Erasmus+

Enhancing Motivation and performance of Professional Training students based on Immersive methods in International Environments

Enhancing Motivation and Performance of Professional Training students based on immersive methods in International Environments.

Table of contents

1 Introduction

Herein, we present the "Enhancing Motivation and Performance of Professional Training Students Based on Immersive Methods in International Environments" project, focusing on the context of professional training students, with the main objective of improving their learning process, minimising dropout rates and improving their applicability to the labour market. To do so, learning methods are re-conceptualised through the use of scenarios or project-based methodologies and cooperation in international environments is facilitated.

The project was developed by a consortium made up of nine partners: a university research group (La Salle Campus Barcelona – Universidad Ramon Llull) as the coordinating partner, three main partners: FIDAE and ISP for Italy, and ASSEDIL for France, as well as five associate partners which are the professional training schools in which the training will be introduced (two in Spain, two in Italy and one in France).

The objectives of the project are set in the community strategic priorities 2014/20 in the context of the development of basic, transversal activities; the development of adapted systems of assessment, intensification and increased use of Information and Communication Technologies (ITC); the promotion of a greater coherence between the various assessment systems and the transfer of learning strategies and methods between different countries of the European Union.

These objectives can be summarised in the form of:

- Extending practical learning methodologies that are motivating, effective and international to professional training students in Spain, France and Italy
- Increasing the level of success of students through highly motivating, binding experiences
- Having education programmes available based on immersive worlds, projects and roles
- Encouraging international cooperation and collaborative work through heterogeneous workgroups with partners from different societies and states
- Discerning to what degree different innovations can be applied simultaneously in a group of students (role, online, international, etc.)
- Verifying whether these new methodologies meet the objectives set in comparison with the traditional methods of professional training centres.

To achieve these objectives, the project was organised into five blocks: Preparation and revision of activities agreed; Generation of training contents; Training of teaching staff and introduction of the courses; Follow-up through collecting data regarding performance and employability, and Analysis of results and their dissemination. These blocks were organised using a dual phase spiral methodology: first, carrying out an introduction by comparing the traditional method with the scenario or project-based method, and then a second version in which all the centres use the scenarios or project-based methodology, analysing the centres that use it locally with the centres that do so in an international environment.

The following parts describe the project, its innovative aspects, the participants, the results and impact, its organisation and activities developed, to finish off with the dissemination of the results and sustainability.

1.1 Description of the project

The project develops strategies to achieve —in professional training students as a whole— a more effective, longer-lasting learning applicable to the labour market and connected to current society, as well as to try to decrease dropout rates as much as possible. This is done based on the reconceptualisation of the learning methods through the use of immersive worlds and role and project-based learning.

To do this, initially the contents of the courses to be introduced as well as the training of the teaching staff was developed. One fundamental aspect is the training of the teaching staff in all aspects related to the methodology to be used, as it can be stated that a very important part of the success lies in this. Once the contents are available and the teaching staff have been trained, an initial test is carried out in which some schools introduce the Digital Marketing course through the use of a conventional methodology, while other schools use scenario or project-based methodology. In this way, a comparative study of the results of both methodologies can be made.

Based on the results obtained and the trained teaching staff, a second course is given based on an E-commerce project with centres that offer the training locally and other centres through international collaboration. This means that the internationalisation can be analysed. In parallel to all this process, the impact of these methodologies on the job placement of the participating students is also analysed.

The impact of the project enables the learning processes to be strengthened, obtaining the following results:

- Reducing school absenteeism and increasing the students' motivation and commitment
- Increasing students' level of satisfaction
- Creating the need to learn, in their roles within the proposed immersive worlds
- Promoting competence in carrying out the tasks in a ubiquitous way thanks to the use of diverse systems based on information and communication technologies.
- Promoting the knowledge of their own languages, and the determination and use of a lingua franca for international work
- Training students and soon to be workers fully prepared to hold a qualified job position.

The learning methods used in the project facilitate the development of skills for cooperation in international environments thanks to the use of tools and systems that use information and communication technologies, in which the importance of this approach is particularly relevant

for professional training students, in view of their forthcoming integration into the labour market.

The main objectives of the project are:

- To extend practical learning methodologies that are motivating, effective and international to professional training students in Spain, France and Italy
- To increase the level of success of students through highly motivating, binding experiences
- To have education programmes available based on immersive worlds, projects and roles
- To encourage international cooperation and collaborative work through heterogeneous workgroups with partners from different societies and states
- To discern to what degree different innovations can be applied simultaneously in a group of students (role, online, international, etc.)
- To verify whether these new methodologies meet the objectives set in comparison with the traditional methods of professional training centres.
- To obtain greater information about the profile evolution of the student, both at an academic level (skills), as well as the level of employability and their relationship with the proposed methodology.

The main beneficiaries of the project are the participating schools, however, through the organisation of informative seminars, the aim is to extend its dissemination to many more education centres in the professional training area.

1.2 Innovative aspects

Currently, professional training is considered an area undergoing increasing expansion in view of its ability to prepare students for their working life, which in most cases is imminent. This training is reinforced by social demands for professionals with highly specific abilities and skills, able to resolve all kinds of problems, particularly from a technological, collaborative and innovative point of view.

In addition, it should be pointed out that, throughout the European Union, early school dropout rates have been registered at 11.9% and, although this level has dropped in recent years (2013 report of the Eurostat statistical office, 11-04-2014), it is still far from being the 10% set as the objective for 2020. This situation is more critical in countries such as Spain with 23.5%, followed by Malta, Portugal, Romania and Italy (17%) and even far from the average zone, which places France at 9.7%. In view of the context, actions have already been started to study, evaluate and introduce solutions.

To deal with the structural deficiencies of professional training studies and to improve the early school dropout rates, a novelty approach is presented with the following terms:
- Design and introduction of scenario or project-based methodologies not previously used in professional training studies

- Development of project or scenario-based proposals through collaborative work at an international level, looking into greater depth at the use of diverse information and communication technologies
- Initial evaluation of the risk of early dropout rates and follow-up on students, in the teaching period of professional training based on the use of the proposed methodologies
- Previous evaluation of the existing user profiles and generation of homogenous pilot groups for the introduction of innovative education systems (SCO-Search Engine Optimization) both from a traditional as well as an immersive point of view
- Generation of a second phase of project and scenario-based proposals focusing on e-commerce and developed by means of transnational collaborative practices. This method intrinsically helps them to improve their skills: both the basic ones as well as the transversal ones, in addition to the most specific ones related to the use of digital systems and their capacity for work integration, all from a pedagogical perspective focused on the student and the use of innovative systems
- Creation of work context that can be extrapolated to other countries and/or environments that, in an innovative way, integrate diverse evaluation and work strategies. The assessment of the risk of early school dropout rates, the adoption of innovative scenario or project-based educational solutions and collaborative transnational work promote a stronger coherence of the education systems of the various countries of the European Community and facilitate better recognition of the skills acquired.

The proposal promotes, in terms of content as well as methods and tools, an innovative transfer method in keeping with the sectorial guidelines that must facilitate the creation of a network between schools and associations and institutions that participate in the definition and application of education policies, locally, nationally and at a European level, with the aim of integrating contents, methods and results for their later education transfer to other centres, education systems and partners as well as countries of the project; in addition to introducing and adopting useful techniques in education for professional training while breaking national barriers through the collaboration of the workgroups.

1.3 Participants

The Consortium is made up of nine partners: La Salle Campus Barcelona - Universitat Ramon Llull (FUNITEC, Spain), as the coordinating partner and three other main partners: FIDAE and ISP for Italia, and ASSEDIL for France, as well as five associate partners which are the professional training schools in which the training will be introduced (two in Spain, two in Italy and one in France).

The selection of the main partners was made in keeping with the needs identified: university research group, a corporate training company and three school networks. In conversations held with these partners, it was decided that FUNITEC would direct the project, with each main partner responsible for selecting, independently, the professional training schools in their

territory with which to carry out the study. The final selection of the five schools was made based on criteria of geographical proximity to the main partners and the joint projects previously carried out.

The main contributions of the partners in view of their previous curriculum was focused on:

- FUNITEC: General coordination of the project and creation of the contents of the scheduled courses: Digital marketing and E-commerce. This includes the preparation of the training manuals and face-to-face training of the teaching staff. Coordination of the dissemination tasks. Coordination of the phase of statistical analysis of the results of learning and employability, among other indicators, obtained in the experiments developed and the organisation of two multiplier events for the coordination and dissemination of the results of the project.
- FIDAE: Preparation of the material to assess/evaluate the students' learning, both with respect to their preliminary profile as well as the later translation of the contents into Italian and coordination of the Italian schools. Organisation of a multiplier dissemination event.
- ISP: Creation of the contents of the Digital Marketing course for traditional introduction. Management of the web portal for the project and the online learning assessment tools.
- ASSEDIL: Coordination of the French school and of the translations into French of the material generated.

The associated professional training schools benefit from the transfer described and participate in the various actions of the project as case studies and evaluation, as well as in the dissemination and multiply event activities. They are also responsible for compiling data related to the indicators analysed (skills, employability, etc.).

- Colegio La Salle Palma (Palma de Mallorca, Spain). La Salle de Palma School is a private school subsidised by the Autonomous Community of the Balearic Islands for all its education levels (preschool, primary, compulsory secondary and sixth form education, as well as training cycles). It is made up of 69 units distributed in the following way: 12 in preschool, 25 in primary, 20 in secondary, eight in sixth form and four in training cycles. The teacher-student ratio is 25 in preschool and primary, 30 in secondary school, 36 in sixth form and 36 in training cycles.
- Salesians de Sarria (Spain). Salesianos de Sarria is a professional training centre with more than 125 years of experience in technical and professional training. With more than 1,800 students and 125 teachers, it offers courses in the areas of Mechanics, Electronics, Carpentry, Self-propulsion, Graphic Arts, Computer Studies and Administration
- Groupe Scolaire Saint Joseph – La Salle (France). The school's mission is to offer young people an education which allows them to express their talents and abilities, and to become responsible for themselves and others

- Suore Salesiane dei Sacri Cuori (Italy). The Suore Salesiane dei Sacri Cuori Barletta Secondary School is a Christian inspired school which is dedicated to educating young people and to the integral training of persons
- Istituto Cavanis (Italy). The Cavanis Canova Institute takes care of primary, middle and secondary education and professional training with the Escuela Industrial's Technical Sales Engineer.

1.4 Results and impact

Overall, the project strengthens pedagogical capacities in the professional training area in an innovative way, dealing with systematic changes in the context of education and training: loss of interest/young people dropping out of formal school education, multicultural/intercultural societies or the digital gap/professional access to communication technologies. It also promotes the teaching of social abilities based on the recommendations of the European Community on key skills, as well as promoting the guidance of students towards professional education and work integration.

Specifically, applying the project or scenario-based methodology (already successfully applied in the university area) to professional training students involves bringing a new kind of benefit (skills) to this education level:

1. Reduction of school absenteeism and increasing students' motivation and commitment to their workgroup and class
2. Increasing students' level of satisfaction while doing their courses
3. Creating the need to learn, in their roles within the proposed immersive worlds
4. Promoting competence in carrying out the tasks in a ubiquitous way thanks to the use of diverse systems based on information and communication technologies. Knowing how to work online. Having the skill to use this ubiquity to cooperate internationally
5. Promoting the knowledge of their own languages, and the determination and use of a lingua franca for international work
6. Training students and soon to be workers to be fully prepared to hold a qualified job position.

During the project, a large number of innovations were introduced into the students' curriculum: online training, training in an immersive world, role-based learning, project-based learning, international classmates, etc. To assess these new methods and their productivity, experimental and quasi-experimental designs were set up that are necessary to get to know if it is suitable to offer all the innovation simultaneously, or whether the results are better when they are added gradually.

As an added value to the initial development proposal, we would highlight two essential objectives:

- To provide continuous support to the staff of the school, the student and the families in all the stages of the intervention. The correct application of the education processes is controlled as well as their follow-up and the assessment of the activities, including the processing and interpretation of the results that show the possible risks of school failure identified.
- To promote the development of networks at various levels, local, national and transnational, stimulating the exchange of experiences and collaborative learning to operate more efficiently in the prevention of early dropout from school and the promotion of schools, teachers, students, families, etc.

The entire process, guided by the responsible scientists assigned by the main partners, has been published at international conferences in the education area. In addition, the perspective geographical and transferred dissemination is much broader and more ambitious, as can be seen by the presence in the association of FIDAE, ASSEDIL y FUNITEC as a member of the Ramon Llull University and the professional training schools of the various countries.

Another fundamental aspect of the impact on the target groups is that the material remains available and can be freely accessed through the project portal and associated sites.

1.5   Activities and organisation

The execution activities of the project were divided into five general phases which were not necessarily sequential. An initial preparation one; one for generating contents and training teaching staff; one for introduction divided into two stages; one for follow-up, and the final one for the analysis of results and their dissemination.

1. Preparation. The preparation part started with an initial meeting of the coordinating partners of the project to plan, establish and distribute the tasks.
2. Generation of contents. In this phase, all the content related to the execution of the project was prepared. This is to say:
   - Teaching material for the SEO (Search Engine Optmization) course, MOBCOM through scenario or project-based methodology. (FUN)
   - Teaching material for the SEO course through traditional methodology (ISP)
   - Training guide on the scenario or project-based teaching methodology for teachers. (FUN)
   - Data collection model for preparing indicators: academic and employability. (FIDAE)
3. Introduction
   In this phase, initially the teachers who were later going to give the courses were trained. One course in each country. (FUN). Two schools intervened in each country. In an initial sub-phase, the SEO course was given using traditional methodology in one school and in the other, with scenario or project-based methodology. Each partner will coordinate the follow-up on the schools in their country.
   Before starting the courses, an initial evaluation of the students was made and on finishing it, an evaluation of the skills acquired. They were done by the schools.

In the second sub-phase, all the schools of all the countries participating in the MOBCOM course are taught using the scenario or project-based methodology and adding internationalisation of students participating in the training. The coordinating partners will carry out the corresponding coordinated follow-up during the introduction of the training. The learning evaluation methodology will be carried out in the same way as in the first sub-phase.

4. Follow-up

In this phase, and depending on the model of data designed, the information of the student profile will be collected and the degree of work integration will be analysed, along with its relationship to the methodology proposed in the project and the evolution of the profile. This information will be verified with the work integration indicators of the students of previous courses who did not have these learning methods applied.

5. Analysis of results and dissemination

At the end of each of the courses, each coordinating member will carry out an analysis of the results obtained in the centres in their country and will present their conclusions in a report. FUNITEC will prepare an overall analysis with all the results. These results will be pooled in the two workshops that will be carried out at the end of each of the sub-phases. Based on the results obtained, they will be updated in the work environment (ISP) as well as being published at congresses and in journals of recognised prestige in the education area.

FUN. Funitec
ASSEDIL. Association Europée des Directeurs d'Institutions Lasallien
ISP. Intesa Sanpaolo formazione
FIDAE. Federazione Istituti di attività educative

During the project, four transnational coordination meetings were held.

- Initial meeting in Barcelona. Explanation and discussion of possible doubts of scheduling and introduction of phase 1 based on the protocols of action
- Intermediate meeting 1 in Italy. On the closure of the first phase, as a form of conclusion and an approach to the introduction of phase 2 (to be carried out jointly with the first multiplier event 1)
- Intermediate meeting 2 in France. To be carried out jointly with the multiplier event 2. At this meeting, the results of phase 2 are discussed and the dissemination documents are established, both at a scientific level as well as informative for the network of schools. The monitoring strategy of the students is established to evaluate the level of employability once they have finished their academic period
- Final meeting in Barcelona. The analysed results of the evolution of the student's profile are submitted, as well as the level of work integration for the period studied.

1.6 Dissemination of the results and sustainability

One of the basic objectives of the project is to introduce a new teaching method that improves the skills and abilities of professional training students through the internationalisation, collaboration and use of new technologies for better adaptation to the current work context. The academic, motivation and satisfaction results of the students are indexes with a high value to obtain new highly capacitated professionals, even more so if possible among professional training students given the current economic precariousness of the career opportunities in this field. Therefore, the results will be disseminated by (and in order of priority):

- Partners of the proposal and associated staff (the rest of the teaching staff at the centres, those responsible for communication, family members, work exchanges and companies with the greatest relationship/work prospects in the selected centres)
- Professional training schools of the networks to which both the selected schools and the main partners belong
- Other schools (secondary, sixth form, professional training) to which the partners belong (schools or main partners)
- Scientific international channels of support to research: multiplier elements (workshops), conferences and journals.

The dissemination and exploitation strategy are organised at various levels:

- The target for the results of the project is any type of education area in which there are risks of exclusion, dropout and/or problems of labour integration. The direct targets are the five schools involved in the project and the students of the two equivalent professional training courses. Indirectly, other beneficiaries are the teachers, school and training staff, the parents and the companies taking in the students.
  In addition, the schools that will benefit from the transfer will become, through trained staff, points of reference for the dissemination and exploitation of the education processes and of the products of the project to other local, public and private professional training institutions.
- At a national and European Union level, the main partners are the principal stakeholders in the dissemination of the methodology of the project and its results
- At a scientific level and with a worldwide scope, the publication of this book has been made using a Creative Commons license (design, methodology and main results)
- Dissemination via the web portal. ISP was responsible for generating the web portal, teaching platform and online dissemination of the results. Finally, and like the rest of the partners belonging to the network of schools, current supports for promoting and advertising the network, for disseminating the project, the methods and the results obtained are used.

The results, products and materials of the project are the common patrimony of organisations that promote the transfer of innovation. The promoter of the proposed project network is not a network improvised to participate in this call.

The approach of the project is to foster the creation of a general plan to strengthen and consolidate the education and training system of national and European actions through a set of structured, convergent partners. The place that gives the project continuity is the portal and the work platform, the function and content of which will be made available to the partners and other national and European institutions who so request.

2 Project Based Learning Methodology. Mentoring Guide

2.1 Introduction

In this guide we present the characteristics of a Scenario-Centered Curriculum-Based program (SCC), how the course works, the actors that are involved, the typical schedule and structure and how the program has to be implemented.

A SCC program is not a traditional program in several ways. We can summarize the main characteristics of a SCC program based on seven rules as shown below.

1. **Based on Scenarios.** It consists of a set of scenarios about clients needing business-related help, or businesses needing specific leadership activities conducted from within. Students enroll in the scenarios

2. **One scenario at a time**. Students only work on one scenario at a time, and if they plan to receive the full program, they enroll in the scenarios. Students play a central role in these scenarios, as consultants, advisors, entrepreneurs, and they always have a job to do and deliverables to produce

3. **No fixed order.** As not mandatory to the program schedule, the students will enroll in the scenarios without a predefined order

4. **Practical nature.** An important difference between a SCC program and other programs is its practical nature. It is aimed to create a program that would be helpful to students who plan to use the skills they learn immediately, by taking part in their family-owned businesses, effectively working in entry-level positions in larger organizations, or starting their own businesses. It is not the aim to teach theoretical business principles intended for academics, but rather the intention was to help students practice the skills real people use on a day-to-day basis in today's world of business

5. **Online materials and group working.** Most of the student and professor materials are available online, which enables to have fully in-person cohorts of students and professors, fully remote cohorts, and combinations of the two. Students work primarily in teams, and may communicate with each other and with their professors using available virtual collaboration technologies

6. **Mentoring.** Whereas typical programs have professors or instructors who teach in a traditional manner (through lectures and generally didactic forms of instruction), the professors of a SCC program are more like mentors who work with and guide apprentices, than instructors teaching a class. What is the difference? A teacher, in the traditional sense, tells students what he or she believes they need to know and sometimes requests that they recite back the lessons in one form or another to check their "learning." A mentor, and an SCC professor, allows the apprentices to try the work one-step at a time, observes and critiques their progress, answers questions they have, models the skills for them as needed, and essentially holds the hand of the apprentices as they work to teach themselves the skills as much as possible.

7. **Just-in-time teaching.** An important difference between SCC and traditional courses is that in traditional courses, instruction on new content and skills is provided (through

lectures, books, and other resources) *prior to* asking students to use them in a meaningful context (or use them at all). This may seem logical, because how can someone use something they have not yet learned to use? The problem is that without an understanding of when and why content and skills are relevant and needed, and without the motivation to learn the information so they can use it right away to solve a problem they already have in their minds, students cannot effectively make sense of what they are learning. Therefore, in SCC, students are given their assignments within the meaningful context of the scenario in which they are playing a role, and in order to do the assignment, they realize they need to learn the content and skills that will enable them to do the work. In other words, they are asked to use the new knowledge before they have learned it, and they learn it *just in time* to use it.

Students in a SCC course access the main course website for their assignments. Each course contains a set of *tasks (*assignments) that students work through in consecutive order. The website for each course includes introductory materials about the course, how it works, and introduces the scenarios and the students' roles within the scenarios. The students have three basic resources: Task email, Help, and Skill Lists and Checklists.

1. **Task email.** To begin their work, students click on a task name, which opens a fictional email from the students' fictional boss. The email reveals important elements of the scenario of the course or task (some courses may have multiple scenarios), and instructs students on what they are expected to do and produce to complete the task assignment.

2. **Help.** Students have two types of help available to them on the course website. There is a *Step-by-Step Guide,* which helps students break down their task into manageable parts, and instructs them on strategies for getting the work done, and there are *Resources*, including, e.g., suggested book chapters, website links, expert video clips, and performance support documents, which students use to learn what they need, when they need it. Typically, SCC courses do not *require* students to complete any specific readings, though many are strongly suggested. Instead, professors' primary concern should be students' performance on their task deliverables and their participation in meetings and with their teammates. Learning in SCC is in service of performance; the requirements relate to the performance.

