

DEVELOPING SOFT SKILLS IN A B-LEARNING ENVIRONMENT

Paula Peres and Ana Azevedo

Instituto Superior de Contabilidade e Administração do Porto – Instituto Politécnico do Porto, Portugal

Keywords: b-Learning, Higher Education, Soft Skills, b-Learning strategies.

Abstract: The development of soft skills in students enrolled in higher education courses is recognized as a fundamental element to promote the success of students' integration in real workplace situations. Nevertheless, if we look at nowadays syllabus, we attest that the main effort is made on the contents instead of being made on soft skills. Content-based teaching and learning may not promote the development of higher-order thinking skills considered crucial in Higher Education. This paper presents a reflection on the importance of paradigm shifting concerning the development of learning strategies. Nowadays, the concerns with cognitive goals assume a role in balance with the importance of transversal abilities, e. g. soft skills. This paper adds a practical vision on these concerns, describing some learning activities designed in order to develop students' soft skills. The activities described were carried out on the context of an Information and Communication Technologies course, in a higher education institution. The activities developed were used to help students reaching the cognitive objectives and developing soft skills, so important in today's societies. This paper also presents a reflection on the role of web technologies to improve students' skills. A case study is presented.

1 INTRODUCTION

A deep analysis in the curriculum of Portuguese higher education courses shows that although the official institutions websites present the main course objectives, many times these are insufficient considering what is expect from students (Peres & Pimenta, 2009).

The objectives specification is in many times, defined in teachers' meetings, in which the importance of developing communication amongst students in different ways and the importance of knowledge sharing in a global community are enhanced. Some enhancement is also given to the importance of "Know How to do and How to Behave". The value given to workgroup ability and oral communication are also enhanced. However, these transversal objectives are seldom explained in a clear and complete way in order to help the design of learning activities.

The European Union (EU, 2006) outlines the nine main abilities required by European enterprises, also named as soft skills. These skills are presented in Table 1.

Table 1: European Union Soft Skills list.

Soft Skill (SS)	Description
SS1	Learning to learn
SS2	Information processing and management
SS3	Deduction and analytical skills
SS4	Decision making skills
SS5	Communication skills, language skills
SS6	Teamwork, team based learning and teaching
SS7	Creative thinking and problem solving skills
SS8	Management and leadership, strategic thinking
SS9	Self-management and self-development

1.1 Soft Skills in Information and Communication Technologies Courses

Soft Skills are fundamental issues for professionals, as can be concluded in a survey presented by Fernadez (Fernandez, 2007). Several enterprises' responsables, belonging to technological areas, were inquired about which they consider to be the most important skills an Information and Technologies

(IT) professional should acquire during his academic life, in order to efficiently accomplish his / her professional responsibilities. Amongst the first ten skills referred by the enterprise responsables inquired, seven were soft skills.

These seven soft skills were:

- Goal-directed Management;
- Team Management and Leadership;
- Written Communication;
- Oral Communication;
- Continuous Improvement and Innovation;
- Critical Thinking;
- Conflict Management and emotional intelligence.

A correspondence between these soft skills and the ones presented in Table 1, is done in Table 2.

Table 2: Correspondence between soft skills defined by the EU and expected soft skills for IT professionals.

European Union Soft Skills	Expected Soft Skills for IT professionals
SS2; SS3; SS4; SS8	Goal-directed management
SS4; SS6; SS8	Team management and leadership
SS5	Written communication
SS5	Oral communication
SS1; SS2; SS9	Continuous improvement and innovation
SS3; SS7	Critical thinking
SS4; SS6; SS7	Conflict management and emotional intelligence

The notion of competency extends the conception of objectives. "In school, is not enough to know facts or mastering concepts (knowledge), 'know-how' or 'learn to become' (capabilities), you need to know to solve problems in context" (Barreira & Moreira, 2004). The notion of competency includes three components: knowledge, skills and problem-situations. Skills are developed in the knowledge area of each course, but also in the field of interdisciplinary action (soft skills) (Barreira & Moreira, 2004).

The explanation of the teaching needs should accomplish the objectives set out by Kemp et al. (1998), guiding the teacher in the design of instruction and assessment, and conducting students in the process of learning.

