3],[4]).

In order to deal with these criticisms and pressures, some Portuguese higher education institutions developed enterprise simulation projects and included them in the undergraduate degrees of accounting and management. One of the most important projects was developed at the School of Accounting and Administration at the Polytechnic Institute of Porto (ISCAP/IPP). Polytechnic Institute of Porto is the largest Polytechnic institution of the whole country.

The school of accounting and administration has more than four thousand students, most of which enrolled in the degree of accounting and administration. The enterprise simulation project was created in the beginning of 2003 (summer semester) and has two courses named Business Simulation I and Business Simulation II, taught during the two last semesters of the degree.

Business Simulation (BS) courses were important to deal with the pressures from stakeholders, but are still important because they represent an innovative way of education. First, they are used to evaluate higher levels of learning, such as integration of education materials from other courses. Second, they provide a variety of teaching techniques, such as learning by doing, tutorials, on-line resources. Third, the assessment of these courses is very complex and wide, since students are evaluated not only in terms of their cognitive achievement but also for their writing skills through the creation of management reports, their oral and presentation skills through some public oral presentations during the course, only to mention a few.

The paper is organized as follows. The next section will provide a brief literature review about accountant's competencies. Section three presents the methodology followed in this paper. In the section four a description about the enterprise simulation project at ISCAP-IPP is provided, including the implementation, the teaching process, learning issues and assessment. The following section presents analysis and discussion of the results. In the last section some lessons learned are presented, especially in order to improve the future of the courses and to make the project sustainable before the stakeholders. The conclusion is also provided in this last section.

## **2 BRIEF LITERATURE REVIEW ABOUT MANAGEMENT SKILLS**

During last years a lot of researchers have been trying to identify the most important competencies in the management-related areas. A survey made in the Netherlands [5] has showed that it is possible to have three groups of competencies: basic, advanced and highly advanced. Higher education students should have basic competencies. One example is written communication. Ellis [6] argues that writing skills are very important, as a better understanding of what students learn is connected with a further approach in writing. A few years after the beginning of the professional career advanced competencies have to be part of individuals. For example, financial management is a fundamental advanced competency, especially for professionals from accounting and management areas. Highly advanced competencies are central for individuals that achieve high-level functions. For example, project management is essential for a financial director candidate.

More specifically related with the accounting area Lin et al. [7] explored the perceptions of Chinese accounting practitioners, teachers, and students on the required knowledge, skills, and pedagogy for accounting education. The study has showed that accounting practitioners emphasize written and oral communication skills, which is an issue that should be strengthened in the Chinese accounting education.

Teamwork is also considered an important competency in real-life. Exploring the role of teamwork among students with different backgrounds, Luthje and Prugl [8] argued that student's course experience provided a change in attitudinal beliefs. According to these authors, communication explained the changing process, as students shared experiences and ideas with each other and becoming closer among themselves. Additionally, Prichard et al. [9] found that team-skill training facilitates teamwork on a collaborative learning task. The study was conducted in a collaborative learning environment at the university level.

Accounting and management skills are also a preoccupation of professional associations and other governmental organizations. The Tuning Project [10], supported by the European Commission developed a methodology to explore study programmes for the Bologna cycles. A survey was conducted among the main higher education's stakeholders to find the most important competencies that should be achieved in this level of education. Several competencies were identified and six of them were considered for different areas of business: i) ability for abstract thinking, analysis and reasoning; ii) ability to apply knowledge in practical situations; iii) knowledge and understanding of the subject areas and understanding of the profession; iv) ability to identify, put and solve problems; v) capacity to learn and to stay up-to-date with learning; vi) ability to work in a team. Then, using the same methodology, specific competencies were also selected for undergraduate levels in business education: i) ability to analyse and structure a business problem and provide the solution (e.g. entering a new market); ii) identify and use suitable tools (e.g. market research, statistical analysis); iii) understand present and new technology and its impact for new markets; iv) learning to learn (how, when, where new personal developments are needed); v) identify the functional areas of an organisation and their interactions; vi) understanding, reading, speaking and writing in a foreign language.

According to American Institute of Certified Public Accountants [11], individuals should use strategic and critical approaches to decision-making, identifying alternatives, and choosing and implementing solutions to deliver services and provide value. Other specific competencies of an accountant should include risk analysis and control, ability to apply different assessment criteria; communication skills; research skills and the skills to use adequately technology tools.