3. **Skill Lists and Checklists.** In addition to the help resources, students are able to check their own learning and work products using a *Skills List* and *Checklist* prior to submitting their deliverables to their professors. Outside of the course materials, students will rely on their peers and professors to help them make sense of the new content and skills, and professors' feedback on students' work products will provide more opportunities for learning and refinement of their work.

2.2   Professor Roles and Responsibilities

Professors in SCC need to play a variety of types of roles throughout each course. Sometimes the roles are not very clearly distinguished in a single session with students; the professor might think of them more as putting on different "hats," and letting students know explicitly which hat they have on when they can. In some programs, especially those that are large, different people

may divide these roles in ways that work for the types of expertise the various professors bring to the program. This guide will assume that one person is going to play all of the professor roles, but program administrators may choose to divide the roles if they choose.

The key professor roles are: Faculty, Coach and Role Player.

Faculty

The professor should take on this role when in a more formal, "instructional" or facilitation-type of situation, but be careful not to jump to a traditional model of didactic instruction. This is the role of the lead facilitator and subject-matter expert for the course. Professors should adopt this role when:

- Kicking-off or wrapping-up a task
- Leading a weekly cohort meeting
- Working with students rigorously on clarifying concepts and using skills
- Giving feedback on students' task deliverables
- Grading

Students will see you as their course faculty when you act as the subject matter expert on content and skills relevant to the course performance objectives, outline your expectations as they relate to students' grades, and facilitate cohort meetings in which you set the direction for the whole group to follow.

Coach

The coach is the role that most closely aligns with the "mentor to the apprentice" model. The coach holds the hands of the individual students and student teams to help them along in a more intimate way than in the cohort meetings. The coach should:

- Ensure everyone is managing well in the program
- Help teams strategize on how to learn in the program, what to learn, and checks progress on learning
- Help configure teams that will work well together
- Help teams identify and troubleshoot issues in working together
- Provide feedback and guidance on early drafts of deliverables
- Assess how well individual students are grasping required concepts and skills and help them improve upon their abilities by working with them, challenging them, teaching them, and observing and directing their thinking process
- Determine what each team member is contributing to the whole of the team, in part to form effective teams in the future and in part to assign final course grades
- Facilitate peer-evaluations at the end of each course to help students give and receive constructive feedback to each other, and to serve as input for the mentor in determining course grades for each student.

Role Player

Often a course will require that students interact at some level with characters in the scenario story, either to get feedback on a presentation or deliverable, or to get scenario-related data from a relevant character's perspective. When this is needed, the professor may play this role (e.g., the fictional client, boss, etc.). However, it is better when a professor from another cohort or other subject-matter expert plays the role, so students do not have as much trouble imagining that the role player is actually the character, as opposed to the professor who works with the students on a regular basis. Constraints sometimes do not allow for a separate role player, though.

If you must serve in both the coach and role player roles, be sure to remain in-role for the duration of the relevant interaction with the students, until the students have completed their work with you as the character. Give them relevant feedback in role, and then, when they are done, or if there is a natural stopping point, you may break out of character, and tell them you are doing so, to give feedback from your perspective as a mentor, rather than from the character's point of view.

2.3   Teaching in a Scenario-Centered Curriculum

The SCC is founded on a "Constructivist" model of how people learn, and on the "Dynamic Memory" model of how human memory develops. These theories suggest that people naturally learn by constructing new knowledge, building on what they individually already know and believe from their own prior experiences, as they confront new experiences that challenge their prior understanding.

The implication for instruction is that learning environments must place learners in experiences that will challenge their prior conceptions and allow them to compare what they are experiencing with what they previously believed. Noticing the differences leads to curiosity, which leads to learning. Even if the learning context is new, learners are likely to have some intuitions about it, and need to have the chance to act on their intuitions, or to realize they do not know what to do in the situation before they are ready to learn anything formally about it.

Once learners are immersed in the new experience and they attempt to maneuver within it, they begin to develop questions that result from a realization that there is something they need to learn before they can act, or because something surprising happens as a result of their actions. The learners will seek explanations to makes sense of that which surprised them, or they will seek instruction about the context and skills they may need to use in the context, so they can more knowledgeably develop a plan for their next actions.

SCC place students into a realistic context and asks them to do meaningful tasks within that context prior to receiving any instruction. They have the opportunity to bring their intuitions to bear on the problem and to either act on them or ask questions prior to moving forward. This allows learning to happen *just-in-time*, right at the moment the learners are curious to address issues that are challenging their intuitions (or lack of intuitions).

The teacher Job

To be an effective professor in this environment, you need to allow your students to work from their own intuitions and to use their best thinking to move forward so they can see where their intuitions fall short, or where they require modification. You cannot simply *tell* them what they need to know; you need to let them *ask questions*, and *explain* ideas to you. If they cannot figure out what to ask, help them by asking them challenging questions about, for example, when, how, and why to apply what they are learning, or about comparing different methods of solving a problem. Get the students *explaining*, *convincing*, and *questioning*. The more they talk (and the less you talk), the more they will learn. Allow them to teach each other. You listen, and guide as needed only. Sometimes the only guidance the group will need is for you to rephrase what they have said in clearer terms and to ask them if they are right in their thinking.

Cognitive Apprenticeship

There are two primary methods of instruction in a Scenario-Centered Curriculum. One borrows from "Cognitive Apprenticeship," in which the mentor:

- Demonstrates (models) how to do the work (by doing it on an analogous problem, or telling stories that make meaningful points that are analogous to the given situation)
- Offers ample support to students as they do the work initially, and gradually reduces support as the students increasingly master the concepts and skills
- Guides students in reflecting on what they learned to help them generalize the lessons so they understand better what they learned and how what they learned applies outside the learning situation (Radley & Bareiss, 2009).

Socratic Questioning

The other borrows from the Socratic Method of instruction, but not overly literally. Here it really means to teach by questioning. Ask students to explain ideas to you. Ask them to critique each others' work products in front of you. Ask them a question to answer their questions, so they think more deeply to arrive at their own conclusions.

Story-Telling

A third strategy that can be highly effective in teaching is good story-telling. Stories may not be a primary means of instruction, but certainly should be an important part of your overall arsenal of teaching strategies. Stories can serve as a supplement to experience, because when we hear them, they are almost like having an experience ourselves. They can evoke an emotional response, we can often relate to them on a personal level, and they may be memorable.

Good stories for learning have interesting details that are memorable, and have a clear point that is relevant to the lesson the teller wants to teach. Often the point of the story relates to a surprise—something the listener would not have expected to happen in the story, or something a character in the story would not have expected to happen. Making sense of the surprise

provides the lesson from the story. Mentors should tell their own personal stories when they can, but sometimes others' stories can be effective as well.

Ultimately, the most important thing you need to do in your job is to help students get curious. You want them asking questions and you want them actively seeking answers to questions. If you are lecturing, you are probably telling students more than they care to know at a given moment, and you are going beyond answering their questions. You also cannot know if they are listening or understanding. Short answers will sometimes be efficient, necessary ways of handling direct student questions, but try to rely more on modeling, questioning, and facilitating discussions in which students teach each other and problem-solve as a group.

2.4   Schedule and Structure

In a SCC program, there is a recommended structure for regular meetings with students. The structure is designed to provide students with a sufficient level of support and assistance. However, professors should adjust the recommended structure to suit the needs of the course and the student cohort.

To begin, you need to have a **program orientation session**, which may include a Course Kick-Off Meeting. The orientation will not be addressed in this document. In addition to the program orientation, all courses must begin with a **Course Kick-Off Meeting**, to introduce the new course, present the schedule for the course, introduce the first task, and generally get students off to a good start. Instructions on the Course Kick-Off are included after this basic meeting structure overview.

After the **Course Kick-Off**, you should have two types of meetings with students each week.

- **Full cohort meeting** of all of the students in a single cohort (probably not more than 25 students). This meeting might be to **kick-off** a new task and **wrap-up** a prior one, or it might take place in the middle of a longer task, in which case it will be a **coaching session** for the group to focus on key problem areas.
- **Team meeting**. Twice a week, ideally at the same time each week, you should meet with each team about their specific issues with regard to the new content and skills; the task deliverables they are working to produce; and their project management and teaming issues. Details on running each of these meetings are presented in next sections.

Course Kick-Off Meeting

Professors should handle the first meeting (1,5 hours) for each course differently than a standard Task Kick-off Meeting. You will need to consider whether the cohort of students you have has done tasks in the curriculum before, and are seasoned at working with the student website, working in teams, working remotely (if relevant), and working in this non-traditional format. Some cohorts in a class may not be enrolled in the full program, and may only be taking one class. In such cases, you will need to walk students through the full process of being a

student in this program, including a review of the website structure, expectations mentors have of students, etc.

If, however, students are enrolled in the program and this is not their first time through a course in it, you can focus your effort on the essentials for the group. These include introducing the topic of the course; leading a discussion about when the relevant content and skills are useful in the world; reviewing the course schedule of tasks; and then treat the session like a standard Task Kick-Off Meeting.

Step-by-Step instructions for kicking off a course follow.

- Welcome the students and conduct brief introductions of all students. Ask them to say specific things about themselves so everyone gets a sense of who is in the cohort.
- Introduce the course topic. Ask students what they know about the topic, what skills they believe they will need to learn in the course, how they believe it fits into the context of the whole program, etc.
- If students are new to the program or it is the first task, walk through how the course works.
- Show students the schedule for the course and cycle of tasks/group meetings/deliverables.

Full Cohort Meeting (Task Kick-Off or Wrap-Up Meetings)

Except for the first and last tasks of each course, all Task Kick-Off Meetings should begin with a Wrap-Up of the task students have just completed. For the first task in a course, the meeting will only consist of the Task Kick-Off, and for the last task, the meeting will only consist of the Task Wrap-Up portion of the meeting. The first and last meetings should be slightly different from the rest of the Kick-Off and Wrap-Up meetings, and separate instructions will be provided for those meetings.

Task Kick-Off

You should begin each task with a **Task Kick-Off** Meeting (30 minutes). This is a full cohort meeting in which you:

- Introduce the task students are meant to begin
- Help provide context for the group on how the content and skills they will learn in the task are used in real world
- Ensure the group is clear about what they are expected to do and produce in the task
- Discuss strategies students can use to organize their work
- Do some group work modeling and practicing some of the tougher skills together, to get students started before they go off to learn more on their own.

As pre-work, students should come to the meeting having read the following materials related to the new task.

Some tips that you should keep in mind:

- Review the email to kick-off the discussion. Using Socratic questioning, ensure students have a clear idea of exactly why this task is relevant to the scenario and to real world work.
- Review in detail what students need to produce for this task (deliverables).
- Review the key Resources available for this task.
- Remind the students of the schedule of events and meetings that are relevant to this task.
- Ask students to brainstorm aloud strategies for learning and for project management.
- Once you have experience seeing students work through the task, for future cohorts, give teams tips about how to be successful.
- Make recommendations about how teams should divide roles and responsibilities.
- Ask students what additional questions they have before beginning the task.
- Divide students into their teams.

Task Wrap-Up

Most Kick-Off Meetings will begin with a **Wrap-Up** Meeting (30 minutes) for the prior task, except for the first meeting (as the students won't have a prior task to wrap-up). The *Wrap-Up Meeting* is to debrief the experience of working through each task. Students will need and want to reflect on what they learned, to extract the key content and skills from the context of the scenario they worked within, to better see how what they learned is relevant to a range of problem contexts.

Below are instructions for leading a **standard** Wrap-Up and Kick-Off Meeting. You should use this as a framework for all of these types of meetings, but when you prepare for the meetings, you should also consult the task-specific mentor guide sections for issues you should address that are specific to each task.

As pre-work, students should review and take written notes to answer the **reflection questions** provided on the task website in preparation for the wrap-up discussion.

1. Lead the cohort in a discussion of the reflection questions, and ask about the following topics, if not explicitly included in the course reflection questions:
    a. How the task went for the students

b. What students learned and/or experienced that they believe to be most important for their future real-world work

c. What students found to be the most surprising or challenging during the task

d. What individuals feel they need to work on more

e. "What if" scenarios prepared by the mentor related to content and skills practiced in this task. (See note below for more on this.)

f. The learning process, e.g., How is everyone doing at getting through the readings? Are people helping each other learn? What strategies have people used to learn what is needed?

g. General team and interpersonal relations/project management

2. Remind students they will need to complete their peer evaluations (found on the last Reflection page on the course website) to complete the course. Use this feedback to facilitate team-by-team discussions (outside of this meeting) about the teaming process.

When students have completed discussing the reflection questions and you feel they have a good sense of what they learned and what it all means, transition the meeting to kicking-off the next task.

Weekly Cohort Meetings or Sessions

There will be one cohort meeting each week (90 minutes). *If there has been a Task Kick-Off meeting, there is no need for an additional cohort meeting in a given week*. If the cohort is large and the meeting includes primarily remote participants, professors may wish to divide the cohort into two groups, and meet once with each group, to make the meeting more effective and manageable. This meeting should take place at the same time each week; you should determine when to hold this meeting depending on the needs of the cohort of students (or partial cohort if divided).

This meeting is intended to be a workshop in which students come to the meeting in the middle of their task work, and should have some work to show and questions to ask about their work, the readings, specific skills or concepts about which they are struggling, etc. You, the mentor, must also come equipped with questions to ask the students relating to readings, concepts and skills students are working on, etc. It is likely your questions will serve as the primary focus of the meeting, so aim to incite good discussion. Do not come prepared to give a lecture. Again, your goal is to get the students talking. The more they talk, the more likely they are actually learning. Your role is to launch discussions, model expert problem-solving when students are struggling, ask challenging questions, and to get the students to reveal how they understand the content and skills of the task, so you can help adjust their misconceptions, or better, to get their peers to adjust their misconceptions.

An important consideration for this meeting is that it is a common trap for students to get mired in the details of the scenario task, and to forget they are really supposed to focus on learning the content and skills they happen to apply in the context of the scenario. Therefore, make sure

you focus the session on the content and skills over the specific details of the scenario and the deliverable, although you should also be sure to address questions and problems related to the specific task and deliverable(s).

This meeting should take place at the same time/day each week, as determined by the professor.

Student Pre-Work: Students should come to these meetings with questions about the readings, deliverables-in-progress, and skills and concepts related to what they are learning.

Professor Pre-Work: The most important thing here is to prepare discussion starters related to the new concepts and skills students are learning.

Also, review the task-specific professor guide section to refresh your memory about what students should be producing and where they might struggle. In the task-specific section, you will find a description of the task, a list of required deliverables, an Evaluation Checklist, and notes about specific Resources that are essential for students to consult. There may also be Sample Deliverables available.

You may also wish to look through the student course site to review what they have been given, including especially their Task Step-by-Step Guide.

Come to the meeting with questions to ask about the recommended readings, new concepts and skills related to the task, and the project work. This meeting is also a great time to bring in **examples** or **war stories** from your own experience. You can also schedule visiting experts to meet with the cohort on special topics during this time, although you should extend the meeting time if you do, so you can cover everything needed.

1. **Begin with group work on concepts and skills** with which students may be having difficulty.
2. **Ask about students' progress on the task.** Allow the students to provide most of the content here, but keep asking questions to maintain the momentum and learning.

Team Meetings
Professors should have standing meetings with each team in their cohort **twice each week** to keep a close eye on everyone's progress, learning, project management, and team issues. Early in the process mentors should set the meeting agenda, but as the weeks progress, students should take increasing control of the meeting, setting the agenda and directing the conversation.

![Erasmus+ logo]

*En**hancing Motivation and performance of Professional Training students based on Immersive methods in International Environments***

Step-by-Step instructions for running Team Meetings follow:

1. Ask the team to give you a **status update** and show you their progress towards completing their deliverables.
2. Ask the team if they are **working well together**. Facilitate a discussion, focusing on Project management, Assignment and follow through on roles and responsibilities, Interpersonal team relations, Management of different work styles and schedules, Balance of workload/division of labor and each team member's contribution.

2.5   Working with Student Teams

Next we show the tips and traps for forming students teams, how to supervise the teams, how to help them to work together and how to lead meetings with mixed participation.

Tips and Traps for Forming Student Teams

Use the **Tips and Traps** below to help you form student teams, and avoid some of the common pitfalls.

Tips

- Select teams to work together in groups of three to four students.
- Try to group students according to their performance levels:
  Low performers with low or medium performers
  Medium performers with low or high performers
  High performers with medium or high performers
- When working with a new group of students, you may wait to assign teams until after students complete a task or two (i.e., some courses have independent tasks initially then shift to team tasks). This approach may help you assess student performance and group teams appropriately.
- Student teams who have worked well together in a previous course may continue working together, but teams should not work together for more than two courses.

Traps

- Do not let students choose their own teams unless they have been working well together as a team in a previous course and would like to continue to work together (for up to two courses).
- Do not group low performers and high performers on the same team.

Tips and Traps for Supervising Student Teams

Use the **Tips and Traps** below to identify practices that will help you better supervise student teams, and avoid some of the common pitfalls.

Tips

- As students work on getting used to the SCC structure, and the level at which they need to be proactive and self-directed, be more proactive in reaching out to assess how students are progressing; offer assistance and look over student work-in-progress to determine the level of support students and teams require.
- Over time, increasingly encourage and require that students take more ownership for managing their time and coming to you or to their peers for assistance in a proactive approach. You should only hold their hands in this area in the early weeks of the program and/or the course.
- Encourage teams to communicate well, often, using a variety of communications technologies to keep you and students' teammates in the loop on progress and issues throughout their work process. This will avoid surprises for you and for teams, so issues related to student projects, learning of skills and content, or program infrastructure can be managed in a timely manner.
- Make sure students are aware of your grading criteria at the beginning of the course, so they know what they should strive to do well.
- Get to know individual students well, and specifically what they are contributing to the final team deliverables. This will help you when it is time to grade students on their individual mastery of the skills and teamwork, and it will help you identify who is grasping the material better and worse. It may also help to inform how you form teams in the future.
- Encourage teams to outline their planned process for getting their work done early, so you can help them craft a sensible roadmap.
- As a part of their work plans, encourage students to develop a learning plan to ensure the students are learning while getting their assigned jobs done. (Ideally, team roles should include a "learning manager" to focus on this objective.)

Traps

- Don't assume teams know how to divide the work; they may need guidance on how to split up readings and other parts of the work effort, and learn to teach each other what they learned.
- When you realize there are things students do not know, do not jump to the traditional teacher mode. Find ways to engage them in conversation, problem solving, research, etc., to learn the required skills, and model (show by doing yourself) for them expert practice using analogous problems.
- Do not assume students are sticking to their own work plans. Check on their progress regularly to be sure they are on track to finish the work on time. This is especially true early in the program for all students, and later for those who continue to struggle in this area.
- Do not assume that everyone has an equal role on the project. Find out how the teams have divided the labor and be sure everyone is an active participant learning from their participation.

- Do not allow students always to do the parts of the projects at which they excel naturally. Students should use school as an opportunity to learn and practice new skill sets, such as public speaking, work planning, research, etc.
- Don't make your grading criteria so specific that students are tempted to adhere to them overly stringently, avoiding innovative solutions.

Tips and Traps for Student Teams

Use the **Tips** below to help students work together well as a team and the **Traps** to identify possible areas where teams may struggle or make common mistakes.

Tips

Teams should be reminded:

- Assign roles for each task and stick to them. Suggested roles include:
  o Project/Team Manager
  o Learning Manager
  o Final Deliverable Manager (Responsible for final production of deliverable)
  o Tools Manager (Responsible for learning and teaching relevant tools, e.g., Excel, PowerPoint, etc.)
- Clearly plan with one another when and how often they will meet as a team, and how/when they will meet.
- Strive to have efficient team meetings, using agendas and having all participants ready with expected deliverables and work assignments in their expected level of completion, and plan next steps at the end of each meeting, reviewing key to-dos.
- Recognize everyone's different personality types and seek to include everyone in generating ideas, problem solving, and production, even though their communication and learning styles may differ from one's own.
- Listen to one another.
- Students should take roles on the team that allow them to practice skills they are not good at yet, possibly with assistance from a teammate who is.
- To think of their work plans as "living documents" they should use to guide their work and communicate status updates to one another and their professor. Teams should regularly review and update their work plans to reflect progress and lack thereof.
- There is a lot of work in each task; having a good schedule and sticking to it is very important. Teams should make sure their schedule requires their team to get a draft of their deliverable to you in plenty of time to allow a cycle of feedback and revision.

Traps

Teams often:

- Struggle to divide-up the work and get going quickly, losing valuable project time.
- Have ineffective meetings, requiring too much meeting time and not accomplishing enough each time.
- Underestimate the amount of work to be done.
- Begin their work without first making a plan.
- Fail to communicate early and often with their teams, addressing issues proactively.
- Turn in a draft at the last minute and expect immediate feedback from the professor.
- Neglect to communicate issues to the professor until it is too late.
- Are not open and honest with their teammates about positives and negatives of each others' work and the direction of the project.

Tips and Traps for Leading Meetings with Mixed Participation

Use the **Tips and Traps** below to facilitate better meetings with cohorts who have both local and remote students together.