The case study described in this paper refers to a course in Information and Communication Technologies (ICT). The soft skills considered were the ones that were expected for IT professionals, referred above. Using web technologies, several activities were developed in order to increase these soft skills in students and, at the same time, develop technical (hard) skills.

1.2 The Role of Web Technologies on the Soft Development of Skills

Technology has the potential to serve as an environment to explore students' own interpretations, students constructing own meanings, negotiating and/or defending these with peers. Besides that, technology also offers student-centered experiences and it can encourage a constructive discourse and empower independent, critical thinking (Porter, 2000) and 'new literacies' (Howard-Bender & Mulcahy, 2007).

The issue in this paper is about how teachers can organize their teaching plans, incorporating technology, in order to achieve the cognitive objectives and soft skills. A brief curricula analysis in our school reveals that the focus tends to be on themes: there are content based curricula.

Furthermore, although literature does focus on technology to develop competencies, by looking at the programs available, it is clear that the way that teachers choose to integrate or not integrate technology, is entirely up to them, depending on the day, time, class size and so on. There are no specific criteria.

1.3 Contributions and Paper Layout

The main contribution of this paper is that it shows that it is possible to operationalize the academic planning to support the requirements of nowadays professionals by using web technologies. The case study presented reports a successful situation that implements a "blended" approach (b-learning) to develop students' soft skills in parallel with technical skills. The b-learning approach combines online activities with classroom-based activities. This allows taking the best of each solution for the advantage of both the learner and the organization.

The remainder of this article is as follows: in section 2, a presentation of the case study is made. In section 3, learning strategies are presented as a way to develop soft skills. Finally, conclusions and future work are explored.

2 CASE STUDY INTRODUCTION

Different knowledge levels may be established for the same content. Imagine a teacher who states that it is important to make students understand the main contents and also to make them achieve critical thinking skills on the matter. If we only see the

teacher giving information, then learning activities are not aligned with his / her objectives. Students may understand contents but it will be difficult to achieve the ability to develop critical thinking. On the evaluation process, if the teacher asks students to remember and understand contents, he is being honest but if he asks students to have a critical attitude, he is being inconsistent because he did not promote the development of this kind of skills. In this context, there is not a consistency between learning activities and learning objectives.

The b-learning strategy should help students to reach cognitive objectives and considers soft skills development. The b-learning experience described in this section, took into account the elements referred.

2.1 Description of a b-Learning Collaborative Strategy

In this section, we describe a collaborative database construction in order to promote motivation and effective learning. Fifty-six students from four different classes from the first year of a communication degree, in a higher education institution, took part on this online activity. This activity was carried out during the second term of 2007/2008 school year. The course was lectured in a traditional classroom complemented with a distance learning environment, a b-learning situation, using the learning management system MOODLE, which helps the development of collaborative work. All learning objectives (classified according to Bloom's taxonomy) and soft skills were shared by all and every class. As pre-requisites, students who have enrolled in the Information and Communication Technologies course would be able to work with Windows, Word processor and Internet Software. Nevertheless, students did not have any learning experience in a b-learning situation. Course curriculum was defined in order to achieve the learning objectives. In the activities' design process we tried to align all tasks with the learning objectives and the evaluation method. The activity described has efficiently promoted students engagement who became aware of their knowledge, of the studied subjects and could compare it with that of the other students.

For all the four classes, the proposed activity consisted in the development of collaborative databases (one per class), through the implementation of issues that were practical and discursive in nature. In the beginning, four small working groups were formed in each of the classes, by random selection. The overall activity was

Table 3: Activity's tasks.