For management and accounting functions the traditional education and theoretical knowledge is not sufficient. Students should acquire practical skills as they were in real-life. The United Nations Conference on Trade and Development [12] (p.4) states: "it is not sufficient for persons aspiring to become professional accountants to possess only theoretical knowledge. Accountants must be able to apply theoretical knowledge in practical, real-life situations by obtaining, analysing, interpreting, synthesizing, evaluating and communicating information".

### **3 METHODOLOGY**

This study is based in a survey conducted during 2011 and 2012 to students from the BS courses. A random sample of seventy-five students was selected for this study. In spite of the fact the number of respondents was not very high we think the results are still valid, since other studies in the same stream were conducted before. A paper questionnaire was provided to students in order to know their opinion about the BS courses.

First, students were asked to identify themselves, except the name and e-mail, which were optional. Three intervals were used for age, namely less than 23 years old, between 23 and 30 years old, and more than 30 years old. After asking if students had professional experience we also asked about the area of that professional experience, because we considered important to know if the professional experience was in the management and accounting areas or not. After these contextualization questions ten other questions were provided in the questionnaire using a Lickert scale type: 1 = totally disagree up to 5 = totally agree. Five questions asked students' opinion about BS courses, specifically if they are needed, if they are a useful way to learn, if the learning methodology is better than in the other courses. The other five questions asked students' opinion about skills, even in general terms, or in specific terms. For example, students were asked about if they acquired management skills, if they acquired skills they believe will be useful in the future, if they improved work-team or writing skills.

The last question (eleventh), if we consider it as a question, was provided for them to comment globally the BS environment (including the logistics associated with planning and functioning).

### **4 BUSINESS SIMULATION AT ISCAP-IPP**

#### *4.1.1 Context of implementation*

The School of Accounting and Administration (ISCAP) is part of the Portugal's largest and most prestigious public Polytechnic Institute, the Polytechnic Institute of Porto (IPP). Located in S. Mamede de Infesta (Matosinhos), very close to IPP Campus, ISCAP offers its approximately 4000 students a range of innovative undergraduate and graduate programmes in Accounting and Administration, International Commerce, Marketing, Business Communication, and Administrative Assistance and Translation.

In February 2003, BS courses were introduced. This occurred because three major reasons: 1) To allow students to meet the requirements of the OTOC – Chamber of Portuguese Certified Accountants to be a certified professional accountant; 2) Change in the teaching and competences transmitted; and 3) Updated content lectured by force of changes in normative and other outdated content.

Currently ISCAP has two classrooms exclusively for BS. These rooms are equipped with enterprise software and a hardware. Students are divided in companies with three elements each. At their disposal they have two computers, a printer, a scanner, a telephone and other equipment. At the software level students work with an enterprise resource planning (ERP). In addition to classroom work, students are able to access the system by remote desktop connection; they only need an Internet connection. This feature allows students to review past classes and prepare future classes. Another important aspect is the partnership with some external companies, there is even one of the major Portuguese companies that gives preference in its recruitment to students who have attended the courses of BS.

#### 4.1.2 Teaching process

The most important objectives of the BS are: 1. Allow students to apply all the knowledge acquired during your course; 2. Change in the way of teaching. Leave the old school of knowledge to move to a new era of learning by doing.

Based on these two main objectives can be said that there was a change in the way of teaching in ISCAP. The new approach is falls into the study by Adler & Milne [1] and Fiet [13], in proclaiming a new way of teaching called the action-based learning. This new way of teaching allows reach another great goal which is to provide students in a virtual environment, apply all the knowledge accumulated in the course. In BS students apply knowledge acquired in accounting, taxation, ethics and other core subjects. A major advantage is that this virtual environment eliminated the risk, since the errors are corrected by students and teachers is explained to them the right way to do this in the future. Cumulatively to what has been said students can have a view that their learning will take place throughout their life, ie, obtaining the Bsc is the beginning not the end of his apprenticeship.

This course is full of peculiarities when compared with other existing in ISCAP. In addition to two classrooms exclusive, still has a teaching staff, mostly used solely in the BS. BS currently has 10 teachers members at your disposal. The classes are all planned in advance and students are always at your disposal the next two classes. Students develop their activities in a trading company, which subsequently adds the productive activity. Teachers in addition to the lectures, still have to do other administrative tasks and manage some companies that provide special services (banks, insurance company, public administration, etc.). There is also technical and administrative staff permanently assigned to the service of the BS. The lectures of BS must have 90 hours every semester and divided into two lectures which makes a total of 180 hours. There are two lessons per week for each class.