Tips

- Meetings with mixed participation should be more structured than meetings that are solely in-person or on the phone (or VOIP).
- At the start of the meeting, list all the participants so those on the phone know who is in the room, and vice versa.
- Remember to call on people who are on the phone, as you will see the faces of those in the room and it is easy to forget those who are silent on the phone.
- Whether in-person or on the phone, all participants in the meeting should announce who is speaking when they have something to say to the group. (Students typically forget to do this or resist, so keep reminding them.)
- If there are hybrid teams, with both local and remote participants, teammates can connect using an instant messenger program, so the remote students can alert teammates if they are struggling breaking into the conversation, and get assistance from the in-person team member. In other words, in-person students can advocate for their remote teammates in meetings.

Traps

- Beware of calling on people who do not want to be called on. It places the students on the spot and results in embarrassment for the students. Also, they often add something to the conversation that is not valuable, since they had nothing planned to say.

- Avoid grading with significant weight placed on participation in discussions. It results in students contributing frivolous comments to the discussion just to be heard saying something. It does not foster better discussion or better learning.

2.6   Grading in a SCC

Grading in a SCC is a bit different than in more traditional courses for a few reasons:

- The focus of an SCC is on the practice of skills and use of knowledge as required to accomplish a task that is related to the performance objectives of the course/curriculum, as opposed to testing how well a student memorized or understood a concept.
- Teams often co-develop work products, rather than individuals.
- In addition to the professor's feedback and grading, students assess each others' work and contributions to the team process.

Below are grading guidelines suggested by professors who currently teach in SCC degree programs:

- Approximately 20% of the grade should be based on individual work; 80% on the team's work.
- A small portion of the grade may include student participation, but too much emphasis on student participation leads to frivolous comments that do not add value to discussions.
- You can sometimes pair teams and have them review each others' deliverables. Each individual person reads the deliverable of the other team and submits feedback to the team and the professor. The benefit of this process is that the professor can assess student-critics' understanding of task concepts and skills by the quality of their critiques, and everyone receives ample feedback from their peers.
- Always have work products that are attributable to individuals as a part of tasks/courses to help you assess individuals' abilities and progress.
- Have team members use a Peer Evaluation Form at the end of each course to review and provide feedback about others' work, and for your use in helping to determine individual contributions to the team's process and products. (Note: Peer Evaluation Forms are provided to students on their course website.)
  - o Remind students to complete these forms after they finish their final course deliverables.
  - o Collect the forms and compile the feedback.
  - o Meet with individual students to provide anonymous feedback culled from all students' input and your observations.
  - o Finally, consider both your observations and peer feedback, in addition to a student's individual assignment work, when calculating the student's individual grade for the course.
- Another way to consider the contributions of an individual on a team is to use your subjective perception having seen the team in action, and from the teams' peer

assessments. A helpful trick is using the aerospace metaphor of "lift over drag" – did the person lift the team more than drag, or vice versa?

3 Course description

3.1 Digital Marketing course: SEO, SEM, SMM

3.1.1 Your task

From: Miguel Torres, Director of E-Business Consulting.
Subject: Improving the visibility of GTC on the Internet.

Team,

Welcome to the Online Marketing department GTC Consulting, a new and exciting group that provides expertise to our customers who want to increase their visibility on the Internet. A large number of companies are positioning themselves on the Internet, and we must remain well ahead of our competitors in the field of consulting. We will succeed by being more informed and creative, so that we can offer our customers the best e-commerce solutions. I know our team will approach these challenges with a future outlook. I hope you've set up in your office and you've begun to meet your fellow group members, it's time to roll up your sleeves and start working on our first project.

Today I met with Javier Higueras, Head of Marketing Company GTC - Games in The Cloud. It is a company created by young entrepreneurs who love video games. Within their business plan, they foresee a significant growth in the gaming industry hosted on internet. They claim that in the future, video games will not be distributed through physical media such as CDs or DVDs, but they will be able to be played in the cloud, and download will no longer be necessary.

GTC proposes a series of truly innovative games using 3D technology. Thus, they can become a mass phenomenon through social networks, blogs, forums, online championships, etc. Their development team is excellent and their ability to create new games is very advanced. Therefore, they already have a plan to launch expansions and sequels. Javier has sent me a file with the list of games by genre. The games they mainly want to enhance today are presented in 4 platforms:

- Browser-based Games
- Games on Facebook
- Games on Google Play
- Games on Apple Store.

GTC aspires to be a leader in the field of online games, but at this moment a very serious problem must be resolved: The searches that users perform in relation to their games do not present GTC as one of the main results. In contrast, games of its competitors (although being of poorer quality) are positioned higher in the ranking of search results. Therefore, Javier asked me to help fixing this problem immediately.

In e-Postremo Consulting we help our customers positioning themselves in the market in the most competitive way possible. We have been presented with an innovative project in the field of future technologies and we must show our skills properly advising GTC.

To do this I need to execute this search on the web, app stores and on various platforms of gaming using major product lines and keywords associated with the business of GTC (I am attaching the search terms and some notes I have written). If you search for these terms at this moment, GTC competition will only appear in the top results. You must do an analysis of the search results in order to find the keys to position GTC ahead. From these very successful sites, determine and analyze the specific characteristics that make them as visible and effective as they are. You'll have to make a proposal on how should the Web of GTC be to appeal to the maximum number of players.

Since the positioning of the new GTC web is not done overnight, we must supplement it with a strategy for search engine marketing (SEM). To do this, you will have to analyze current tools and decide which one or ones bring the most benefits to GTC. The budget dedicated to Marketing GTC is limited, so you will have to demonstrate the possible ways in which the investment return of the SEM campaigns is maximized.

On the other hand, social networks are a new channel to offer GTC video games and to obtain a reputation in the network. You will have to provide an analysis of the most successful networks for GTC and recommend a 12-month action plan for a SMM campaign using data from the SEO and SEM analysis.

Before launching the new and improved website, you will have to convince management that GTC actions and changes should be executed. Please hand in:

An **SEO Analysis Report** containing:

1. A summary of the GTC's business objectives and target audience.
2. A detailed analysis of potential search terms, keywords and phrases (long tail) that players use to find new games on the net study.
3. An analysis of the sites listed on the top search results.
4. Details of changes to be made in the current GTC portal.
5. An analysis of recommendations and action plan for the Marketing management of GTC.

An **SEM Campaign report containing**:

1. The reasons why GTC should invest in online advertising.
2. The summary of SEM campaign through Google Adwords, promoting GTC games.
3. A 1-year view investment plan in SEM.
4. A summary of recommendations and action plan for the management of GTC.

A **report on the positioning of SMM Social Media** containing:

1. Best recommended Practices for GTC on SMM.
2. A Short-medium-long term strategy and action plan on social networks.
3. An analysis of costs and ROI for the GTC address.

To help you complete your analysis I have attached the report templates so you can complete them as you work on this project.

Finally, you will have to give a presentation to the direction of GTC to convince them that your recommendations should be implemented.

I know you will do a great job in this critical mission, good luck!

Best Regards,

Miguel Torres.
Director of E-Business Consulting
e-Postremo Consulting.

3.1.2   Step by step guide

Your supervisor, Miguel Torres, has asked you to complete three tasks: A SEO analysis report, a report with your SEM campaign proposal and a report on social networks positioning. You can review the Resource tab for help in covering every step of this guide. There is no need to use every resource that you are provided with. Use those links that you may find useful.

- **SEO Analysis Report**

How to improve visibility in the web search of the Cloud Games

As you can imagine, the process of making a website appear on the first page of search engines is not easy. Since we do not have the time needed to achieve this optimization, we will use Google search engine, considering its particularities as a reference for our analysis. In E-Postremo Consulting, we conducted a White Hat SEO. This means that any strategy that recommends fooling the search engine will be penalized.

Tips:

- Create a Gmail account and begin to explore the Google AdWords tool.
- For all sections of the document, your recommendations must be backed with references to the relevant theories of search engine technology. In our case it's Google.

Choosing your game

Throughout this project you will have to work together and individually to achieve the objectives set. Each of the team members must select a video game (or more than one, optional) for work positioning. In the document "List of Games GTC.doc" you can find some examples, although you can propose a different one to your mentor.

- Select an area of the game that you want to develop, taking into account the framework in which you find yourselves.
- Think of what it will consist and how GTC is going to present it to users, potential players.

The video games presented are very broad, but you will have to limit them in terms of the area you are developing. For example, "Orcs and Dragons" has a different target audience than the game "Boat Race".

Develop the first point of the Analysis report, "Understanding the GTC target audience ". (Teamwork).

- You must describe the targeted market of GTC, what their segmentation is and what the main focus to enhance their game is. This analysis is intended so that the team understands which target has to be attacked in the positioning strategy of GTC video games. Note that GTC has a defined portfolio of games and it wants to attack four Market Issues: Strategy, Action, Sports and Racing.
- Define what is the scope of GTC, what the scope of video games is and how their derivatives issues are addressed.
- Define in general terms, which is the business model that sells GTC video games.

The objective of this section is to slip into the shoes of the customer by understanding their specific needs, as these directly affect the way they search the Internet (in the major search engines, social networks, through which devices, at what times of the day, ...).

Keyword Selection Guide

In this section, you will have to describe the process you are going to follow in order to generate a list of keywords and key phrases related to potential searches that users will generate to find GTC video games on Google. For example, create a survey to friends, family and colleagues who have searched a game on the Internet, generate programs using keywords (Google AdWords) or simply gather in groups for a brainstorming. First, define how the process should be working together in a group. Following individually, you will make a selection of Keywords assigned to your game.

1. Find out the keywords and phrases that users often enter into a search engine and do a catalog of Keywords Prioritized by gender.
2. Analyze what are the keywords that are repeated in the search processes.

3. Estimate the search volume of the target Keywords.
4. Detail which pages appear on the top search results, analyzing whether they are direct competitors of GTC or not.
5. Do the process again using words related to the GTC brand and what it represents.

Tips:

• In this process, it is important that you use the information in the previous section, in order to link the searches to objective genres.
• It is important that in the early stage you do not execute any web search, so that later on you will realize which searches are meaningful, competent and relevant to users.
• It is important that everyone participates in the selection of the keywords process.
• The Keywords should be usable by all team members.
• Take advantage of the power tool of Google AdWords Keyword Planner. This will allow you to familiarize yourself with the tool that you'll use to develop your SEM campaign later on.

Web analysis results with our target Keywords

Analyze the specific characteristics that make the competing sites effective and visible.

• From previous analysis, select three direct competitor portals of GTC.
• Fill in the "SEO Checklist" table after analyzing all the detailed positioning criteria.
• In the section of "Competitive Analysis" of the SEO analysis report, you will have to summarize the strengths and weaknesses of GTC competition, especially detailing which specific actions should be undertaken to achieve the Top Rank of Results.
  ○ Analyze how competition behaves in terms of creating quality content for users.
  ○ Analyze whether Webs of the competition are concerned about the appearance, usability and user experience.
  ○ Grade the competition on a scale from 1 to 10 if they meet the criteria of positioning On-Page that major search engines mark.
  ○ Grade competition on a scale from 1 to 10 if they meet the criteria of positioning Off-Page that major search engines mark.

SEO Optimization Manual

This section will serve as a guide for optimizing websites for other GTC members to make sure that the websites are positioned correctly on the Web. You will have to explain how and why the suggestions that you are proposing will give good results in terms of visibility of the site. Go to Resources for help.

• Justify why you have to make changes to the GTC Consulting web from a strategic standpoint and from a search engines positioning standpoint.
• Create a list of what "should" and "should not" be done from different points of view, always with your justifications.

The full report must be delivered to your mentor for its revision. When you feedback on the document, please review it and send it again for a final review.

Recommendations for the management of GTC Consulting

- Write a series of recommendations and actions to give to the competitors of GTC.
- Estimate the resources and commitment needed to overtake our competitors.
- Calculate the investment costs associated with the necessary actions to achieve the desired positioning.

- **SEM campaign report**

1. **List the current tools for SEM campaigns.** We will focus on Google AdWords, but it would be recommended to also advise the GTC management about other available possibilities. Can we only advertise on search results of search engines? What other networks are likely to contain potential GTC customers?
2. **Explain in which ways GTC can invest its money in SEM campaigns,** as their management wants to control spending at all times.
   o Discuss the advantages provided by the pay per click, versus traditional offline marketing tools.
   o Explain how the mechanism or auction of Google AdWords works and how it affects ad spending.
   o Explain the problems that arise when using Google AdWords from zero and how to overcome them.
   o Explain the mistakes to avoid in the Google AdWords campaigns.
3. **Design a campaign to promote the GTC games on Google AdWords.**
   o Define a strategy to cover different genres of video games.
   o Take advantage of your knowledge about keywords and select words based on your cost per click.
   o Select appropriate parameters for the campaign to reach users.
   o Make a list of recommendations for writing ads.
   o Summarize what tools GTC has in order to measure the success or failure of the campaign.
   o Indicate how the campaign would evolve in case of detecting success or failure.
   o Use screenshots in your report.
4. **Define the advertising investment plan with Google AdWords for the year ahead.**
   o Create a "Split" of the budget based on video games, genres, brand, devices, timings and any other criteria that you define.
   o Present the investment roadmap and the control measures on the campaign to change the advertisements.

The full report must be delivered to your mentor for its revision. When you receive the comments on the document, please revise them and send it again for a final review.

- **SMM Social Media Positioning Report**

1. Make **a list of the benefits that social media can bring to GTC**, in terms of brand positioning, visibility, SEO, loyalty, feedback, etc., to justify (quantitatively and qualitatively) the direction that you have to invest in this type of media.
   o Plan your positioning strategy of the brand "GTC" on the Internet. Define the objectives of the online brand, remembering the first part of the SEO report.
   o Establish a roadmap to create the Online Identity of GTC Consulting.
2. Perform an **analysis of the state of the art Web 2.0**. Should we automatically position ourselves on Facebook, Twitter and LinkedIn? Where is our target audience? Select the social websites where GTC must be present and for what purposes.
   o Study the Twitter tool and its operation to decide whether it is a good way to achieve the previously established objectives. Why are there so many Twitter users? Are there any potential GTC clients? How do we increase the number of followers on Twitter? Is it really important to have a lot of followers?
   o Study the social network Facebook with the same objectives as for Twitter. What are the different kinds of pages that exist on Facebook? Which one will we use for GTC? What we will talk about on our wall? What does Facebook Insights give us? How can we take advantage of Facebook Connect? Where do we place our "like" buttons?
   o Study the social network LinkedIn. How could this network be beneficial for GTC? Can we take advantage of LinkedIn Answers? How do we treat our contacts? Does the use of groups apply to the GTC strategy?
   o Study other social networks or other sites where we can find target users. Social bookmarking can help GTC visibility strategy. Analyze how tools like StumbleUpon, Digg, Tumblr, Reddit, Pinterest, etc. may be useful to extend the Internet presence.
3. Draft a **strategic plan for the short, medium and long term aimed positioning of GTC in social media**.
   o With the information obtained in previous points, write an Executive Summary that includes decisions regarding the presence in selected social networks and establish a set of objectives to be achieved.
   o Design a measure system to determine when GTC success is being achieved. Establish qualitative and quantitative indicators to measure the ROI of our campaign.
   o Plan a roadmap with concrete steps to implement the strategy.
   o Determine how we can develop the influence of GTC in the market in which it is positioned.
4. The **full report must be delivered** to your mentor for its revision. When you receive the comments on the document, please revise them and send it again for a final review.

Presentation of recommendations to the Department of GTC

- The purpose of the presentation is to convince the Department of GTC to follow your recommendations. If you have no credible solutions, you will risk losing your job!

- The audience of your presentation is executive, not technical. Save the technical materials for the written report. The PowerPoint presentation should address the problem, the solution, and the advantages of the solution, the costs and benefits. If management is satisfied, they will leave the technical issues to the Webmaster.
- You must be ruthless when it comes to deciding on the material of the 10-minute presentation. ("Ruthless" meaning that you must not hesitate to remove certain irrelevant material). Anything that is not essential must be removed. You will probably not have time for more than 10-12 slides.
- Double-check every word and every graphic in each slide. Think about which words you can add or remove. Anything that does not contribute should be removed.
- Debate who should make the presentation. No member of the group should present more than one time when the whole group is together. If a person presents task 1, they must not present again.
- Be careful if you decide to use more than one presenter. This is usually a bad idea. Changing from one person to another in a presentation wastes time and requires the public to readjust to a new speaker. Do not think it is fair that everyone should say something; justice has nothing to do with the satisfaction of the GTC.
- Practice your presentation to assure that it is smooth and does not exceed 10 minutes. It's very important. You won't be allowed to speak for more than ten minutes, and if you have not finished by then, you will not have a successful outcome. However, it is not required that you use the 10 minutes.

3.1.3   Resources

Fundamental Material and Online Marketing
Canal de Google Adwords en Youtube
Optimización de motores de búsqueda (SEO) - Via Google Webmaster Central.
Cómo trabajan los motores de búsqueda – An introduction to search engines and search technology
Lluvia de Ideas para buscar a partir de las palabras precisas - Tutorials on how and why to put exact words on a Web search.
Colección de interesantes How To's - via Seach Engine Land
Online Marketing eBooks by SalesForce
Benefits of Google Places
Online Marketing Jobs – Check what companies are seeking.
Webmaster Central Blog
Google Think Insights

SEO
SEO and Business
The history of SEO
The Future Of SEO in a Socially Driven World
Search Engines
The Beginers Guide to SEO

The Beginner's Checklist for Small Business SEO
Basics of Search Engine Optimisation
On Page SEO
The Best Damn Web Marketing Checklist, Period!
Off Page SEO
66 Ways to Build Links in 2007
101 Ways to Build Link Popularity
17 Ways Search Engines Judge the Value of a Link
Penguin 2.0 rolled out today
SEO Metrics
Top Google Website Optimization Resources
Creating a new Site
LAMP
10 Important Factors To Consider Before Choosing A Web Host
Installing WordPress on Cloud Sites
WordPress vs Drupal vs Joomla Side by Side Comparison
When should we use Magento
Tips for selecting a Domain

SEM
SEM and Online publicity
Google Online Marketing Challenge
Landing Page Optimization
101 Landing Page Optimization Tips
The Anatomy of a Perfect Landing Page
ColorHexa
Adsense
Check what Google knows about you.
Google Auction System – Video

SMM
How to Setup a Social Media Business Strategy
9 Creative Ways to Use Social Media to Launch a Product
28 Must See Social Media Statistics
GM and Facebook Case Study – 2 -
10 Qualities of an Effective Community Manager
Listening skills crucial for online community managers
Community Manager Job Description, A Definitive Guide
Interesting Videos
How To Rank #1 on Google
Did You Know 3.0
10-20-30 Presentation Rule
Business Model Canvas Explained

Smart Goals
Google Think Insights

Definitions and additional resources
Definition of SEO
Definition of Backlinks
Definition of Link Building
Definition of Link Baiting
Definition of Spamdexing
Definition of n PageRank
What is Google's red display?
Search Engines Tips - An excellent resource with tutorials, highlighting what to do and what not to do.
Web search behavior of Internet Experts and Newbies - Debates the users modeling and explores the way that people search on the Web.
The Anatomy of a Large-Scale Hypertextual Web Search Engine (web .pdf) A report discussing the inner workings of Google.
Marketing Web GotSEP - An example of an SEO consulting firm. Analysis of methods by keywords and sample reports.
SEO para Bing - Carlos Redondo
Rediseña tu web pensando en el usuario y en el SEO
Top 5 SEO Questions from Customers - Whiteboard Friday

3.1.4   Skils

Throughout the project, and through the process of Learn by Doing, you should be able to develop the following knowledge and skills:

Search Engine (SEO)
How search engines work?
- Analysis of user habits
- Study and analysis of competition
- Positioning Criteria Development
- Study and selection of keywords
- Theory and application of keywords Long Tail

SEO On-Page
- Tools for SEO experts
- Keyword and Website Optimization
- Redesign of websites
- Recommendations and actions to prevent

SEO Off-Page
- Introduction to intelligent link building
- Link Building Strategies

- Link Baiting Strategies
- Benefit of Mashups
- Black Hat Techniques
- Avoiding penalties of search engines
- Recommendations and actions to prevent

Web Analytics

- Web Analytics Tools
- Definition and analysis of metrics
- Configuration and monitoring funnels
- Dashboards for decision making

Marketing in Search Engines (SEM)

Introduction to Search Engine Marketing

- Online Advertising
- existing platforms and key players
- Contextual Advertising
- Pay Campaigns Per Click (PPC)
- SEO versus SEM

Setting campaigns with Google AdWords

- Creating AdWords accounts
- Creation, monitoring and optimizing campaigns
- Reporting of results
- Optimizing landing pages
- Analysis of the Display Network
- Recommendations and actions to prevent

Optimizing investment in promoted campaigns

- Integrating Google AdWords / Google Analytics
- Tracking conversions
- localized advertising with Google Maps
- New advertising models Online
- Optimization of user segmentation

Social Media Marketing (SMM)

Implications of Web 2.0

- Analysis of digital media
- Benefits of social networks at the enterprise level
- Platforms and Tools

Social Media Strategy

- Knowing the potential customers
- Promotion Strategies Online
- Strategies to Increase Sales
- Strategies to enhance Brand

Creating an online community
- Personal and Professional Social Networks
- Networks comparison and voting systems
- Create content that adds value
- Online Reputation Management
- Online and Offline Approaches
- Enhancing bidirectional communications
- The figure of the Community Manager

Monitoring and optimizing social media presence
- Dashboards and Decision Making
- Social Media Engagement
- Measuring the Return on Investment
- New ways of approaching the customer

3.1.5   Checklist

It is expected that your team for this task presents the following papers (one per group):

1.   An SEO Analysis Report
2.   SEM Analysis Report
3.   Report Positioning Social Media SMM
4.   A final presentation to the Department of GTC

SEO Analysis Report

Considerations to keep in mind:

- Do not forget to capture the business objectives and GTC targeted audience.
- Do not think of satisfying the search engine, focus on the needs of the customer.
- Focus the project as if GTC was your own company.
- Fully analyze the best-positioned competitor in the ranking of search engines. When tasks start becoming repetitive, this means you can move on to another thing.
- Always think in the keys of "Best Practices" and "never make mistakes."
- Separate clearly the On-Page actions of the Off-Page actions.