Task number	Task description
T1	Groups definition
T2	Requirements analysis
T3	Relational Model and normalization
T4	Preparation of the presentation
T5	Public Presentation/discussion of sub-solutions
T6	Group 1 solution
T7	Group 2 solution
T8	Group 3 solution
T9	Group 4 solution
T10	Implementation using MsAccess™
T11	Group 1 solution
T12	Group 2 solution
T13	Group 3 solution
T14	Group 4 solution
T15	Product Tests and Validation
T16	Presentation preparation / User's Guide
T17	Public presentation
T18	Choosing the best database

divided in subtasks, which intended to conduct students during the course. All the considered tasks are presented in Table 3. A wiki was created to support communication amongst group elements, outside the classroom. It also supported communication amongst different groups. In addition, it was used for file sharing whenever it was necessary. All the defined tasks were included in the wiki's first page. This wiki revealed itself as an important tool for communication during the development of the database, particularly when communication amongst different groups was necessary.

Each group was responsible for developing an application module, which was a part of a larger MsAccess™ database to support the organization of an event. This event was different for each of the classes, but the tasks were the same for every class. The critical tasks were T6 to T9 and T11 to T14. During these tasks coordination amongst different groups was necessary since some of the database tables were shared by more than one application module. In order to minimize problems, public presentations of the partial solutions were organized. Each group's public presentation was followed by reflection. The discussions were taken in order to define the critical aspects to consider for modules connection to work effectively.

The final project resulting from each class work was presented in a public section with all the students belonging to the four classes, as well as other elements from the school community.

2.2 Students' Perception

It was important to make a final reflection on what

was learnt and how it was learnt. The activity carried out helped students to develop social and ethical skills. During the activity students tried to work together in a coordinated way in order to obtain a final product with high quality level.

The analysis of students' perception was made at the end of the process and the results should be used in future course editions. The questionnaires analysis carried out on the MOODLE platform shows that students were satisfied with the activity developed. 97% of the students classified it as very good and 3% classified it as good. Group members' coordination was also considered as positive by the students. Nevertheless, some groups referred that there were some conflicts during the development of the activity but that they were able to solve those conflicts and reach a good result.

After public presentation (T 17), students were asked to vote for the best database, corresponding to a class project. This selection was done through the use of MOODLE. Students were able to make their decision supported on what they truly think. Their final decision was aligned with the one of the teachers.

3 LEARNING STRATEGIES AS A WAY TO DEVELOP SOFT SKILLS

The design of an online activity includes the planning of a dynamic online interaction, an essentially socio-constructivist view. The activity described in this paper was seen as a way to develop soft skills. Therefore, each one of the tasks referred in Table 3 were planned to allow students to achieve the soft skills referred in Table 2. In Table 4 soft skills intended to be developed in each of the activity tasks are presented.

Table 4: Soft Skills for each activity task.

Soft Skill	Task number
Goal-directed management	T1 T2, T3, T4,T5, T6, T7, T8, T9, T10, T11, T12, T13, T14, T15, T16, T17, T18
Team management and leadership	T4, T5, T6, T7, T8, T9, T11, T12, T13, T14
Written communication	T16
Oral communication	T5, T17
Continuous improvement and innovation	T5, T15
Critical thinking	T2, T3, T5, T15, T18
Conflict management and emotional intelligence	T5, T6, T7, T8, T9, T11, T12, T13, T14, T17

3.1 How do Tasks Develop Soft Skills

All the tasks were defined through the specification of clear goals, which groups have to achieve in order to conclude them. Therefore, all the tasks were designed to develop "Goal-directed management".

During tasks T4 to T9 and T11 to T14, students must mainly work as a team in order to obtain results. They also have to interact with other groups. In order to accomplish the tasks, students had to develop team management capabilities as well as to define/accept clear leadership.

The need to develop a user's guide in task T16 was aligned with the development of "written communication" skills. The need to develop "oral communication" skills. We consider that these two skills were very important in this particular case, because students are from a communication degree.

"Continuous improvement and innovation" were presented specially in tasks T5 and T1 during which students tested, discussed and tried to present innovative solutions in order to distinguish from others. This was supported by "critical thinking" which is the basis for improvement and innovation. "Critical thinking" was also presented in task T18, when students had to choose the best database.

Tasks that involved interaction and agreements between different groups were the ones that were more suitable to develop "conflict management and emotional intelligence". This is the case of tasks T5 to T9, T11 to T14 and T17.

3.2 Was the Activity Effective?

The evaluation of the effectiveness of the activity in developing the desired soft skills was done informally.