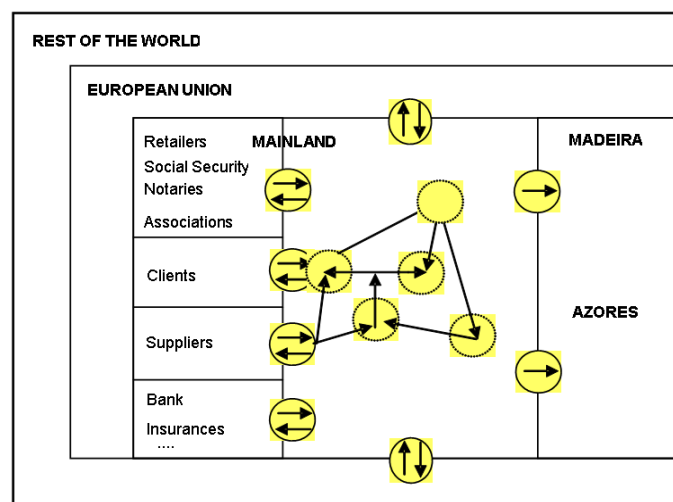
#### 4.1.3 Learning issues

The evolution that has happened in recent years the world has also brought increased complexity in accounting. This increase of complexity has created new challenges for the accounting profession and new needs. Needs of new data processing more and more complex and increase new reporting requirements are part of the main changes in accounting. In Portugal the new accounting standards that increase came even enhance accuracy in processing and reporting accounting information. Thus, BS tried to create the largest number of accounting and more complex events possible in order to prepare students for the demands of the accounting profession.

The operation model, as described here, has as components: agents, products and transactions. The relationships between these are summarized in the Business Plan of each company (estimates), taking place the respective events in the sessions of BS, according to the activities planned for each session [14].

The market is constituted by agents located in different economic zones, which interact, establishing relationships and transacting goods and services.

Fig. 1 - The model of BS



The companies interact, compete and cooperate. They take note of the events, register transactions (data), extract information and acquire knowledge, which they will have to use in subsequent decision-making [14].

With the purpose of formation in the aspects of systematization and standardization of tasks, the companies created by the students are guided to their certification according to the norms of the family ISO 9001:2000 [14].

#### 4.1.4 Assessment

Assessment of BS is distributed as follows: six items, continuous evaluation, summative (Files), summative (Report), Behavior, Participation and oral presentation. The most important item is the continuous evaluation of the assessment with 48.75%, i.e. almost half of the total evaluation. The second most important item is the oral presentation with 14% of the assessment. The distribution of the others items of assessment is similar. With this distribution we try to cover all the activities students make during the course [15].

**Fig. 2 - Components of BS Assessment**

Description	0-100	0-20
Continuous Evaluation	48,75%	9,75
Summative (Files)	9,75%	1,95
Summative (Report)	6,50%	1,30
Behavior	10,50%	2,10
Participation	10,50%	2,10
Oral Presentation	14,00%	2,80
Total	100,00%	20,00

## 5 ANALYSIS AND DISCUSSION OF THE RESULTS

In this study, seventy-five students responded to a paper-based questionnaire after finishing the semester. The ten main questions were provided in a Lickert scale base: 1 = totally disagree up to 5 = totally agree. Five questions were about the importance of BS courses. The first question asked students about they think the course was useful, the second question asked them if they think BS courses were a valid form to learn. The third question was about the methodology used, specifically if students think they learn better with this methodology (action-based) than with the traditional one (study-based). The fourth question was only for controlling the attention of the respondents, as we put the question in a reverse order. We asked students if they think BS courses were completely useless for them. The fifth question was about skills, so it will be presented later, and the sixth question asked students about they think BS courses were needed.

In terms of competencies' questions, we also have five questions. The fifth question asked students if they think they learned practical skills needed for the management of a company. The sixth question (about the importance of BS) was already presented. In the seventh question we asked students if they think they learned competencies that will be useful in the future. The eighth question was about the cooperation with the elements of the group. Related with teamwork skills, in this question we asked students if they cooperate well with their team colleagues. In the following of this question, the ninth question asked students about if they think they learned teamwork skills during the course. Finally in the tenth question we asked students about writing skills, if they think they improved those competencies during the course, as they made reports and other writing works. The eleventh open question will not be object of this study.