SEM Analysis Report

Considerations to keep in mind:

- The process of internal or external sale of SEM in a company is a primary objective.
- Work with your own Google AdWords campaign.
- Imagine that your budget is your own money.

- Think always in the keys of "Best Practices" and "never make mistakes."
- Focus on ROI, since it is what businesses always are interested in.
- Focus on the techniques of analysis and control of information for decision-making.

Report Positioning Social Media SMM

Considerations to keep in mind:

- Imagine where to place GTC customers on the Web.
- Do not conform to only analyzing the current large social networks.
- Focus on solving other problems that are not directly related to the sale.
- Think in terms of short, medium and long term to define your actions.
- Focus on ROI, although in this case you will have to define both quantitative and qualitative targets.

3.1.6   Mentor guide

SEO-1 Session. Introduction
Course Introduction
1. Presentation of professors.
2. Presentation of students.
3. Compilation of student expectations in order to contrast them after the course.
4. Presentation of the course: Introduction Speech to Web 2.0, digital companies, trends and new technologies as driver to make sense of the course.
5. Lecture on career paths that the course offers within the field of SEO, SEM and SMM.
6. Presentation of the project to be undertaken:
    a. Explanation of the learning methodology: SCC
    b. Explanation of the GTC project
    c. Explanation of the Step-by-Step Guide and documents to fill in
    d. Explanation of the available tools: Virtual Campus
    e. Creation of working groups (5 students / group)
SEO Introduction block
1. Introduction to Search Engine Optimization
    a. Identify the need for companies to be positioned on the top results of search engines.
    b. Ponder about why some pages are better positioned than others are.
    c. Understand that the pages are "read" by human (visual) and machines (HTML code), and that the purpose of search algorithms is to meet the expectations of users.
    d. Introduction to the elements of a search engine.

        i. Search Box

        ii. Internet Index

        iii. Search algorithm

        iv. Result page

    e. Reflection on SEO OFF PAGE and SEO ON PAGE

    f. Reflection on the SEO actions to be carried out in order to appear first on Google. "SEO is not about doing one thing 100 times better than your competitors; it is on doing 100 things 1% better than them."

SEO-2 Session. GTC products and Selecting of the Keywords

Understanding the Objective Sector of GTC

1. A space for debate is opened to understand the field of online games, helping to answer the questions of the SEO report template.
2. Reflections on how it affects the initial phase of the process to avoid mistakes. Identify the phase of Operational phase Strategy.

Selecting a Videogame

1. Students have to explore different websites in the field of video games to have an idea of the game that they will select.
2. At this stage, students should not think in terms of SEO, they should get into the skin of the potential client.
3. Students must realize that although they work in their own game, the words used will be repeated with their peers.

Selection Guide for keywords

1. We must ensure that students understand the "Prioritized List of Keywords" Excel through an example.
2. When students have half the list of keywords, introduce the "Long Tail" concept and launch a debate about the implications that their decisions represent.
3. Students must evolve from the "brainstorming" phase of keywords to a mechanical process using support tools such as Google Keyword Planner or other websites.
4. It is important that students understand that the individual work for each videogame makes it have a global positioning of GTC.
5. Facing the report, emphasize that what is required is a strategy of incorporating key words and not a copy / paste from the Excel file.
    a. Students should understand that generic keywords are difficult to position.
    b. Students should understand that the more specific the keywords are, the better positioning they will have.

SEO-3 Session. Web analysis results with our target keywords

Analysis of results

1. A space for debate is opened to understand the different elements contained in a successful website from an On-Page SEO viewpoint.
2. A space for comparison between different portals is opened: Those appearing in the top results and those appearing in the second and third page of results

On-Page SEO

1. It explains how to complete the file "Seo Checklist" and the objectives pursued.
2. A space for debate is opened to discuss the various SEO aspects.
3. Debating which aspects are key to get ahead of the competition.
4. ON-Page SEO tools are presented to simplify the whole task (Woorank and others)

Off-Page SEO

1. A space for debate is opened to analyze the algorithm of Google Page Rank.
2. All actions that must be carried out of our system must be reflected on in order to achieve the desired visibility and positioning.
3. A new debate focused on user versus search engine. Whom do we have to focus on?
4. A discussion on Black Hat SEO techniques and penalties that may result in our portals.

SEO-4 Session. Recommendations for GTC Management

Concepts Review

1. Begin a debate to draw conclusions about SEO.
2. The concept of Analytics and Web Monitoring is presented to make decisions based on the information we collected from our websites as of the competition.

Recommendations for the management of GTC

1. Based on all the work done, the cost of proposed actions is quantified.
2. The main reasons for GTC to bet on SEO as a strategy of positioning on the Internet are evaluated.

SEM-1 Session. Introduction to Online advertising

Introduction SEM block

1. Brief summary of the SEO block and needs of other online marketing techniques to complement the digital strategy of the company
2. Introduction to Search Engine Marketing
   a. Given the constant need of visibility on the Internet, which advertising mechanisms does the network provide us with?
   b. Reflect and compare traditional advertising versus online advertising.
   c. Analysis of the benefits of online advertising for a company, depending on its size.

d. Brief explanation of the "performance marketing" concept, or how it is possible to measure all the actions we take in the online channel (and we cannot measure on the offline channel).

e. Who are the big players in the online advertising world?

f. Introduction to Google AdWords as a fundamental tool for the course.

g. Reflection on the risks of online advertising, focusing on the case of Google AdWords.

SEM-2 Session. Design of the advertising campaign

Strategy

1. A space for debate is opened, to understand how companies in the online gaming industry advertise their products.

2. Students are encouraged to seek various videogames on the network to see what kind of advertising they receive (text ads, banners, multimedia content)

3. A reflection on the appearance of ads is done when SEO block keywords are searched.

Implementation

1. Students must decide what kind of advertising will be used. It is important to explain the concept of "Call to Action", which maximizes the success of campaigns.

2. Students should establish a "funnel" or route performed by a user from start to finish until it becomes a client of GTC.

3. In this session, work with the Excel "Google Adwords.xls Template" working file. The mentor should focus on what is important: the strategy and the objectives to be achieved. Technology (in our case it is the Google AdWords tool) is only a support tool.

Advertising investment plan

1. Beyond operational campaigns, students should focus on the budget available to invest in marketing.

    a. Explain how the acquisition costs versus costs and revenues related to the product. When the concept is clear, it will be expanded with the acquisition contribution via SEO.

    b. What the "Budget" tab of the Excel "Google AdWords Template.xls" will be explained.

2. Reflect on the importance of planning campaigns in the short, medium and long term.

3. Reflect on the concept of "Marketing Experiments" where various hypotheses are set to contrast with the market, and once validated for future campaigns, the right decisions are taken.

SEM-3 Session. Google AdWords tool

The tools

1. A workspace is started in order to create campaigns that students already have in their Excel list "Google AdWords Template.xls ".
2. The use of Keyword Planner tool should be known from the SEO block.
3. Key concepts related to the tool are discussed:
    a. Campaigns
    b. Ad Groups
    c. Ads
    d. Keywords
    e. CTR
    f. Quality Level
    g. Landing Page
    h. CPC
    i. CPCmax
    j. Budget
    k. Other settings

SEM-4 Session. Recommendations for GTC Management

Concepts Review

1. A debate is opened to draw conclusions about SEM.
2. The concept of Web analytics and monitoring is completed in order to make decisions via SEO and SEM.

Recommendations for the management of GTC

1. Based on all the work the cost of proposed actions proposed is quantified.
2. The main reasons why GTC has to bet on the SEM positioning strategy on the Internet in short term are analyzed.

SMM-1 Session. Introduction to Social Media Marketing

Introduction SMM block

1. Brief summary of the block SEO and SEM and other online marketing techniques to complement the digital strategy of the company.
2. Introduction to Social Media Marketing
    a. Given the constant need of visibility on the Internet, which benefits does Web 2.0 or 'Social Web' give us?
    b. Reflect on the Recommendation potential "Word of Mouth" of social networks.
    c. Reflecting on the user information available in large social networks (Facebook, Twitter, Linkedin and Google) and what is their business model.
    d. Analyze what are the apparent benefits for GTC.

SMM-2 Session. Model analysis GTC presence in Social Networks
Strategy

1. A debate to understand how companies in the online gaming industry advertise their products in social networks.
2. Students are encouraged to seek the "fan page" for game companies and discuss the content and comments generated.
3. The concept of "Online Identity ", or how the brand wishes to be perceived by GTC players, is introduced.
4. Reflect on the concept of "Community" or "Digital Tribe" and the investment costs for its creation are analyzed.

SMM-3 Session. Model analysis GTC presence in Social Networks
Planning

1. A workspace is opened to raise an action plan on social networks
    a. What content will be published
    b. How often the contents are published
    c. How interactions are managed with users
2. Depending on usage analysis of the various existing social networks, you should consider how it interacts with them.
3. As in the other two blocks aspects of branding and digital identity have already been addressed, at this point the framework for Social Media expands.
4. Crisis Management: a space for open debate to discuss how to respond to GTC users or customers who may have problems of any kind:
    a. Trolling to the brand
    b. Dissatisfied customers
    c. Destructive criticism
    d. Constructive criticism
    e. Operating doubts
5. A space for debate is opened to analyze brand objectives in the short, medium and long term.
6. Also analyzes the capacity and benefits they provide payment campaigns on social networks.

SMM-4 Session. Model analysis GTC presence in Social Networks actions to address GTC
Execution

1. Once we have clear which are the spaces we want occupy, students must propose CONCRETE actions by examples.
2. Analyze how to work the computer from a whole, considering that the Brand promotes several video games.

3. A debate is opened to quantify the cost of the actions to be carried out, and what its expected return would be

Monitoring

1. A debate starts, where the issues to be taken into account to determine if the actions are yielding positive or negative results are analyzed.
2. The concept of KPI monitoring is introduced:
   a. These can be quantifiable criteria (number of likes) or not (feeling of responses)

3.2   Mobile Commerce Course (MOBCOM)

3.2.1   Your task

From: Miguel Torres.
Subject: Mobile Technologies for Round Hotels.

Dear team,

Welcome to the Mobile Commerce department of ePostremo Consulting, an exciting new group that provides expertise to our customers who want to take advantage of new technologies in their business. A large number of companies are positioning in the field of mobility, and we must remain well ahead of our competitors in the field of consulting. We'll get over being informed and being more creative, so that we can offer our customers the best solutions. I know our team will approach these challenges with an eye on the future. I hope you've installed in your office and you've begun to meet your colleagues, it's time to start working on our first project focused on the tourism sector.

We can affirm that tourism is one of the few sectors that maintain their growth forecasts for Spain despite the crisis we are experiencing today. Therefore, the current context makes this sector mainly concentrated on reducing costs. The macroeconomic environment is complex, and requires especially in this sector increased differentiation, since customers are increasingly demanding.

During this week I held a series of meetings with Sergi Mas, director of Round Hotels Sitges in Barcelona, and we will help them with consulting and implementation of m-commerce solutions for his hotels.

Sergi has given me their current needs:

Internal problems of the hotel:
- Check-in / Check-out process.
- Room Cleaning Service.
- Maintenance Management.

- Hotel-Client Communication.

Value-added services for guests:
- Arrival and departure of customers.
- Table reservation in restaurants.
- Reservation of recreational activities (Spa, Tennis court, Water Activities).
- Life inside and outside the hotel: tourist information services, tours and attractions.

Therefore, our current project will be providing the following deliverables:
1. Proposed solutions to operational problems in their hotels and apartments, based on the use of mobile technologies to help customers be more efficient, productive and innovative.
2. Proposed value solutions for its customers that help maximize revenue Round Hotels.

In addition, for Round Hotels can tangibly visualize your proposals, you will realize a prototype implementation of the solution to demonstrate its potential to address.

I am convinced that you will do a good job before you go on vacation.

Greetings and encouragement,
Miguel Torres.

3.2.2   Step by step guide

Your boss, Miguel Torres, has asked you to complete the following deliverables:
1. Proposal of mobile solutions for hotel management.
2. Proposal of mobile solutions for hotel guests.
3. Prototype of a mobile solution for hotels.
4. Report of recommendations for Round Hotels.

In addition, you will have to prepare a 10 minute presentation summarizing the content of your work and that includes a demonstration of 5-10 minutes of your prototype.

Proposal of mobile solutions for hotel management
1. Read again the email from Miguel Torres and check the current problems of the hotel or any potential areas for improvement. Keep in mind the aspects that have a direct relation with customers as they are the top priority. Obviously the aspects that can help increase revenue or control costs are also those that the customer will take into account.
2. Analyze the actual problems which and how they are solved nowadays. Do you think that a mobile solution can help? If it is so, what solutions should you recommend? How do they affect the daily lives of employees at Round Hotels?

3. Divide your work so that all the remaining aspects are analyzed. Check if these problems can be solved by incorporating a smartphone or tablet in the staff or whether they can be solved with existing tools or otherwise. If it is so, take into account the qualitative leap that would make the change. What considerations should be taken to provide such devices to employees of the company?

Proposal of mobile solutions for hotel guests.

1. Analyze the different guest services independently, and then decide if it's worth implementing a dedicated solution or you can find a pre-maid solution in the market. Divide your work so that the proposals are covered in full.
2. Establish a priority order or a roadmap for deploying these solutions on the client. Assess what services are most important and which can wait, decide which would have a higher cost of implementation / adoption and how should we communicate such services to customers.
3. Divide also solutions to improve existing services already offered by the hotel which can eventually provide additional income. Put focus in which they can maximize revenue in the future and really can be seen as m-commerce by the customers.
4. Analyze how different pure m-commerce features (the ones that generate electronic transactions) are going to work. What solutions exist today? What are the trends in relation to mobile payments? And above all, how can they benefit the customer?

Prototype of a mobile solution for hotels

You will need to design the interface and features of your application. Your goal is to support the most important features and provide greater value to customers. At least, the prototype should show how the check-in/check-out process works and another value added service related to guests activities.

1. Make a script for your solution in the prototype template.
    a. This document should specify the different features that the app will provide.
    b. Your document should provide an architecture of the application and different screenshots that show the interactions of the system.
2. Design the interactions of the system (for example: specific views or interactions).
    a. You need to be critical with your designs and think if there is any other way to create interactions in a simple way. The key is to minimize the load or user actions.
    b. This project requires creativity when designing the application interface.
3. Explain how each screen will work and how the user will interact with it.

Use the wireframe template to create the interactions (see the ppt file).

Report of recommendations for Round Hotels

Write the final recommendations to the customer based on what you have learned during the course of this project. The report shall show in detail the work you have done, including:

1. Studied business problems.
2. The technological challenges faced, description of the prototype, architecture, costing make it a viable solution, etc.
3. The benefits of using mobile technologies for business needs.
4. Conclusions.

The solutions may vary from doing nothing about specific points to the approach of a phased deployment of a sophisticated functionality, as the technology matures and more and more affordable.

If this is possible, try to identify one or more short-term solutions that are relatively inexpensive and easy to implement, and which are likely to cause a major impact on the number of clients or in savings for the customer. This initial solution can be completely different from the prototype that you have developed.

Be aware that there are several suppliers of mobile solutions on the market that offer applications that solve customer needs, but separately. The customer has indicated they would like to have their own integrated service. You will need to show them if it's a wise decision to do that, considering technological aspects, business issues and usability.

20-minute presentation to Round Hotels management board

Your presentation should include:

1. Your recommended solution with the summary of your deliverables.
2. A demonstration of your prototype.

Practice your presentation. You will have 20 minutes, including the demonstration of your prototype. The 20-minute time limit will be accurate.

There are many ways to approach this task. Do not be influenced by what you think you can be doing other groups. Use your judgment, your research and your imagination.

The success of the task is determined by:

1. The way you have justified your design decisions and recommendations.
2. The level of sophistication of your prototype measured as a combination of functionality and usability. A prototype with too many ornaments that is not useful will get a lower rating than a prototype that is simpler but offers a clear value to users. Creativity is an important component in this project, but obviously it is expected that you to show that the prototype works.

3. The insight that you have shown in usability evaluation. It is also expected you to show that you understand the limitations of what you have developed and shall offer suggestions for improvement.
4. The quality of your final recommendation, including your ability to offer a creative solution that is easy and inexpensive to implement, and also adds value to hotel guests and users. Again, creativity is an important part of this task ... as your ability to demonstrate that you have a good understanding of the underlying technologies, including its limitations.

Round Hotel specific information.
Take up the following specifications to manage the project:
1. Consider that there is only 1 hotel.
2. The hotel has all kinds of facilities: 2 swimming pools, Jacuzzi, golf course, gym, 2 restaurants, bar-cafeteria waterfront, free Wi-Fi in public areas but payment in rooms, meeting rooms, center conventions, parking, indoor garage, 24 hour reception, games room, small own supermarket, laundry, access to Pay-tv movies in the rooms.
3. The hotel has 5 floors with 200 rooms.
4. The hotel is 500 meters from the city center.

You can ask any doubt about the customer to Miguel Torres.

3.2.3   Resources

Main Bibliography
From Electronic to mobile commerce
The State of Mobile Commerce - Infographic
Mobile Apps Are Big Business
By the numbers: Mobile apps in 2011
Most developers can not live from apps design
E-Commerce Trends for 2012: Mobile and Facebook Take Center Stage as Online Retailers Focus on Customers' Digital Experiences
Emerging business models in the digital economy — The mobile applications market
Strategy and developments in mobile apps environments
Business models and mobile apps
Room reservation in 4th and 5th stars hotels in Europe using the 'smarthphone'
Property Management System – Hotel Management System

Implementation of solutions for mobile devices.
Development environments for mobile devices:
Android platform (Google) : Generic information, development guide, AndroLib, Android group developers, UI's construction DroidDraw.
iPhone OS platform: Generic information, development center, tool for iOS prototypes, MobiOne.
Java J2ME Platform: Generic information
WAP/WML Platform: Generic information
XHTML Technology: Generic information, Development guide, reference guide and XHTML manual.
Platform Independent: Mojito.
20+ Mobile Apps Development Frameworks To Kick-Start Your Project
Business Model Toolbox for iPad

Usability in mobile environments
Mobile Web Best Practices.
The Web and Mobile Devices, W3C
Web of Devices, W3C
Web usability: Alertbox from Jakob Nielsen
Mobile Usability Research, from Jakob Nielsen. --> For Nielsen the mobile webs must be simple
Set of links, paper links and resources from usability: Usable Web
Worst web pages: WebPagesThatSuck (It is important to know what not to do).

Projects and community
BdigitalApps
AppCircus

3.2.4   Skils

Throughout the project and through the process of Learning by Doing you should be able to develop the following knowledge and skills:

- Learn to assess and analyze the business opportunities that can provide new technology, changing the traditional value chain.
- Detect what the new agents who are involved in the use of mobile technologies.
- Analyze the different functions that a mobile device can provide and knowing suit the needs of a client.
- Assess how mobility solutions can help marketing actions of a company.
- Assess how it will affect the mobile payment in the future.

- Evaluate different design options associated with the development, implementation and maintenance of mobile services. This includes the development and understanding of development scenarios available and constraints, costs and levels of adoption of existing technologies.
- Design solutions that are facing challenges of usability associated with the use of mobile devices such as mobile phone. This includes the ability to select different modes of interaction with the user.
- Design solutions that offer a good combination of functionality and ability to function in a wide range of mobile devices (eg. mobile phones with different capabilities).

3.2.5   Checklist

Upon project completion, your deliverables should include:

A. Hotel Management – Mobile Solutions.
B. Hotel Guests – Mobile Solutions.
C. Prototype of mobile application for hotels.
D. Round Hotels Recommendations.

In addition, you will have to prepare a 10 minute presentation summarizing the content of your work and includes a demo of 5-10 minutes of your prototype.

3.2.6   Mentor guide

List of Classes

	Class 1	
Week 1	Class 2	1. Hotel Management – Mobile Solutions.
	Class 3	
Week 2	Class 4	
	Class 5	
Week 3	Class 6	2. Hotel Guests – Mobile Solutions.
	Class 7	
Week 4	Class 8	
	Class 9	
Week 5	Class 10	
	Class 11	3. Mobile Solution – Prototype for hotels.
Week 6	Class 12	
	Class 13	
Week 7	Class 14	
	Class 15	4. Final Recommendations
Week 8	Class 16	5. Final Presentation

- **Class 1.**

Class details
- Mentor Presentation.
- Presentation of students.
- Compilation of student expectations in order to contrast them after the course.
- Presentation of the course: exponential growth of smartphones, benefits for users and businesses.
- Careers after the course.
- Presentation of the project:
    o Explanation of the learning methodology: SCC.
    o Explanation of the project: Round Hotels.
    o Explanation of the step by step guide and templates.
    o Explanation of the available tools: Virtual Campus.
    o Creation of the working groups (5 students / group)
- Explanation of the survey about previous knowledge.

Tips
- Explain to students that they must begin to analyze the initial resources on m-Commerce to start the course.
- Check a competitor website to learn more about the hotel sector.
- Reflect at how current processes are performed at a hotel that does not use the new technologies.

Homework
- Students should carefully read the Task and the Step by Step Guide to understand the scope of the project.
- Students should review the format of the templates to be filled.
- Students must complete the "Prior Knowledge" form.