Concerning "Goal-directed management" it can be concluded that this soft skill was developed. This is due to the fact that all the groups concluded the eighteen tasks through the conclusion of the defined tasks' goals, thus being able to manage their work in order to achieve specific goals.

As for "team management and leadership", most of the groups had some problems. Students refer to some conflicts during the development of the activities. This occurred in particular during tasks T6 to T9 and T11 to T15 where an interaction between different groups was needed. At the end, students managed the problems and worked as a team and interacted with the other teams. Some of the students came out as natural leaders.

Written and oral communication were a negative surprise since students from a communication

degree had difficulties in communicating their ideas and some of the students had weak presentations in task T4, and bad user's guides in task T16. Fortunately, they improved their skills and their oral presentation in task T17 was better. In any case students were advised on the importance to develop these skills.

Students were able to develop "conflict management" skills since several conflicts that occurred during the entire activity were solved by them.

As for "emotional intelligence" we feel that there is the need to deepen this aspect in the future.

4 CONCLUSIONS AND FUTURE WORK

If an institution adopts a Learning Management System (LMS) it does not ensure the integration of web technologies in the educational process (Parlamento Europeu, 2002). The adoption of a LMS may be viewed as an opportunity to improve teaching-learning practices and soft skills development. The clear definition of soft skills to be improved, beyond cognitive objectives, gives response to the demands of today's professionals and reflects the modernity of this vision. The alignment of those objectives with learning strategies avoids distractions and guides the path directed to learning success. The activity presented in this article showed that it is possible to define ability objectives together with soft skills intended to be developed. It also enhanced the importance of the alignment with the evaluation process. As a conclusion, we attest that the use of web technology, in particular the b-learning environments, may support all the referred elements.

Each school might experience a variety of outcomes as a result of using b-learning technology. We can increase students' participation in the learning activities. Simply by increasing the diversity of training options and making training more accessible, learners are more likely to take advantage of learning opportunities. Learners have different needs and many like the flexibility that e-learning offers. In the past, learning programs might not have been well integrated or consistent in their quality. The use of b-learning has forced schools to pay greater attention on how they use it. B-learning might require a better planned approach and a careful review of syllabus.

In many cases, introducing b-learning requires

experimentation and constant adjustments to determine what works best in the process of promoting the cognitive objectives and soft skills acquisitions.

It is straightforward to evaluate cognitive objectives. Nevertheless, it is not straightforward to evaluate soft skills achievement level. Some of them can be observed, as is the case of "Oral Communication", which can be evaluated by students' performance during public presentations, for instance. The evaluation of the effectiveness of the activity in developing the desired soft skills was done informally. Future work includes the study of models that allows the evaluation of the soft skills achievement level.

REFERENCES

- Barreira, A. & Moreira, M. (2004). *Pedagogia das Competencias. da teoria a pratica*. Edicoes Asa.
- Dougiamas, M. (2001). Moodle - *A free, Open source Course Management System for Online Learning*. <http://moodle.org/> Retrieved October 2009.
- Fernández, Fernando (2007). *Competências a reforçar na formação dos profissionais de TI em Portugal*. ANETIE, Lisboa, Portugal.
- Kemp, J., Morrison, G. & Ross, S. (1998). *Designing Effective Instruction*. Prentice Hall.
- Parlamento Europeu (2002). *Decisao do parlamento europeu e do conselho que adopta um programa plurianual (2004-2006) . Decisão do parlamento europeu e do conselho que adopta um programa plurianual para a integração efectiva das tecnologias da informação e comunicação nos sistemas europeus de educação e formação (Programa eLearning)*,
- Peres, P. & Pimenta, P. (2009). *A Framework to Help the Integration of Web Technologies in The Higher Education*. PhD Thesis.
- Porter, S. (2000). *Technology in teaching literature and culture: some reflections*. *Computers in the Humanities*, 34, 4, 311-324
- Howard-Bender, K. and Mulcahy, C. M. (2007). *Literature Cyberlessons: Avenues for New Literacies, Critical Literacy, and Student Engagement While Reading*. *The New England Reading Association Journal*, 43, 1, 23-29.