As we can see in Figure 3, younger students give more importance to the course than older students. In all questions related to the importance of BS courses students with less than 23 years old have results above the mean. The highest overall mean obtained with the questions related with the importance of BS courses was in the first question (Q1), in which we obtained 4,12. Comparing the mean obtained with students older than 30, which was 3,5 with the mean obtained with younger students, which was 4,15 it is clear the preference given by younger students. This tendency is common in all questions related with the importance of BS courses and can be explained as younger students are more open to new ways of learning. Also with very high values we have questions two

and six (Q2, Q6) in which the overall mean is 4,04 and 4,05 respectively. It is interesting to see that the youngest students think BS courses are strongly needed (mean=4,21). In terms of gender it is very clear that girls value BS courses higher than boys. This can be explained as girls are more compromised in doing the best than boys are. Normally higher grades are from girls. In terms of professional experience, the results are not a surprise as inexperienced students value BS courses more than the experienced ones. This is in line with what happens in terms of age.

**Fig. 3 – Descriptive Statistics**

		Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
		Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean
	All	4,12	4,04	3,91	1,53	3,8	4,05	4,21	4,29	4,13	3,46
Age	< 23 years	4,15	4,11	4	1,5	3,85	4,21	4,32	4,38	4,21	3,5
	23-30 years	4,15	3,95	3,68	1,57	3,74	3,79	4,05	4,11	3,95	3,32
	> 30 years	3,5	3,5	3,75	1,75	3,5	3,25	3,5	4	4	3,75
Gender	Male	3,95	3,75	3,7	1,5	3,75	3,75	3,85	4,35	4,05	3,35
	Female	4,18	4,14	3,98	1,54	3,82	4,16	4,35	4,27	4,16	3,51
Professional Experience	Accounting/Management	4,09	4	3,86	1,77	3,91	3,86	4,05	4,36	4,36	3,41
	Other Areas	3,9	3,7	4	1,1	3,8	4,2	4,5	4,8	4,5	3,3
	No Professional Experience	4,19	4,14	3,91	1,51	3,74	4,12	4,23	4,14	3,93	3,53

In terms of skills-related questions we have also very positive results. In fact, the highest mean (4,29) of all questions is obtained in the eighth question (Q8) in which students stated the cooperation with colleagues was very good. Beyond this question, which can be biased by a positive opinion the students can have in these situations, the seventh question (Q7) had the second highest mean (4,21) of all questions. In skills-related questions, except in terms of the improvement of writing skills (Q10), younger students demonstrate to have a more positive response than older students. In the same vein girls have higher means than boys in all these skills related questions except in Q8. The eighth question is about how was the cooperation between colleagues of the team. The improvement of teamwork skills is highly valued by all students. Finally, in terms of professional experience more experienced students value more the competencies acquired than younger students.

## 6 LESSONS LEARNED AND CONCLUSION

BS courses have very specific characteristics, either in terms of competences provided for students, or in terms of education methodologies utilized. The innovative form of teaching used in BS courses is becoming more and more valuable in recent literature. Students perform their activities as they were in a real-life environment, allowing them to achieve results, as they were professionals. This type of education (action-based) provides competences and skills that are showed by recent scientific studies as the best practices. This is also aligned with the view of national (OTOC) and international professional associations (such as AIPCA) and other important organizations (such as United Nations) that consider some of the skills provided during the courses as the most important for a professional in practice. For example, teamwork is very important for these organizations.

The questionnaire used in this study captured the students' opinion about not only the need and importance of BS courses, but also about general and specific skills and competencies considered important for managers and accountants in the real life. The students' opinion is very positive since results found were around 4, which is very good compared with a maximum of 5. This happened both for the importance of BS courses but also for the contribution of BS courses in improving competences and skills.

The very positive opinion from our students about BS courses and about skills and competencies acquired, especially in terms of teamwork, is particularly higher when we are talking about younger and female students. These students have almost in all questions a higher value.

The results showed that students' perception is highly positive and they think their skills needed for a job are improved during the course. These results are consistent with previous research that also used action-oriented learning tasks in order to provide students the needed attitudes, skills, and knowledge.

The improvement of teamwork skills is one of the most important issues for students, which can be understandable as BS is the only course from the degree in Accounting and Administration they really have to work in groups.

In conclusion, BS courses help students to: i) to apply the knowledge acquired in their course and realize the complexity of corporate business, ii) understand the importance of teamwork; iii) sensitize students to the need to study and learning throughout life.

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