Project status
Considering the different components of the working group, students divide their four tasks to propose solutions so that each student is responsible for a section of the first deliverable.

Mentor Materials
https://en.wikipedia.org/wiki/Mobile_commerce
http://www.mobilecommercedaily.com/mcommerce-sales-to-reach-142b-in-2016-forrester
https://www.linkedin.com/pulse/20140219202016-19664799-5-reasons-why-a-career-in-ecommerce-is-hot-right-now
http://www.forbes.com/sites/forbestravelguide/2013/06/21/5-hotel-apps-to-download-now/

- **Class 2**

Class details
- Students work in groups to analyze how the Check-in/Check-out process works.
- Several problems arise in the allocation of rooms in a hotel.
- The role of each employee is analyzed.
- Students reflect on possible improvements that the use of mobile technologies can bring.

Tips
Explain the implications of assigning a room being occupied by a guest to a new customer.

Homework
The students must solve the Check-in/Check-out use case.

Project status
Students have all the information to solve the first use case.

Mentor Materials
http://fortune.com/2015/08/11/hilton-smartphone-keys/
http://www.usatoday.com/story/dispatches/2014/11/03/mobile-key-smartphone-keyless/18399461/
http://skift.com/2015/05/19/the-hotel-smartphone-app-will-control-room-service-and-everything-else/
https://www.laserfiche.com/solutionexchange/how-to-diagram-your-business-process/
http://searchcio.techtarget.com/essentialguide/Enterprise-mobile-application-development-A-CIO-strategy-guide

- **Class 3**

Class details
- The conclusions of the Check-in/Check-out use case are ready.
- A guide to address the next three deliverables is explained.

Tips
- Explain to students the importance of planning the next deliverables. The first analysis is more complex because it is necessary to solve the problem and understand the methodology. In the following cases should be easier.
- Remind students that with more detail in the proposed solutions they have easier to make the prototype later.

Homework
Students must complete the three outstanding issues in the templates.

Project status
- First issue is completed.
- Students divide the next three issues to work in parallel.

Mentor Materials
http://www.thehotelcloud.com/
http://clearbridgemobile.com/how-hotels-can-use-mobile-apps-to-enhance-the-guest-experience/
http://mobileapp.marriott.com/
http://intelitycorp.com/main/

- **Class 4**

Class details
- The first deliverable is finished.
- Conclusions of the internal management of a hotel are addressed with mobile technologies.

Tips
Remind students that they have to fill out the final report of recommendations and that now is a good time to review it.

Project status
- First deliverable ready for evaluation.
- Students can now start filling the report of final recommendations.

Mentor Materials
http://www.businessinsider.com/what-hotels-will-look-like-in-the-future-2015-6
http://www.pwc.co.uk/industries/hospitality-leisure/insights/hotels-need-to-develop-a-business-strategy-for-the-digital-age.html
http://hotelexecutive.com/business_review/2927/integrating-mobile-into-your-overall-business-strategy-from-marketing-to-operations-and-beyond

- **Class 5 – 6 – 7- 8**

Class details
- Section of mobile solutions for hotel management is finalized.
- Conclusions of the internal management of a hotel are addressed with mobile technologies.

Tips
Remind students that they have to fill out the final report of recommendations and that now is a good time to review it.

Project status
- First deliverable ready for evaluation.
- Students can now start filling the report of final recommendations.

Erasmus+

Enhancing Motivation and performance of Professional Training students based on Immersive methods in International Environments

Mentor Materials

http://blog.milestoneinternet.com/roi-tracking/2015-top-digital-marketing-trends-infographic-recap/

http://www.guestdriven.com/how-to-optimize-your-hotels-mobile-strategy-for-the-holidays/

http://untether.tv/2010/8-mobile-business-models-that-you-can-use-right-now-to-generate-revenue/

http://www.ecommercetimes.com/story/77786.html

https://econsultancy.com/blog/65202-10-trends-that-will-impact-your-mobile-commerce-strategy/

- **Class 9**

Class details

- Explanation of the objectives of this part of the course.
- Introduction to prototyping of mobile applications.
- Explanation of benefits, tips, and errors of this stage of development.
- Several examples about the product expected from the work teams are exposed.

Tips

- Explanation with examples of various real prototype applications.
- Make clear that prototype does not mean program.
- Final explanation about the control system related with the occupation of the rooms.

Homework

Students should search the Internet different examples of prototype mobile apps.

Project status

Students divide their work to address the two prototypes that have to prepare.

Mentor Materials

https://en.wikipedia.org/wiki/Prototype

https://en.wikipedia.org/wiki/Software_prototyping

https://ninjamock.com

http://designmodo.com/wireframing-prototyping-mobile-app/

http://code.tutsplus.com/tutorials/5-steps-for-wireframing-and-paper-prototyping-mobile-apps--mobile-4094

- **Class 10**

Class details

- Students begin working on the document design of the first prototype.
- Students begin to specify prototype requirements.
- Students begin to specify features of the prototype.

Tips
- Give feedback based on real applications.
- Explain how a prototype by hand and based on templates is done.

Homework
Students must continue working on the various screens of the prototype.

Mentor Materials
http://arcweb.co/wp-content/uploads/2015/03/app-paper-prototype.jpg
http://blog.juntoo.co/wp-content/uploads/2015/02/rapid-prototyping-for-web-design.jpg
http://code.tutsplus.com/tutorials/5-steps-for-wireframing-and-paper-prototyping-mobile-apps--mobile-4094
http://www.forbes.com/sites/allbusiness/2013/11/14/how-to-build-your-first-mobile-app-in-12-steps-part-2/
https://www.upwork.com/blog/2014/08/building-mobile-app-prototype-saved-product/
http://designinstruct.com/web-design/prototyping-is-essential/
http://blog.instabug.com/2015/07/build-your-first-mobile-app-in-16-simple-steps/

- **Class 11**

Class details
Active work in making the first prototype.

Tips
Resolve doubts to close the prototype.

Homework
Finish the prototype of the first application

Project status
- The document "Prototype for mobile solutions" for the first prototype is 60% completed.
- Students decide about the contents of the second prototype.

Mentor Materials
https://www.behance.net/gallery/9622781/Hotel-Wireframe-Prototype
https://www.hoteltonight.com/
http://www.prototypingwithframer.com/hoteltonight-prototype/
https://www.behance.net/gallery/Allia-Hotels/8256059
http://blog.mockupbuilder.com/10-fresh-beautiful-examples-of-website-wireframes/
http://blog.mockupbuilder.com/15-fresh-mobile-wireframe-examples/
http://blog.mockupbuilder.com/10-wonderful-wireframe-examples-for-iphone-apps/
http://designscrazed.org/website-wireframe-examples/

- **Class 12**

Class details

Active work in the second prototype.

Tips

Students should perform this second prototype quickly and easily.
Reflect on the issues that have slowed the work on the first prototype.

Homework

Students should search the Internet and Resources section, different examples of mobile applications prototypes.

Project status

The document "Prototype for mobile solutions" for the first prototype is 100% completed.
Students divide their work to address the two prototypes that have to prepare.

- **Class 13**

Class details

Active work in the second prototype.

Tips

Ask how the first prototype is related to the second.

Homework

Finish the second prototype.

Project status

- The first prototype is ready.
- The second prototype is 50% ready.

- **Class 14**

Class details

- Extra time to review all the work done to date.
- Develop prototypes to show them in the final presentation.

Tips

- The mentor provides feedback and possible improvements to finish the deliverables.
- Reflect on the next steps in the development of this application.
- Discuss the different ecosystems of applications related with m-commerce: Android, IOS, HTML and their future.
- Reflect on business models related to the world of applications.

Homework
Review of all deliverables to date.

Project status
All the prototypes are ready and the documents correctly fulfilled.

Mentor Materials
http://www.hswsolutions.com/services/mobile-web-development/mobile-website-vs-apps/
http://buildfire.com/responsive-websites-vs-web-apps-native-apps-matters/
https://en.wikipedia.org/wiki/Mobile_Web
http://untether.tv/2010/8-mobile-business-models-that-you-can-use-right-now-to-generate-revenue/
http://es.slideshare.net/richf23/mobile-app-monetization-and-business-models

- **Class 15**

Class details
- Review of business problems studied.
- Review of the technological challenges faced.
- Review of the prototyping process.
- Review the benefits of m-Commerce.
- Active work in preparing the final presentation for "Round Hotels".
- Selection of one member by team that will present the project.

Tips
- The aim is resume the main topics of the project to present them to a General Manager that must adopt our recommendations.
- Provide feedback in the creation of the final presentations.

Homework
Students have to close the final presentation.

Project status
Students divide their work preparing the final presentation.

Mentor Materials
http://www.i-scoop.eu/main-barriers-m-commerce-mobile-behavior-experiences/
http://www.informationweek.com/mobile/9-challenges-to-your-mobile-app-strategy/d/d-id/1109754
https://experitest.com/11-challenges-for-mobile-testing-in-2016/

- **Class 16**

Class details

- Students do the final presentation of their work done.
- End of the course.

Tips

Provide feedback of the presentations.

Project status

All deliverables are ready for evaluation.

4 Learning Analysis Evaluation

4.1 Digital Marketing Course: SEO, SEM, SMM

The first of the courses, called Digital Marketing (DM) and which includes SEO (Search Engine Optimisation), SEM (Search Engine Marketing) and SMM (Social Media Marketing) content, was conducted using two methodologies: a traditional one based on conventional teaching using supporting documentation and master classes, and a second one based on the method proposed in the SCC System Utilisation Project. In this chapter the quantitative data of both courses are presented before moving on to comparative analysis of the main indicators and their qualitative assessment.

The results from the Pre-Test and the Post-Test for each course are presented in the same order as the data contained in the following sections:

- Pre-Test:
    - Student technological profile
    - Initial motivation
    - SCC motivation
    - Specific skills
- Post-Test:
    - Satisfaction
    - Usability
    - General skills
    - Specific skills

An explanation of the project, methodology and assessment system was presented at the following international conferences with their resulting scientific publications:

- 'Mejora de la motivación y el rendimiento de los alumnos de Formación Profesional mediante la utilización de métodos inmersivos en entornos internacionales (Learning4Work)', Fonseca, D., Climent, A., Vicent, Ll., Canaleta, X., *Congreso Internacional sobre Aprendizaje, Innovación y Competitividad - CINAIC 2015*, 14-16 October, Madrid, SPAIN, In *Actas de Conferencia*, pp. 109-114, ISBN: 978-84-608-2907-2
- 'Learning4Work. Designing a new Evaluation System based on Scenario Centered Curriculum Methodology: the Pre-test', Fonseca, D., Climent, A., Vicent, Ll. Canaleta, X., *HCII2016 - 18th International Conference on Human-Computer Interaction.* In *3rd International Conference on Learning and Collaboration Technologies*, 17-22 July, Toronto, CANADA, Virtual Learning and Collaboration Technologies Volume 23 of the series Lecture Notes in Computer Science 9753, Ed. P. Zaphiris, A. Ioannou, Springer, pp 3-13, Print ISBN: 978-3-319-39482-4, ISBN: 978-3-319-39483-1, ISSN: 0302-9743, DOI: 10.1007/978-3-319-39483-1_1

4.1.1 Traditional Course. Pre-Test

The traditional format DM course was begun by a total of 70 students (see Table 4-1-1) from three schools in the consortium, one per country chosen at random. The students' average age was 19.63 with a standard deviation (SD) of 1.65.

	MD-Traditional Spain		MD-Traditional Italy		MD-Traditional France	
	n.	%	n.	%	n.	%
Men	4	9,1	15	75,0	3	50,0
Female	40	90,9	5	25,0	3	50,0

Table 4-1-1 Sample distribution. Traditional DM Pre-Test.

This distribution is not homogeneous or uniformly distributed, largely due to the few samples obtained in particular in the case of the French school, and this has to be borne in mind in the Pre-Test analysis. The latter may be considered significant and valid if the data obtained are on a par, an aspect that we review below with the Pre-Test data.

Results of the technology profile test

The first of the Pre-Tests collates the students' personal data about their technology uses, training and knowledge about a number of digital systems.

	Q1: How often do you use your computer?	Q2: How often do you use services of Internet?	Which devices do you usually use to access Internet (select):					
			PC	Computer at school	Smartphone	Tablet	I don't use Internet	Other
ESP	3,54	3,98	68,75%	47,92%	93,75%	31,25%	0,00%	2,08%
ITA	3,05	3,26	50,00%	15,00%	20,00%	5,00%	5,00%	5,00%
FRA	3,50	4,00	50,00%	50,00%	100,00%	50,00%	0,00%	0,00%

Table 4-1-2 Internet access by devices (DM-T). In Q1 and Q2 the working scale is 4: daily, 3: occasionally, 2: only at school, 1: rarely, 0: never.

The first data collected (Table 4-1-2) show the frequency of use of computer systems and Internet access. This is important inasmuch as it reflects the "degree of connection dependence" the students have, an aspect which might encourage greater predisposition to the use of technology applied to their training. The results reflect similar behaviour among the students in terms of frequency of use of their personal computer Q1 (there is no statistically significant difference P (T<=t) = p > 0.05 based on analysis of the variance using t-test, starting from the initial hypothesis H_0 as there are no differences between the results). However, there is a significant difference in frequency of Internet use which is significantly lower (p = 0.01) in the Italian group. This difference in use is confirmed in the following variables where we find that while the Spanish and French students use their smartphones and personal computers most frequently, the Italians tend to turn more to fixed devices such as personal computers.

	Identify level of knowledge of the following programs								
	Word Processing	Multimedia Presentations	Hypertext	Spreadsheets	Image processing	Audio/video production	Concept maps	Publication of audio/video	Social media tools
ESP	2,50	2,32	0,82	1,38	2,17	1,83	2,13	2,04	2,50
ITA	0,89	1,61	0,67	1,50	1,39	1,28	1,50	1,06	1,75
FRA	2,50	2,50	2,17	2,17	2,67	2,17	1,33	2,17	2,67

Table 4-1-3 Level of knowledge of programs (DM-T). The working scale is 3: high, 2: medium, 1: low, 0: none.

Moving on to analysing perceived knowledge about various digital applications (Table 4-1-3), again there is a significantly lower average for the Italian students (1.29) compared to the Spanish (1.96) and French (2.26) ones. The degree of perceived skills with online systems that enable collaborative work (Table 4-1-4) also reflects a similar distribution, with a lower average for the Italian school (1.26) compared to the Spanish and French schools (1.89 and 1.77 respectively).

	What is your degree of competence in each following systems?							
	Blog	Forum	Wiki	Text chat	Audio/Video conference	E-mail	Social networks	e-Learning platforms
ESP	1,15	1,13	2,02	2,27	1,83	2,75	2,71	1,23
ITA	0,83	0,72	1,41	1,44	0,94	2,00	1,88	0,83
FRA	2,17	1,50	2,00	0,67	1,17	2,83	3,00	0,83

Table 4-1-4 Level of digital systems skills (DM-T). The working scale is 3: high, 2: medium, 1: low, 0: none.

Next the students were asked about their ICT training (Table 4-1-5).

	Q1: ¿Have you participated in ICT training courses?	In case of afirmative answer, how?						
		Forum participation	Using Shared data	On-line meetings	On-site meetings	Merged meetings	E-learning	Other
ESP	72%	11,11%	33,33%	25,93%	37,04%	11,11%	11,11%	29,63%
ITA	16%	0,00%	100,00%	0,00%	25,00%	25,00%	25,00%	0,00%
FRA	83%	0,00%	0,00%	0,00%	25,00%	0,00%	0,00%	100,00%

Table 4-1-5 Participation in ICT training courses. (DM-T)

As can be seen, while in Spain and France a high percentage of students have done ICT-related training in the past, in the case of Italy there are a number of students who in addition to low Internet and ICT use have not previously been trained in these items. This aspect concerning the type of training received (see the questions about training received in Table 4-1-5) is an initial indicator that we have two groups with prior ICT knowledge and one, the Italian group, at the other, very low-tech end of the scale.

These data are confirmed by the level of satisfaction with previously received training shown in Table 4-1-6. The Spanish and French schools averaged a response of 1.73 out of 3, while the Italian one was down at 0.99. This aspect, although significantly different, provides us with an important piece of information: no previous training comes close to excellent on average and the students' rating is either a mere pass (ESP and FRA) or even a big fail (ITA).

	Fulfillment of initial expectations	Fulfillment of professional interest	Positive effects on teaching	Effects on the quality of teching materials	Use in school
ESP	1,42	1,35	1,88	2,19	1,98
ITA	1,11	1,11	0,89	1,11	0,73
FRA	1,67	1,33	1,83	1,50	2,17

Table 4-1-6 ICT training assessment (DM-T). The working scale is 3: high, 2: medium, 1: low, 0: zero.

The main ICT data concerning devices and applications which might be used in the project and how they are used are shown in Table 4-1-7, Table 4-1-8 and Table 4-1-9 below.

	Using ICT, which of the following tools have you used/use?			
	Computer laboratory	Interactive Whiteboard	Personal Devices	Other
ESP	5,00%	0,00%	87,50%	20,00%
ITA	85,71%	14,29%	28,57%	0,00%
FRA	33,33%	16,67%	33,33%	50,00%

Table 4-1-7 Use of ICT devices in the classroom. (DM-T)

	Select the ICT that you have used:				
	Moodle	Edmodo	Google Apps	YouTube	Other
ESP	27,50%	12,50%	80,00%	92,50%	37,50%
ITA	0,00%	14,29%	14,29%	71,43%	14,29%
FRA	16,67%	0,00%	33,33%	66,67%	33,33%

Table 4-1-8 Use of ICT services associated with education. (DM-T)

		In case of afirmative answer, what type?					
	Have you ever used digital educational content to promote "product" ideas?	Content created with text applications	Content created with presentation applications	Content created with LIM software	Content created with educational applications	E-book	Other
ESP	61,36%	62,07%	68,97%	3,45%	3,45%	6,90%	20,69%
ITA	8,33%	66,67%	66,67%	0,00%	33,33%	0,00%	0,00%
FRA	83,33%	66,67%	50,00%	0,00%	0,00%	0,00%	16,67%

Table 4-1-9 Use of digital educational content to promote an idea or "product". (DM-T)

The results show a predominant use of personal devices and ones in computer classrooms as previously used work environments. In terms of applications, Google Suite and YouTube tutorials are without doubt the systems most used to create projects based on purely word processing and presentation applications.

By way of summary we have groups of students with a medium (Spanish and French schools) and low (Italian schools) level of technology. This contention is based on their simple use of

devices and applications as well as the degree of ICT training previously received. Thus the impact of a traditional format ICT course is unlikely to be ideal prior to the second round in the MOBCOM course where the level of satisfaction may well be very high compared to the baseline.

Results of the initial motivation test

To analyse the results from this test and help with their representation, we have identified and defined the following study variables (IM: Initial Motivation):

- IM-1: To find a job more easily
- IM-2: To find a job consistent than studies with more ease
- IM-3: To find a job that allows you to earn more
- IM-4: To find a job that can take responsibility and autonomy
- IM-5: To find a job that allows you to perform skilled tasks
- IM-6: For growth and personal maturity
- IM-7: To improve my career opportunities
- IM-8: To orient the work
- IM-9: For frequency by classmates / friends
- IM-10: To call / parent council
- IM-11: To call / teachers' council
- IM-12: For lack of other opportunities (work, study, etc.)

Table 4-1-10 shows the data for the three schools in the study.

	What were the reasons that led you to choose this training course?											
	IM-1	IM-2	IM-3	IM-4	IM-5	IM-6	IM-7	IM-8	IM-9	IM-10	IM-11	IM-12
ESP	1,91	1,69	1,78	2,00	2,04	2,30	2,51	1,98	1,22	0,96	0,87	1,39
ITA	1,15	1,16	1,37	1,16	1,32	1,56	1,47	1,47	1,11	1,05	1,67	0,84
FRA	1,00	0,50	1,00	1,00	1,00	1,33	1,33	0,50	0,50	0,00	1,17	0,33

Table 4-1-10 Reasons for choosing the training course (DM-T). The working scale is 3: a lot, 2: sufficient, 1: little, 0: by no means.

Overall, while the Spanish school has an average of 1.72 (SD: 0.51), the Italian school is down at to 1.28 (SD: 0.23) and the French school stands at 0.81 (SD: 0.42). These results show low initial motivation among the students in the course proposal and only the Spanish school gives it even a bare pass. The aspects that most motivate the students are shown in
Figure **4-1-1**:
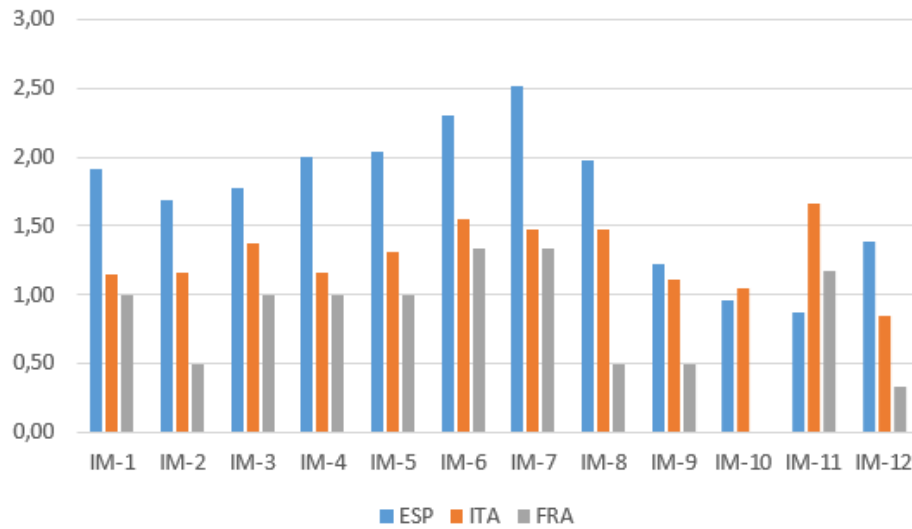
Figure 4-1-1 Traditional DM Initial Motivation

The main motivations for the Spanish school are to improve their prospects for finding work in the future (IM-7), personal improvement in general (IM-6) and finding jobs with specific tasks and skills (IM-5). The Italian school and its French counterpart rated improved relations with teachers (IM-11) more highly than IM-6 and IM-7.

Results of the SCC motivation test

To analyse the results from this test and help with their representation, we have identified and defined the following study variables (SCC-M: SCC Motivation):

- SCC-M1: Have you ever heard of SCC before?
- SCC-M2: Do you like the idea of engaging in a learning in order to simulate a real work situation, in which you assume an important role in order to solve problems and / or achieve goals?
- SCC-M3: Do you think you can be a good work team member on a specific project?

	SCC-M1	SCC-M2	SCC-M3
ESP	0,00%	65,96%	89,58%
ITA	0,00%	72,22%	66,67%
FRA	0,00%	50,00%	83,33%

Table 4-1-11 SCC knowledge and motivation. (DM-T)

As can be seen, initially none of the students had heard of the SCC method which is the core feature of the project. However, in all cases there is a positive attitude to collaborative group work and the idea of working on real roles in real projects.

In order to determine which aspects of the SCC method the students thought most useful, a brief explanation of it was given before they were asked about the aspects shown in Table 4-1-12:

	Among the various moments of which will consist of the learning experience SCC, which you think are the most interesting				
	To simulate a real work problem	Working in a team	To use new technologies	Doing less theory and more practice	To practice foreign languages
ESP	84,78%	97,78%	87,23%	91,49%	72,34%
ITA	83,33%	83,33%	88,89%	83,33%	72,22%
FRA	83,33%	100,00%	100,00%	100,00%	66,67%

Table 4-1-12 SCC aspects considered most useful in principle. (DM-T)

The table suggests that overall the method's potential is perceived as very high (between 84% and 92%) with results that show how the students see the SCC method as extremely useful for solving real problems, working as a team, using new technology and taking a more practical approach to learning processes. The lowest rated aspect is the method's potential for enhancing language skills as this is something that the students believe will not be so clearly improvable by the system (the perception falling to 70% on average).

Results of the specific skills test

To analyse the results from this test and help with their representation, we have identified and defined the following study variables (SS: Specific Skills):

- SS-1: Social Network use
- SS-2: Advertising in social networks
- SS-3: SEO Achronym meaning
- SS-4: Facebook use
- SS-5: Instagram use
- SS-6: Tuenti use
- SS-7: Linkedin use
- SS-8: Twitter use
- SS-9: Google+ use
- SS-10: Internet advertising gratuity
- SS-11: Google results hierarchy
- SS-12: Sponsored links acknowledgement
- SS-13: Adword Aknowledgement
- SS-14: Analytics tools aknowledgement
- SS-15: Google advertising system aknowledgement
- SS-16: SMM & Social Networks relation acknowledgement

The results broken down by schools and by degree of use and knowledge of the technology described and related to the project can be seen in Table 4-1-13 and graphically in Figure 4-1-2:

	SS-1	SS-2	SS-3	SS-4	SS-5	SS-6	SS-7	SS-8	SS-9	SS-10	SS-11	SS-12	SS-13	SS-14	SS-15	SS-16
ESP	2,71	2,73	0,87	2,53	2,02	0,42	0,22	1,33	1,89	0,40	2,44	1,47	0,49	0,22	0,91	0,58
ITA	2,00	1,79	0,68	1,79	1,47	0,11	0,26	0,26	1,21	0,79	1,95	1,74	1,22	1,05	0,89	0,74
FRA	3,00	2,00	1,00	3,00	2,50	0,00	0,00	1,50	1,83	0,17	3,00	3,00	0,50	2,00	0,83	1,17

Table 4-1-13 Use of and knowledge about the technology and services listed (DM-T). The working scale is 3: yes/a lot, 2: quite a lot, 1: a little, 0: no/nothing.
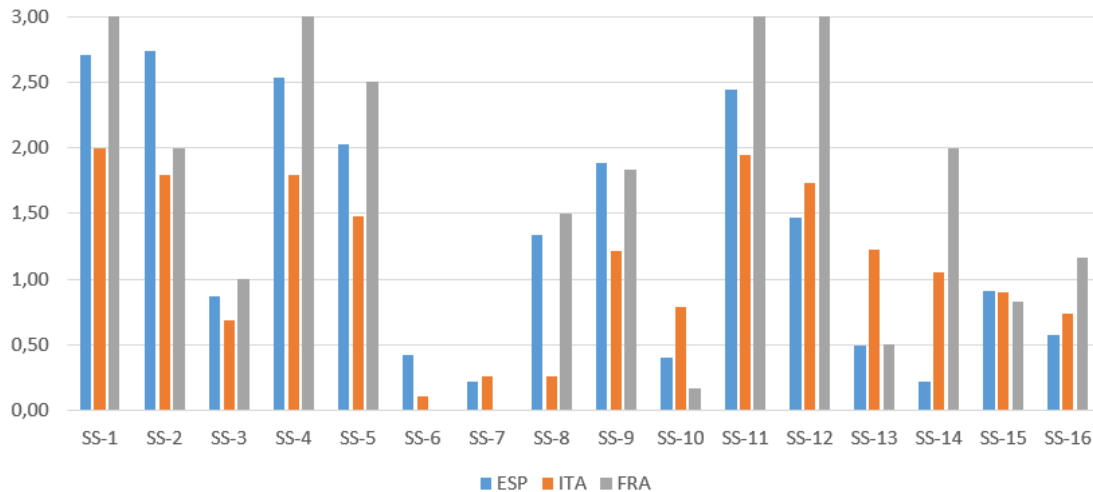
Figure 4-1-2 Course-related ICT use and knowledge. Scale of 3 (yes, known or extensively used, to 0 not used or known).

Overall the averages range from 1.59 (SD: 1.11) for the French school through 1.33 (SD: 0.94) for the Spanish school to 1.12 (SD: 0.63) for the Italian school. The large deviations indicate very high fluctuation between the responses to the resources surveyed. As can be seen, variables SS-1 (social media usage, with a combined average of 2.57 out of 3), SS-2 (knowledge of the social media advertising system, A: 2.17/3), SS-4 (use of Facebook, A: 2.44/3), SS-5 (use of Instagram, A: 2/3), SS-11 (hierarchy of search results on Google, A: 2.44/3) and SS-12 (knowledge about how sponsored links work, A: 2.07/3) are the aspects with greatest student use or knowledge, although again the level of skills in the Italian school is significantly lower.

By contrast questions SS-7 (use of LinkedIn, A: 0.16/3), SS-6 (use of Tuenti, A: 0.18/3) and SS-10 (free internet advertising systems, A: 0.45/3) are aspects with less overall training. In these cases there are no significant differences between the schools with the knowledge level being uniformly low.

4.1.2   Traditional Course. Post-Test

The traditional format DM course was completed by the Spanish and Italian schools, although due to administrative problems the French school was unable to finish it. Accordingly the results tables in the following sections do not include Post-Test information for the French school. This situation partly affects our project because it means we cannot draw up a complete transnational comparison, although given the size of the French sample for this course (n = 6) any data gathered would not have been categorically valid.

Results of the satisfaction test

The first of the Post-Tests includes data about the students' level of satisfaction with the course they did. To assess this parameter several working variables have been identified and grouped by their relationship.

	Are the contents of the course clear?	Is the teaching method novelty respect the common system?	If the above answer is Yes, would in that way?				
			It has more stimulated my participation	It has allowed me to experience and put into practice the knowledge acquired	It has made me think more about the content	It has allowed me to interact with real-life content	Others
ESP	91,67%	91,67%	27,08%	33,33%	6,25%	16,67%	8,33%
ITA	63,16%	84,21%	10,53%	21,05%	26,32%	0,00%	26,32%

Table 4-1-14 Overall satisfaction indexes. (DM-T)

As can be seen in Table 4-1-14, the students, and especially the Spanish group with rates above 90%, thought that both the contents of the course and the work methodology are satisfactory. In the Italian case, the method is considered highly original (at 84.21%) and there is a lower level of satisfaction with the clarity of contents (63.16%). Looking at the students who answered the first two questions positively, the most interesting factors they identified concern practicality and participation. The method described to them has improved the engagement of the Spanish students and enabled them to put into practice work contexts they had not previously used. This latter aspect coupled with greater thinking about content have in turn been the most outstanding aspects for the Italian school. In order to investigate student satisfaction in aspects related to the proposed materials and methodology, we designed the following list of variables (Level of Satisfaction - LS):

- LS-1: Relevancy of distributed material
- LS-2: Clarity and completeness of presentations
- LS-3: Effective communication
- LS-4: Adequateness of the duration of presentations
- LS-5: Utility / usability / concreteness of information provided
- LS-6: Clear teaching
- LS-7: Adequateness of the practical part and exercises
- LS-8: Consistency between the theoretical and practical parts
- LS-9: Using of the knowledge acquired in daily life

- LS-10: Development of creativity
- LS-11: Accessibility to technologies
- LS-12: According to what you have said above, as a whole, Are you satisfied or not?

	level of satisfaction											
	LS-1	LS-2	LS-3	LS-4	LS-5	LS -6	LS -7	LS -8	LS -9	LS -10	LS -11	LS -12
ESP	2,29	2,25	2,35	2,02	2,33	2,13	2,27	2,31	2,06	2,48	2,63	89,58%
ITA	1,68	1,58	1,50	1,63	1,42	2,05	1,53	1,68	1,05	1,37	1,47	52,63%

Table 4-1-15 Level of satisfaction (DM-T). The working scale for LS [1-11] is 3: high, 2: average, 1: very low, 0: not at all. For LS-12, the scale is 1: satisfied, 0: not satisfied.

In line with the preliminary results shown in Table 4-1-14, Table 4-1-15 shows a significantly higher particular and general level of satisfaction in the case of the Spanish school with respect to the Italian school (p = 0.000); while the Spanish group has a remarkably high average level of satisfaction, the Italian one only gives it a pass and even plainly gives a fail to some variables such as the course's usefulness in daily life (LS-9) and helping to increase creativity (LS-10). In the Italian school the best perceived aspect is the clarity of teaching of the course (LS-6) and in the Spanish school it is access to and use of the technology explained (LS-11).

Based on these variables and in order to assess the need for improving the course, a final set of questions was devised. The following list shows the aspects asked about (following the previous list, SUggested, SU) which might be improved in future iterations based on the level of satisfaction perceived by the students:

- SU-1: Relevancy of distributed material
- SU-2: Clarity and completeness of presentations
- SU-3: Effective communication
- SU-4: Adequateness of the duration of presentations
- SU-5: Utility / usability / concreteness of information provided
- SU-6: Clear teaching
- SU-7: Adequateness of the practical part and exercises
- SU-8: Consistency between the theoretical and practical parts
- SU-9: Using of the knowledge acquired in daily life
- SU-10: Development of creativity
- SU-11: Accessibility to technologies

	Which of the following aspects would you suggest to improve in the course attended?										
	SU-1	SU-2	SU-3	SU-4	SU-5	SU-6	SU-7	SU-8	SU-9	SU-10	SU-11
ESP	20,83%	**41,67%**	31,25%	**29,17%**	33,33%	**25,00%**	**33,33%**	14,58%	**29,17%**	45,83%	37,50%
ITA	21,05%	10,53%	**21,05%**	15,79%	21,05%	26,32%	5,26%	15,79%	**15,79%**	**15,79%**	10,53%

Table 4-1-16 Improvable aspects of the course. (DM-T)

In Table 4-1-16 we have identified in bold the five worst-rated level of satisfaction variables by school according to Table 4-1-15 and shaded perceived improvement needs in three greyscales from highest to lowest. In the case of the Spanish school two highly necessary improvements were identified (SU-2 and SU-10, with mentions by more than 40% of students), although only

SU-2 (clarity and quantity of presentations) also received a low satisfaction rating. SU-10 (development of creativity) is another aspect with clear room for improvement together with accessibility to technologies (SU-11, mention rate: 37.5%) and in general the suitability and usability of the methods (SU-5 and SU-7) in relation to the studies done.

The Italian group divides up its proposals for improvement into many more variables and in a more uniform way without picking out any in particular (SU-6, improvement of teaching, getting the most mentions), an aspect that would be related to low overall perceived satisfaction. An odd aspect is that while teaching (LS-6) is the only variable that gets close to excellent in student satisfaction, it is identified as one of the variables that needs most improvement in the future (SU-6, with a 26.32% mention rate). Other aspects already identified by the Spanish group reappear as aspects to be improved: the usefulness of content (SU-5) and its relevance and/or adaptation to studies are still aspects that students do not grasp and need better communication and degree of fit with the studies for their future usefulness.

Results of the method usability test

The next section evaluated in the Post-Tests concerned the rating of the students' experience with the proposed course and contents. For this analysis we have defined the following variables (Usability-U):

- U-1: In terms of usability, do you think that the training method is accessible?
- U-2: Do you think that the contents, teaching style, equipment and teaching materials are appropriate to the stated objectives?
- U-3: Do you think that time dedicated to the application of the methodology in the school planning is adequate?
- U-4: The style of training conduction was characterized by mastery of content and clarity
- U-5: Online didactic support and classroom was adequate
- U-6: The training method encourages collaboration and teamwork in order to perform the tasks and achieve the objectives
- U-7: What do you think of the amount of teaching materials?
- U-8: What do you think of quality of teaching materials?
- U-9: The technological support and equipment were intuitive and easy to use , adequate and functional

	U-1	U-2	U-3	U-4	U-5	U-6	U-7	U-8	U-9
ESP	2,21	1,86	2,32	2,41	1,98	1,56	1,43	1,98	2,35
ITA	1,45	1,27	1,36	1,64	1,55	1,36	1,27	1,55	1,64

Table 4-1-17 Use of the method (DM-T). The working scale is 3: a lot, 2: somewhat, 1: slightly, 0: not at all.

Overall (see Table 4-1-17) the perceived level of usability of the course was 2.01 out of 3 (SD: 0.34) for the Spanish group and 1.45 (SD: 0.14) for the Italian school. This difference is statistically significant (p = 0.001) and once again indicates differences in behaviour between the schools. The values are in line with the satisfaction results, with the Spanish average around excellent and the Italian results in the limit area.

Furthermore, there is a direct relationship between the most and least "usable" variables. The best-rated aspects (U-4 and U-9) are the same for both schools (training style and adaptability of the technological medium and equipment). There are also some matches in lowest usability, such as U-7: Quantity of materials. In this case and asking both teachers and students, working with a large textbook and dense content is undoubtedly one of the reasons why a poor rating was given (for example, it is one of the few variables marked as a fail by the Spanish group). It may well be, and albeit without having yet examined the experimental group's results or done the second course, that these are variables (U-2, U-6, U-7) which, as was to be expected, get very low ratings since it is still a normal course based on text-type content, even though there is a practical component inherent in it.

Results of the general skills test

Continuing with the structure indicated above, the next set of Post-Test questions is about the students' assessment of perceived improvement in the following general skills (General Skills, GS):

- GS-1: I learned to express myself better
- GS-2: I use more easily the technical knowledge (mathematics, science, technology)
- GS-3: I'm more sure of myself
- GS-4: I have new ideas that could be turned into business ideas
- GS-5: My desire to learn has grown
- GS-6: I know better the use of information technology
- GS-7: I have increased my interest to work in group
- GS-8: I better recognize the potential of others, appreciating diversity
- GS-9: I find that between school and daily life there are many aspects of continuity that I did not see before
- GS-10: I value more my cultural knowledge
- GS-11: I value more my activities outside school as an experiences that can help me for future work
- GS-12: I was able to make mental connections that before are impossible to me
- GS-13: I am convinced more that every problem comes with a solution
- GS-14: I am able to realize my aspirations after schooling
- GS-15: I understand better the importance of languages
- GS-16: I feel that I am more prepared to overcome an obstacle
- GS-17: I realized that studying and working in a group is much better than studying and working alone
- GS-18: I grew the desire to continue studying after graduation
- GS-19: I think that doing things together with others they yield more results
- GS-20: I have changed my way of thinking about the future work, believing it is more important to the realization of aspirations rather than finding any job
- GS-21: I have improved the use of foreign languages

	General skills																				
	GS-1	GS-2	GS-3	GS-4	GS-5	GS-6	GS-7	GS-8	GS-9	GS-10	GS-11	GS-12	GS-13	GS-14	GS-15	GS-16	GS-17	GS-18	GS-19	GS-20	GS-21
ESP	1,93	2,02	2,02	1,93	2,22	2,36	2,13	2,31	2,07	2,40	2,49	1,84	2,29	2,09	2,60	2,16	2,36	2,47	2,27	2,13	1,44
ITA	1,58	1,08	1,50	1,33	1,36	1,43	1,92	1,75	1,33	1,75	1,53	1,42	1,42	1,45	1,83	1,58	1,73	0,90	1,67	1,83	1,25

Table 4-1-18 General skills (DM-T). The working scale is 3: a lot, 2: somewhat, 1: slightly, 0: not at all.

Overall the average score of the Spanish students is 2.17 out of 3 for the selected skills (SD: 0.25) while it is 1.49 (SD: 0.26) for the Italian school. This difference is again statistically significant (p = 0.000), thus confirming the different responses between the two groups.

As in the case of usability, in Table 4-1-18 we have marked the most positive (green) and negative (red) values, finding common positive convergence in the GS-10, GS-15 (best rated by both groups) and GS-17 skills and common negative convergence in the GS-4, GS-9 and GS-21 skills. It is worth mentioning that skill GS-18 (My interest in continuing to study after graduation has grown) was rated very highly by the Spanish group (in third place) while it was at the other end of the scale for the Italian group as the worst rated. If we only compare the Italian group's response with the Spanish one it seems pretty poor; however, the rating scale needs to be borne in mind. The Italian result shows a slight increase in this interest in continuing to study, which is very interesting since even with a course that seems not to have adapted to the students' needs and expectations, they have a greater interest in carrying on with their education. We will need to compare this factor as the course is improved and adapted to their needs to see whether there are any significant fluctuations and/or improvements or gains that demonstrate the method's effectiveness.

Results of the specific skills test

For this analysis students were asked about their perception of the level acquired in the specific skills set out in the Pre-Test. The variables are (Specific Skills, SS):

- SS-1: Social Network use
- SS-2: Advertising in social networks
- SS-3: SEO Achronym meaning
- SS-4: Facebook use
- SS-5: Instagram use
- SS-6: Tuenti use
- SS-7: Linkedin use
- SS-8: Twitter use
- SS-9: Google+ use
- SS-10: Internet advertising gratuity
- SS-11: Google results hierarchy
- SS-12: Sponsored links acknowledgement
- SS-13: Adword Aknowledgement
- SS-14: Analytics tools aknowledgement

- SS-15: Google advertising system aknowledgement
- SS-16: SMM & Social Networks relation aknowledgement

	SS-1	SS-2	SS-3	SS-4	SS-5	SS-6	SS-7	SS-8	SS-9	SS-10	SS-11	SS-12	SS-13	SS-14	SS-15	SS-16
ESP	2,85	2,85	2,33	2,70	2,30	1,37	1,20	1,85	2,13	1,35	2,63	2,48	2,65	2,00	2,43	2,15
ITA	1,92	1,50	0,92	1,33	1,08	0,17	0,42	0,17	1,23	0,58	1,67	1,33	1,25	1,08	1,33	0,75

Table 4-1-19 Specific skills on uses and knowledge of technology (DM-T). The working scale is 3: yes, a lot, 2: quite a lot, 1: a little, 0: no/nothing.

These data can be analysed in two ways: independently as in the other Post-Test tables or by comparison with the data initially obtained in the Pre-Test. Independently, and in the same way as in the previous subsections, the Spanish average is 2.2 (SD: 0.53) and the Italian 1.05 (SD: 0.51). Here we can highlight two main points: firstly the low Italian skill perception (with a remarkably low average in relation to the rest of the studied variables) and secondly the convergence between the skills rated best (SS-1, SS-2, SS-4 and SS-11) and worst (SS-6, SS-7, SS-8, S-10) by the schools, which identifies aspects to be maintained and potentially improved in future courses if these skills are considered important.

The results of dependent and graphic analysis of the Pre-Test and Post-Test to evaluate the skills' progression are shown in Figure 4-1-3 below:
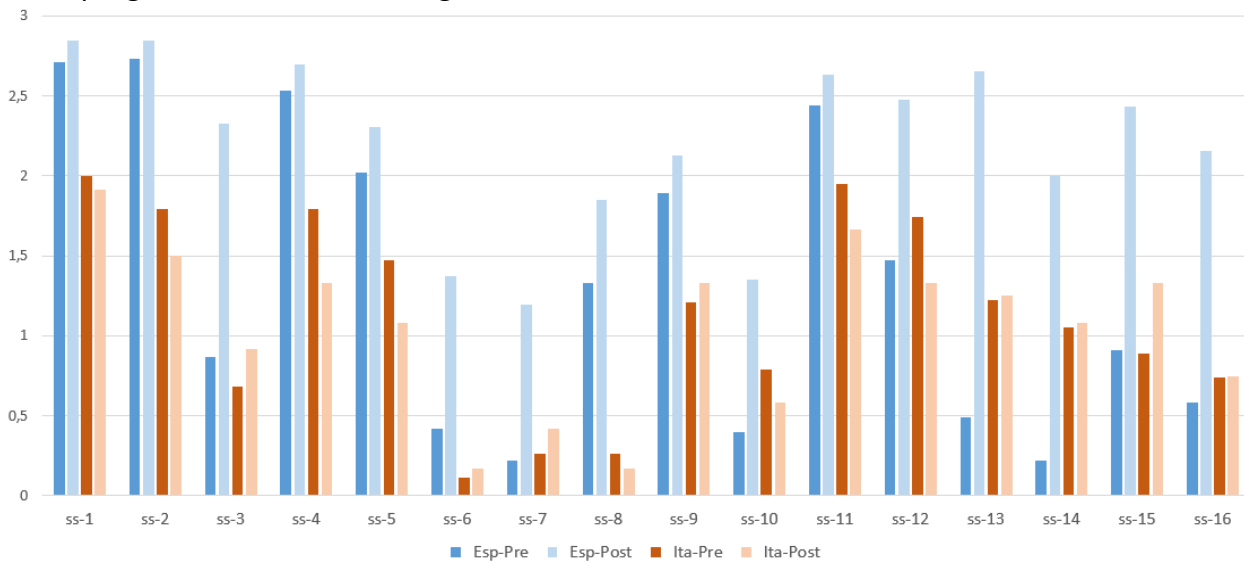
Figure 4-1-3 Pre vs. Post specific skills comparison. (DM-T)

The comparative results of both surveys reveal data differentiated by schools. While in the Spanish one the level of skill has increased in all the indicators and on average has risen from 1.32 to 2.23 out of a maximum of 3 (significant increase $p = 0.003$), in the case of the Italian school the minimal change from 1.12 on average to 1.05 cannot be considered significant ($p = 0.733$). This absence of change and the fact that the digital skills of the students in the Italian group have not increased is a major challenge for the type of course conducted (traditional) albeit prior to the evaluation of the experimental group and the subsequent course to be run in this school using the project's target methodology: SCC.

4.1.3   SCC Course Data. Pre-Test

The SCC-format DM course was begun by a total of 62 students (see Table 4-1-20) the three schools in the consortium, one per country randomly assigned. The students' average from age was 18.95 with a standard deviation (SD) of 2.79.

	MD-SCC Spain		MD-SCC Italy		MD-SCC France	
	n.	%	n.	%	n.	%
Men	27	96,4	15	75,0	11	78,6
Female	1	3,6	5	25,0	3	21,4

Table 4-1-20 Sample distribution. SCC DM Pre-Test.

Results of the technology profile test

As in the traditional course, the first test focused on evaluating the students' profiles in terms of their technology uses, training and knowledge about digital systems (see Table 4-1-21).

	Q1: How often do you use your computer?	Q2: How often do you use services of Internet?	Which devices do you usually use to access Internet (select):					
			PC	Computer at school	Smartphone	Tablet	I don't use Internet	Other
ESP	2,73	3,96	92,86%	28,57%	72,22%	69,23%	0,00%	14,29%
ITA	2,90	3,60	70,01%	16,35%	10,52%	1,00%	0,00%	6,12%
FRA	3,43	3,79	35,71%	7,14%	92,86%	21,43%	0,00%	0,00%

Table 4-1-21 Internet access by devices (DM-SCC). In Q1 and Q2 the working scale is 4: daily, 3: occasionally, 2: only at school, 1: rarely, 0: never.

The first data collected show that the groups' behaviour is uniform (there is no statistically significant difference P (T<=t) = p > 0.05 based on analysis of the variance using t-test, starting from the initial hypothesis H_0 as there are no differences between the results) with respect to frequency of computer use (on average 3.02 out of 4) and use of Internet services (3.78/4). However, there are differences in terms of devices used: in the Spanish school there was a predominant use of personal computers followed by smartphones and tablets whereas the Italian students predominantly use personal and school computers with less use of mobile devices. Finally, the students in the French group present exactly the opposite behaviour as their use of mobile technology is higher than their use of fixed computers.

Table 4-1-22 and Table 4-1-23 show the results for knowledge of programs and level of skill in the applications specified in the initial survey:

	Identify level of knowledge of the following programs								
	Word Processing	Multimedia Presentations	Hypertext	Spreadsheets	Image processing	Audio/video production	Concept maps	Publication of audio/video	Social media tools
ESP	2,71	2,43	2,14	2,17	1,97	1,97	1,94	2,09	2,40
ITA	1,60	1,95	1,35	1,90	1,63	1,55	2,10	1,40	2,05
FRA	2,14	1,86	0,71	1,64	1,64	1,21	0,79	1,14	2,14

Table 4-1-22 Level of knowledge of programs (DM-SCC). The working scale is 3: high, 2: medium, 1: low, 0: none.

	What is your degree of competence in each following systems?							
	Blog	Forum	Wiki	Text chat	Audio/Video conference	E-mail	Social networks	e-Learning platforms
ESP	2,14	2,26	2,40	2,51	2,20	2,57	2,49	2,00
ITA	1,45	1,40	1,90	2,15	1,55	2,21	2,45	1,35
FRA	0,86	1,43	2,14	0,36	0,93	2,50	2,64	0,36

Table 4-1-23 Level of digital systems skills (DM-SCC). The working scale is 3: high, 2: medium, 1: low, 0: none.

Analysis and comparison of the results (see Figure 4-1-4) shows that on average (Spain: 2.26, SD: 0.23, Italy: 1.76, SD: 0.34, France: 1.44, SD: 0.72) there are significant differences between the Spanish group and the other two groups (p = 0.000). This indicates that initially, whether due to personal profile and/or studies, the group of Spanish students is more used to handling the technologies surveyed. By contrast there are no profile differences between the Italian and French schools (p = 0.110, bearing in mind that to prove the inequality hypothesis the value of p has to be below the statistical limit of 0.05) which suggests that the type of prior knowledge and/or digital skills are similar.

These initial data are important insofar as we will have to assess how far the initial profile and doing the course improve the digital skills of the students with a lower initial level (the Italians and French) and adapt those with theoretically higher digital knowledge (the Spanish).
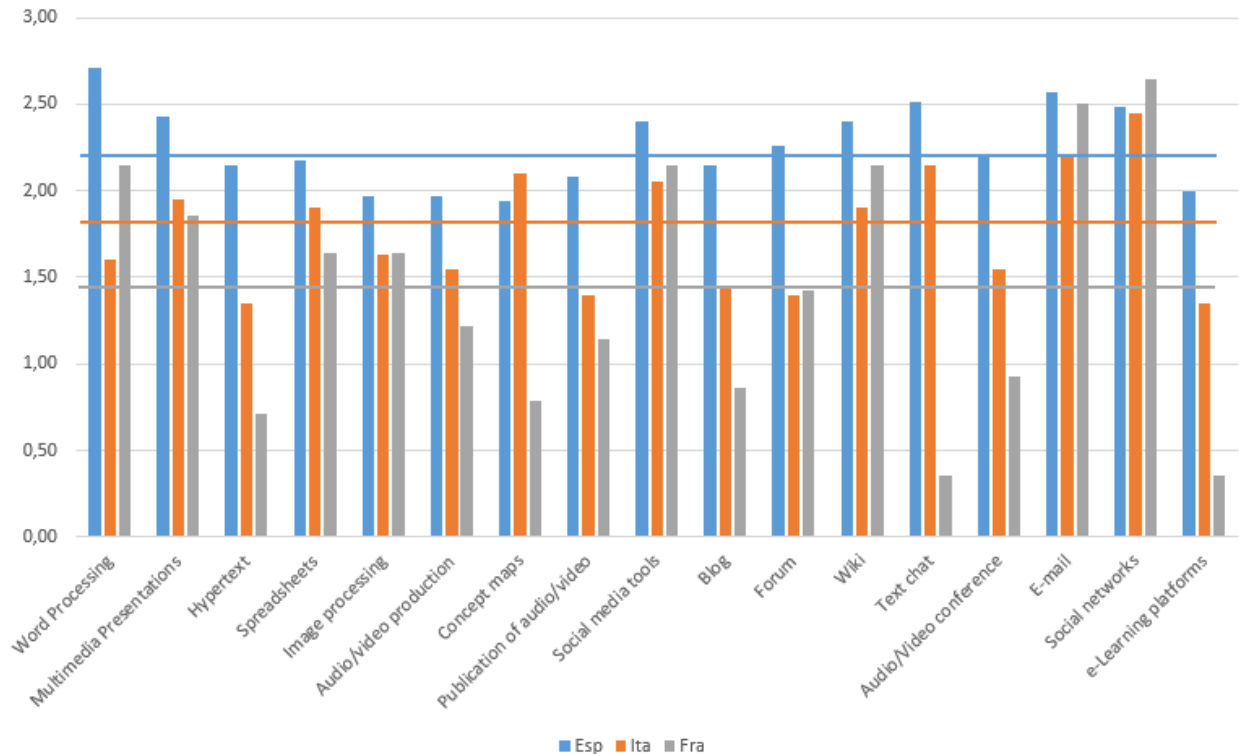
Figure 4-1-4 Comparison of prior digital systems knowledge and skills. (DM-SCC)

Next the students were asked about their ICT training (Table 4-1-24).

	Q1: ¿Have you participated in ICT training courses?	In case of afirmative answer, how?						
		Forum participation	Using Shared data	On-line meetings	On-site meetings	Merged meetings	E-learning	Other
ESP	51%	44,44%	66,67%	25,00%	44,44%	37,50%	50,00%	40,00%
ITA	45%	0,00%	29,00%	14,00%	71,00%	0,00%	14,00%	35,00%
FRA	71%	20,00%	10,00%	0,00%	30,00%	0,00%	80,00%	0,00%

Table 4-1-24 Participation in ICT training courses. (DM-SCC)

As can be seen, about 50% of the Spanish and Italian students have received previous training in ICT, rising to around 71% in the case of the French students. As for the type of training courses done (many of them not recently according to qualitative data we analysed based on comments), the students in the Spanish group say they have done a variety of those asked about whereas the Italians and French mostly report training in running face-to-face meetings (71%) and e-learning systems (80%) respectively. These data may well reflect very different types of interests between the schools based on the contents taught.

Table 4-1-25 below shows the assessment of the prior training received:

	Fulfillment of initial expectations	Fulfillment of professional interest	Positive effects on teaching	Effects on the quality of teching materials	Use in school
ESP	2,67	2,60	2,60	2,73	1,83
ITA	0,65	0,85	0,95	1,05	1,55
FRA	0,21	0,43	0,21	0,57	0,71

Table 4-1-25 ICT training assessment (DM-SCC). The working scale is 3: high, 2: medium, 1: low, 0: none.

While the Spanish group's average level of satisfaction with previous training received is 2.49 (SD: 0.37), the averages of the Italian and French groups present a clear fail (1.01, SD: 0.33 and 0.43, SD: 0.22 respectively). This information may also be relevant when examining the students' behaviour and satisfaction with our proposal in order to assess whether, in addition to potentially being remote from their interests, it can overcome some rather negative previous experiences for the French and Italian students and also come up to the expectations and level of satisfaction with previous training in the case of the Spanish students.

The main ICT data concerning devices and applications which might be used in the project and how they are used are shown in Table 4-1-26, Table 4-1-27 and Table 4-1-28 below.

	Using ICT, which of the following tools have you used/use?			
	Computer laboratory	Interactive Whiteboard	Personal Devices	Other
ESP	92,86%	28,57%	72,22%	69,23%
ITA	60,00%	40,00%	35,00%	0,00%
FRA	35,71%	0,00%	7,14%	57,14%

Table 4-1-26 Use of ICT tools. (DM-SCC)

	Select the ICT that you have used:				
	Moodle	Edmodo	Google Apps	YouTube	Other
ESP	96,00%	14,29%	73,33%	85,71%	33,33%
ITA	15,00%	30,00%	40,00%	50,00%	10,00%
FRA	0,00%	0,00%	42,86%	35,71%	28,57%

Table 4-1-27 Use of ICT services. (DM-SCC)

		In case of afirmative answer, what type?					
	Have you ever used digital educational content to promote "product" ideas?	Content created with text applications	Content created with presentation applications	Content created with LIM software	Content created with educational applications	E-book	Other
ESP	34,29%	54,55%	54,55%	12,50%	22,22%	14,29%	30,00%
ITA	35,00%	0,00%	10,00%	25,00%	0,00%	5,00%	5,00%
FRA	28,57%	42,86%	0,00%	0,00%	0,00%	0,00%	57,14%

Table 4-1-28 Use of digital educational content to promote an idea or "product". (DM-SCC)

Overall, and corroborating the results discussed above, there are divergent results between the study schools. The Spanish students present high use of ICT tools, especially personal computers and devices, with a predominant use of Moodle as an educational platform and Google and

YouTube applications for tutorials. They have the most proactive approach to potential business ideas and/or advertising of own products with a number of identified uses of the proposals surveyed.

In the case of the Italian group the technology use percentages are smaller in comparison with the Spanish students. There is no educational use of intranets and their training is focussed on Google applications and YouTube tutorials. Use of digital systems for their own purposes mainly consists of very specific presentations and software.

The French students vary their use of ICT and coincide with the Italians in their use of digital systems such as Google or YouTube, although their few initiatives for idea positioning make use of basic textual explanations and similar non-specified systems.

By way of summary there is initially a group of students (the Spanish) with a technological level superior to their Italian and French counterparts. This may be both a handicap and an opportunity: firstly, it sets the goal of implementing the methodology and ensuring the latter is appropriate for students with a solid base and high expectations, while secondly it also has to adapt to students with a more basic technological profile and/or with very different interests in order to generate a response that is better than the one given to their previous training.

Results of the initial motivation test

As in the case of the traditional course, to analyse the results from this test and help with their representation we have identified and defined the following study variables (IM: Initial Motivation):

- IM-1: To find a job more easily
- IM-2: To find a job consistent than studies with more ease
- IM-3: To find a job that allows you to earn more
- IM-4: To find a job that can take responsibility and autonomy
- IM-5: To find a job that allows you to perform skilled tasks
- IM-6: For growth and personal maturity
- IM-7: To improve my career opportunities
- IM-8: To orient the work
- IM-9: For frequency by classmates / friends
- IM-10: To call / parent council
- IM-11: To call / teachers' council
- IM-12: For lack of other opportunities (work, study, etc.)

Table 4-1-29 show the results for each school.

| | What were the reasons that led you to choose this training course? | | | | | | | | | | | |
	IM-1	IM-2	IM-3	IM-4	IM-5	IM-6	IM-7	IM-8	IM-9	IM-10	IM-11	IM-12
ESP	1,37	1,26	1,20	1,46	1,46	1,63	1,77	1,60	1,09	0,69	0,69	0,63
ITA	1,45	1,90	2,10	2,20	1,90	2,00	2,30	2,00	1,10	1,35	1,15	1,15
FRA	0,23	0,31	0,31	0,54	0,38	0,69	0,46	0,38	0,62	0,38	2,15	0,46

Table 4-1-29 Reasons for choosing the training course (DM-SCC). The working scale is 3: a lot, 2: sufficient, 1: little, 0: by no means.

Overall the Spanish school has a global average of 1.24 out of a maximum of 3 (SD: 0.39), the Italian school 1.72 (SD: 0.44) and the French school 0.58 (SD: 0.51). These results indicate low initial motivation among the students for the course proposal, and interestingly lowest in the French group in both the traditional DM course group and also this group which is to do the SCC-based course.

As can be seen in Figure 4-1-5, the main motivations for the Spanish school are to improve prospects for finding work in the future (IM-6, 7 and 8) like their Italian counterparts (IM-3, 4 and 7). By contrast the French group with undifferentiated scores only picks out the motivation to build better relations with teachers (IM-11), oddly enough one of the motivations that was also found in the control group (the traditional course). This suggests that in the end the students are doing the course because they have to and do not in any way believe it will be useful either now or in their professional futures.
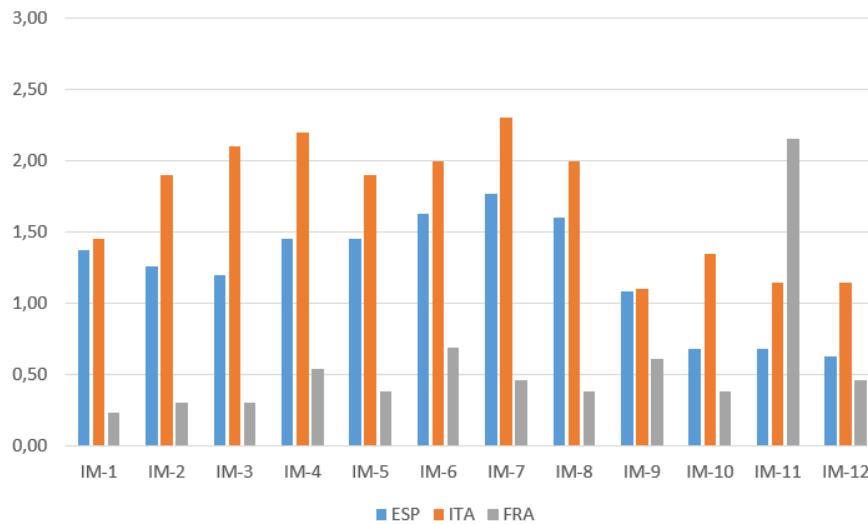
Figure 4-1-5 Initial motivation DM-SCC.

Results of the SCC motivation test

To analyse the results from this test and help with their representation, we have identified and defined the following study variables (SCC-M: SCC Motivation):

- SCC-M1: Have you ever heard of SCC before?
- SCC-M2: Do you like the idea of engaging in a learning that simulated a real work situation, in which you assume an important role in order to solve problems and / or achieve goals?
- SCC-M3: Do you think you can be a good work team member on a specific project?

	SCC-M1	SCC-M2	SCC-M3
ESP	25,71%	80,00%	82,86%
ITA	0,00%	100,00%	75,00%
FRA	11,11%	0,00%	44,44%

Table 4-1-30 SCC knowledge and motivation. (DM-SCC)

The results in Table 4-1-30 corroborate an idea that has so far only been inferred: the students in the French group are initially not motivated to do the course at all. This contention is supported by their low ratings for the SCC-M2 and M3 variables, which are significantly lower than the Spanish and Italian students and even their French counterparts in the control group (see Table 4-1-11). Even though all the students know little about the method (SCC-M1), there are nevertheless high levels of motivation in the other groups to collaboratively work with the proposed method. This is confirmed by the results in the following set of questions shown in Table 4-1-31 below.

	Among the various moments of which will consist of the learning experience SCC, which you think are the most interesting				
	To simulate a real work problem	Working in a team	To use new technologies	Doing less theory and more practice	To practice foreign languages
ESP	80,00%	80,00%	85,71%	82,86%	80,00%
ITA	95,00%	90,00%	90,00%	65,00%	85,00%
FRA	0,00%	66,67%	44,44%	44,44%	22,22%

Table 4-1-31 SCC aspects considered most useful in principle. (DM-SCC)

On average the Spanish and Italian groups have above 80% motivation, in line with the control groups, while the French students are at 35.56% and only give a pass to the idea of working in a group (66.67%) as the most appealing aspect of the proposed course.

Results of the specific skills test

To analyse the results from this test and help with their representation, we have identified and defined the following study variables (SS: Specific Skills):

- SS-2: Advertising in social networks
- SS-3: SEO Achronym meaning
- SS-4: Facebook use
- SS-5: Instagram use
- SS-6: Tuenti use
- SS-7: Linkedin use
- SS-8: Twitter use
- SS-9: Google+ use
- SS-10: Internet advertising gratuity
- SS-11: Google results hierarchy
- SS-12: Sponsored links acknowledgement
- SS-13: Adword Aknowledgement
- SS-14: Analytics tools aknowledgement
- SS-15: Google advertising system aknowledgement
- SS-16: SMM & Social Networks relation acknowledgement

The results broken down by schools and by degree of use and knowledge of the technology described and related to the project can be seen in Table 4-1-32 and graphically in Figure 4-1-6:

	SS-1	SS-2	SS-3	SS-4	SS-5	SS-6	SS-7	SS-8	SS-9	SS-10	SS-11	SS-12	SS-13	SS-14	SS-15	SS-16
ESP	2.31	2.54	2.06	2.33	1.50	0.39	0.53	1.28	0.92	0.56	2.50	2.39	1.75	1.67	1.31	0.86
ITA	2.65	2.10	0.50	2.60	2.20	0.50	0.50	0.90	1.65	1.00	1.75	1.60	0.95	0.60	1.30	0.42
FRA	2.64	1.93	0.50	2.86	1.71	0.21	0.21	0.79	1.21	0.57	2.43	1.86	1.29	1.36	0.57	0.36

Table 4-1-32 Use of and knowledge about digital marketing (technology and services) (DM-SCC). The working scale is 3: yes/a lot, 2: quite a lot, 1: a little, 0: no/nothing.
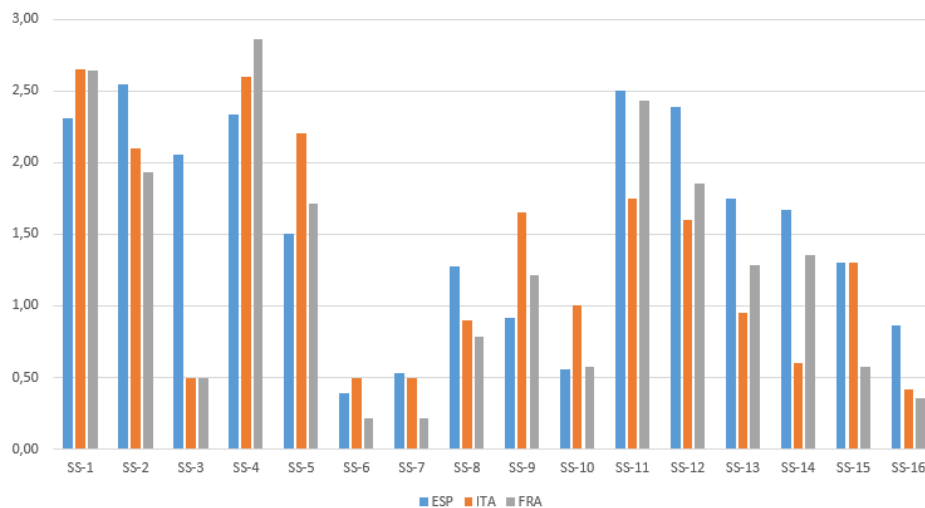
Figure 4-1-6 Course-related ICT use and knowledge (DM-SCC). Scale of 3 (yes, known or extensively used, to 0 not used or known).

The distribution is similar to the control group (see Figure 4-1-2) and in terms of groups ranges from 1.55 (SD: 0.75) in the Spanish group to 1.28 (SD: 0.88) in the French group. As in the case of the traditional group, the value of the results has to be related to the evolution of the course and the Post-Test data in order to compare to what extent the course has impacted the students' training.

4.1.4 SCC Post-Test data

In line with the rating system devised for the end of the courses, the data for the Post-Test at the end of the course using SCC methodology are presented below.

Results of the satisfaction test

Just as in the traditional DM course, the first of the Post-Tests includes data about the students' level of satisfaction with the course they did (Table 4-1-33).

	Are the contents of the course clear?	Is the teaching method novelty respect the common system?	If the above answer is Yes, would in that way?				
			It has more stimulated my participation	It has allowed me to experience and put into practice the knowledge acquired	It has made me think more about the content	It has allowed me to interact with real-life content	Others
ESP	48,48%	51,52%	5,88%	11,76%	29,41%	17,65%	35,29%
ITA	64,71%	64,71%	18,18%	27,27%	27,27%	9,09%	18,18%
FRA	11,11%	100,00%	55,56%	11,11%	11,11%	11,11%	11,11%

Table 4-1-33 Overall satisfaction indexes DM-SCC.

As can be seen from the two main indexes examined in Table 4-1-33, the students rate the clarity of the course's contents very differently and view the method used as innovative. In terms of the clarity of the contents, the score ranges from the 64.71% positive perception of the Italian students to just 11.11% in the French group. Nevertheless, the group of French students unanimously rated the method as innovative and this assessment was also positive (above 50%) in the Spanish and Italian groups. If we connect this information with the low initial motivation of the French group, which even seems to have failed to understand the course's contents, a positive aspect is the fact that the method has stimulated the majority (55.56%) in doing the course above improving the other aspects surveyed. By contrast, the students in the initially most highly motivated groups (ESP and ITA) on average rate their additional thinking about the contents as the most positive aspect of the method.

In order to refine the level of student satisfaction in aspects related to the proposed materials and methodology, we designed the following list of variables to be extracted:

- LS-1: Relevancy of distributed material
- LS-2: Clarity and completeness of presentations
- LS-3: Efectiva comunicación
- LS-4: Adequateness of the duration of presentations
- LS-5: Utility / usability / concreteness of information provided
- LS-6: Clear tracking
- LS-7: Adequateness of the practical part and exercises
- LS-8: Consistency between the theoretical and practical parts
- LS-9: Using of the knowledge acquired in daily life
- LS-10: Development of creativity
- LS-11: Accessibility to technologies
- LS-12: According to what you have said above, as a whole, Are you satisfied or not?

	level of satisfaction											
	LS-1	LS-2	LS-3	LS-4	LS-5	LS -6	LS -7	LS -8	LS -9	LS -10	LS -11	LS -12
ESP	1,36	1,30	1,42	1,27	1,30	1,30	1,36	1,33	1,18	1,27	1,58	30,30%
ITA	1,47	1,47	1,59	1,82	1,65	1,59	1,59	1,47	1,65	1,76	1,76	64,71%
FRA	1,11	0,89	1,22	1,22	1,00	2,33	1,22	1,33	1,22	1,22	2,22	44,44%

Table 4-1-34 Level of satisfaction (DM-SCC). The working scale for LS [1-11] is 3: high, 2: average, 1: very low, 0: not at all. For LS-12, the scale is 1: satisfied, 0: not satisfied.

Table 4-1-34 shows the detail of the ratings in the indexes mentioned above. It is interesting to note the result for LS-12, where the group least satisfied with the course (the Spanish) has a higher technology profile (as shown by Figure 4-1-4). This result would link up with the idea that the course has not met the initial expectations of students potentially interested in its contents and method.

Conversely, the group of French students who had minimal initial motivation for the course (see Table 4-1-29) has moved up to a nearly 50% positive assessment of it, a factor already noted in the first Post-Test analyses. Finally, the group of Italian students with a medium level in terms of technology profile and initial interest reaches about 65% in positive assessment of the course. The most highly rated aspects are use of and access to new technology (LS-11 at 1.85/3) and teachers (LS-6 with an average of 1.74/3). By contrast the lowest rated aspects were the clarity of the presentations (LS-2 with an average of 1.22/3) and the usefulness of the knowledge acquired in daily life (LS-9 at 1.35/3).

Based on these answers, we will examine the variables in the list that potentially should be improved in future iterations:

- SU-1: Relevancy of distributed material
- SU-2: Clarity and completeness of presentations
- SU-3: Effective communication
- SU-4: Adequateness of the duration of presentations
- SU-5: Utility / usability / concreteness of information provided
- SU-6: Clear teaching
- SU-7: Adequateness of the practical part and exercises
- SU-8: Consistency between the theoretical and practical parts
- SU-9: Using of the knowledge acquired in daily life
- SU-10: Development of creativity
- SU-11: Accessibility to technologies

	Which of the following aspects would you suggest to improve in the course attended?										
	SU-1	SU-2	SU-3	SU-4	SU-5	SU-6	SU-7	SU-8	SU-9	SU-10	SU-11
ESP	45,45%	45,45%	54,55%	**33,33%**	**33,33%**	54,55%	42,42%	42,42%	**33,33%**	42,42%	27,27%
ITA	**41,18%**	64,71%	**41,18%**	23,53%	47,06%	**29,41%**	**29,41%**	58,82%	35,29%	35,29%	35,29%
FRA	**44,44%**	55,56%	**11,11%**	**44,44%**	**44,44%**	11,11%	**22,22%**	**11,11%**	33,33%	55,56%	0,00%

Table 4-1-35 Improved aspects of the MD-SCC course.

In Table 4-1-35 we have identified in bold the five worst-rated level of satisfaction variables by school according to Table 4-1-34, the format used in the control course. We have also shaded the aspects identified in this Table as ones to be improved in three greyscales from highest to lowest. From the satisfaction standpoint, there is no bold value common to the three schools (low rating) with at most two negative ratings per factor. Overall and by order of average, the variables with the lowest values in Table 4-1-34 are LS-2, LS-1, LS-5 and LS-9. Furthermore, the only common aspect specifically identified for improvement is the SU-2 indicator (clarity and quantity of contents) followed by SU-1 (relevance of content supplied) and SU-5 (utility, usability of content) as common satisfaction aspects (LS=SU) in addition to SU-8 and SU-10.

Another notable aspect is the need for improvement observed in the Spanish group concerning the variables SU-3 and SU-6, which directly affect the teacher and their communication of the contents. Potentially this aspect identifies one of the variables leading to the low satisfaction obtained by this group, and it will be necessary to improve the transfer of the method to the student to improve its effectiveness.

Results of the method usability test

For our usability analysis we have defined the following work variables:

- U-1: In terms of usability, do you think that the training method is accessible?
- U-2: Do you think that the contents, teaching style, equipment and teaching materials are appropriate to the stated objectives?
- U-3: Do you think that time dedicated to the application of the methodology in the school planning is adequate?
- U-4: The style of training conduction was characterized by mastery of content and clarity
- U-5: Online didactic support and classroom was adequate
- U-6: The training method encourages collaboration and teamwork in order to perform the tasks and achieve the objectives
- U-7: What do you think of the amount of teaching materials?
- U-8: What do you think of quality of teaching materials?
- U-9: The technological support and equipment were intuitive and easy to use , adequate and functional

	Usability								
	U-1	U-2	U-3	U-4	U-5	U-6	U-7	U-8	U-9
ESP	1,41	1,47	1,35	1,26	1,38	1,53	1,50	1,26	1,32
ITA	1,65	1,65	1,59	1,71	1,88	1,53	1,29	1,12	1,47
FRA	1,11	1,33	1,00	1,22	2,67	2,44	2,33	1,33	1,11

Table 4-1-36 Use of the method (DM-SCC). The working scale is 3: a lot, 2: somewhat, 1: slightly, 0: not at all.

Overall (see Table 4-1-36) the perceived level of usability of the course was 1.39 out of 3 (SD: 0.09) for the Spanish group, 1.54 (SD: 0.22) for the Italian school and 1.62 (SD: 0.66) for the French students. These differences are statistically significant (p = 0.041) between the Spanish school and the Italian and French schools (p = 0.038) while there is no significant difference between the Italian and French schools (p = 0.755). Overall the method's usability can be classified as "average", with variables U-5 (online support for following the class) and U-6 (system that helps collaborative group work) standing out.

Furthermore, variable U-8 (quality of materials) is one of the worst rated by the students (average score of 1.24/3) followed by U-9 (usability of the technical medium and equipment) at 1.30/3 and U-3 (time spent on the course) at 1.31/3. Compared with the control group (the traditional course) where the variables identified as improvable were U-2, U-6 and U-7, here the method changes the perception of aspects that are improvable, although on average this experimental course achieves scores below the traditional one. Aspects that may influence this result include time spent on the course and the technical ability of the teaching staff to resolve

the problems that came up. These aspects were confirmed later on in the project meetings where it was explained that fitting the course into academic programmes generated problems in doing it which directly affected workloads and the pace of explanations, which in turn meant that students had greater difficulty in understanding them.

Results of the general skills test

Continuing with the structure indicated above, the next set of Post-Test questions is about the students' assessment of perceived improvement in the following general skills:

- GS-1: I learned to express myself better
- GS-2: I use more easily the technical knowledge (mathematics, science, technology)
- GS-3: I'm more sure of myself
- GS-4: I have new ideas that could be turned into business ideas
- GS-5: My desire to learn has grown
- GS-6: I know better the use of information technology
- GS-7: I have increased my interest to work in group
- GS-8: I better recognize the potential of others, appreciating diversity
- GS-9: I find that between school and daily life there are many aspects of continuity that I did not see before
- GS-10: I value more my cultural knowledge
- GS-11: I value more my activities outside school as an experiences that can help me for future work
- GS-12: I was able to make mental connections that before are impossible to me
- GS-13: I am convinced more that every problem comes with a solution
- GS-14: I am able to realize my aspirations after schooling
- GS-15: I understand better the importance of languages
- GS-16: I feel that I am more prepared to overcome an obstacle
- GS-17: I realized that studying and working in a group is much better than studying and working alone
- GS-18: I grew the desire to continue studying after graduation
- GS-19: I think that doing things together with others they yield more results
- GS-20: I have changed my way of thinking about the future work, believing it is more important to the realization of aspirations rather than finding any job
- GS-21: I have improved the use of foreign languages

	GS-1	GS-2	GS-3	GS-4	GS-5	GS-6	GS-7	GS-8	GS-9	GS-10	GS-11	GS-12	GS-13	GS-14	GS-15	GS-16	GS-17	GS-18	GS-19	GS-20	GS-21
ESP	1,21	1,06	1,03	1,09	1,12	1,21	1,15	1,50	1,15	1,12	1,29	1,06	1,26	1,09	1,41	1,29	1,26	1,18	1,56	1,18	1,03
ITA	2,00	1,53	2,12	2,12	2,12	1,88	1,82	1,94	1,59	2,06	2,06	1,94	2,18	2,24	2,29	1,82	1,82	1,65	1,88	2,41	1,41
FRA	1,22	1,33	1,78	1,00	1,00	2,11	2,44	2,11	1,56	0,89	0,56	1,00	2,00	1,67	2,67	2,00	2,44	2,00	2,56	1,56	1,11

Table 4-1-37 General skills (DM-SCC). The working scale is 3: a lot, 2: somewhat, 1: slightly, 0: not at all.

As shown by Table 4-1-37, overall the average skill value ranges from 1.20/3 (SD: 0.14) in the Spanish group through 1.67 (SD: 0.61) in the French one to 1.95 (SD: 0.25) for the Italians; these differences between the groups are significant (where the minimum significance between the Italian and French groups is set at p = 0.032). As in the control group, GS-15 (better understanding of the importance of languages in my training) is a common highly positive skill, but GS-10 is no longer positive and indeed is now one of those identified by everyone as negative (cultural level). Other common positive skills are GS-8 and GS-19 (both related to collaborative group work).

On the opposite side the lowest skill levels are GS-21 (the only one common to all three schools and related to the improvement of language skills) and GS-2, GS-4, GS-9, GS-10 and GS-21 cited by two schools as those with the worst training. Two of this group, GS-4 and GS-9 (connected with more creative aspects), are also rated by the control groups as poor training. This means we need to think about promoting contents that enhance the students' language skills through activities designed to increase and improve the students' creativity.

Results of the specific skills test

The last test performed after finishing the course assesses perceptions about the level of specific skills that were assessed in the Pre-Test. The variables studied are:

- SS-1: Social Network use
- SS-2: Advertising in social networks
- SS-3: SEO Achronym meaning
- SS-4: Facebook use
- SS-5: Instagram use
- SS-6: Tuenti use
- SS-7: Linkedin use
- SS-8: Twitter use
- SS-9: Google+ use
- SS-10: Internet advertising gratuity
- SS-11: Google results hierarchy
- SS-12: Sponsored links acknowledgement
- SS-13: Adword Aknowledgement
- SS-14: Analytics tools aknowledgement
- SS-15: Google advertising system aknowledgement
- SS-16: SMM & Social Networks relation aknowledgement

	SS-1	SS-2	SS-3	SS-4	SS-5	SS-6	SS-7	SS-8	SS-9	SS-10	SS-11	SS-12	SS-13	SS-14	SS-15	SS-16
ESP	2,26	2,41	2,18	1,91	1,41	0,85	1,09	1,38	1,12	0,88	2,24	2,26	2,12	2,06	2,00	1,85
ITA	2,71	2,12	2,35	2,65	2,29	0,71	0,53	0,82	1,47	0,53	2,53	2,06	2,29	1,71	2,00	2,06
FRA	3,00	2,89	2,67	3,00	3,00	0,33	0,44	1,89	2,00	0,89	2,56	2,44	2,22	1,89	1,56	1,56

Table 4-1-38 Specific skills on uses and knowledge of technology (DM-SCC). The working scale is 3: yes/a lot, 2: quite a lot, 1: a little, 0: no/nothing.

Just as with the control course, the data can be analysed in two ways: independently of the Pre-Test or by comparison with it. The data in Table 4-1-38 show an average of 1.75 (SD: 0.53) for the Spanish students, 1.80 (SD: 0.75) for the Italians and 2.02 (0.88) for the French. Given the evolution of the data analysed, the first important aspect is a skill average clearly above a simple pass, in particular SS-1 and SS-3 (the only ones common to the three schools), followed by SS-2, SS-4, SS-5 and SS-11 (values very similar to the control group). At the opposite end SS-6, SS-7 and SS-10 (common to all three schools) and SS-8 and SS-9 appear again. These data reflect a clear priority for using some digital systems and applications over others, which should set future development strategies either by enhancing weak environments or by positioning proposals with powerful resources in those with greater skill mastery.

The results of dependent and graphic analysis of the Pre-Test and Post-Test in terms of the level of specific skills defined are shown in Figure 4-1-7 below:
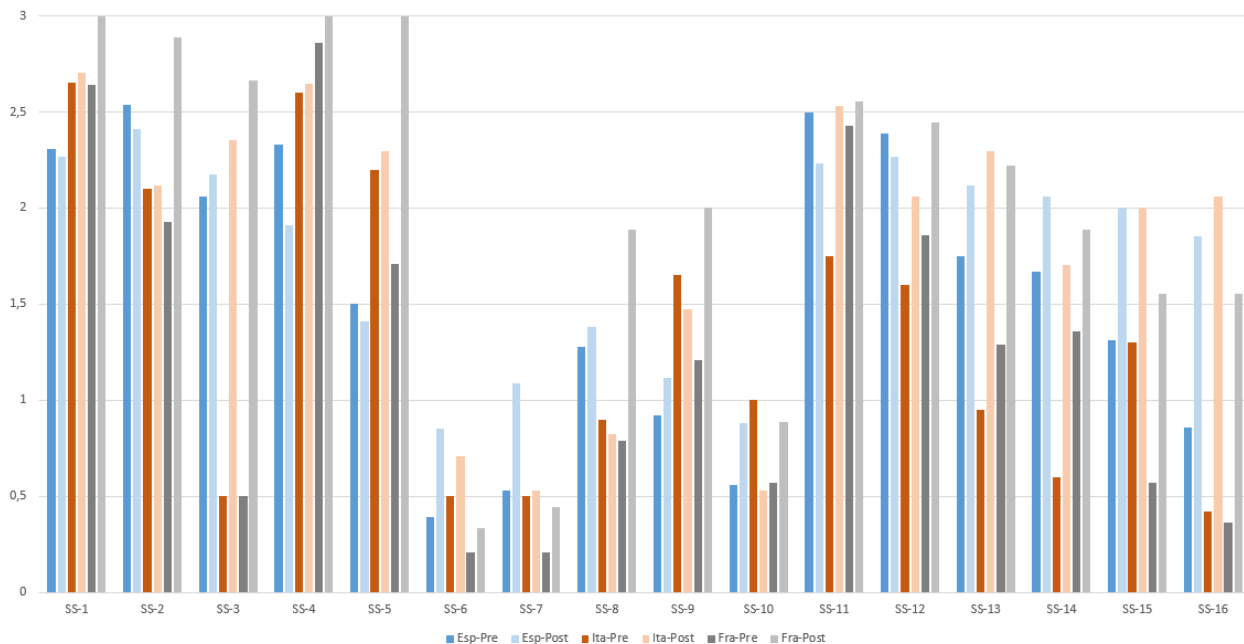

Figure 4-1-7 Pre vs. Post specific skills comparison. (DM-SCC)

Broken down by countries and with a linear average displayed for the Pre-Test and Post-Test values, they are also shown in Figure 4-1-8, Figure 4-1-9 and Figure 4-1-10 below.
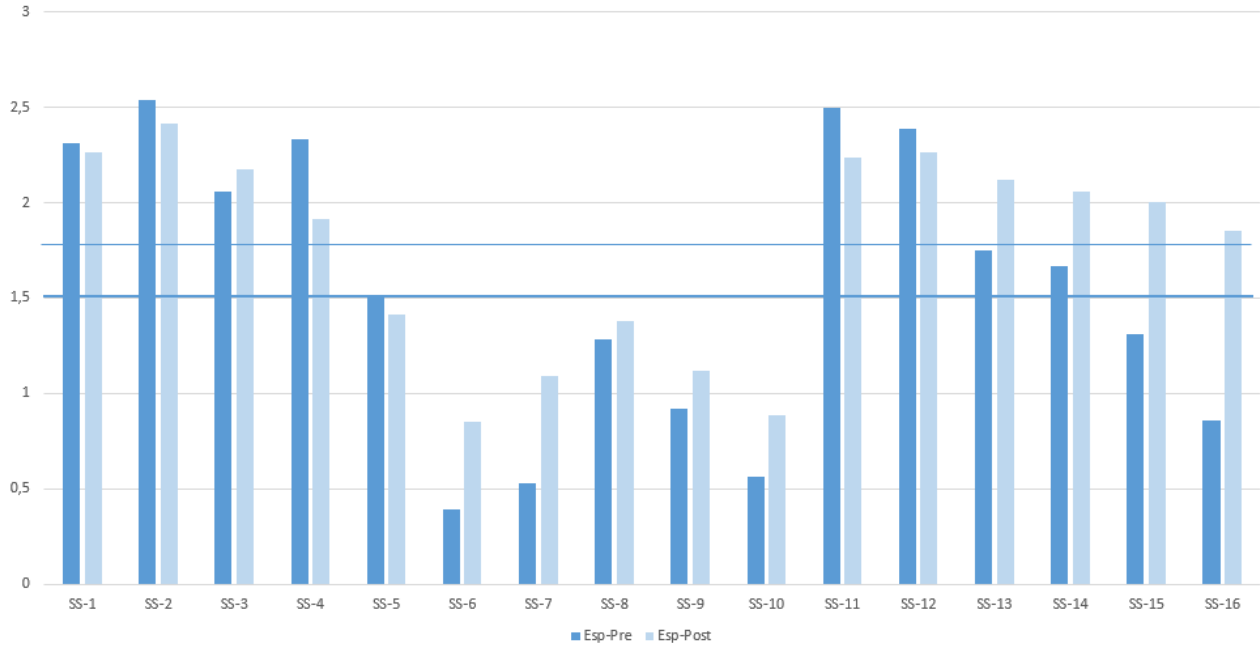
Figure 4-1-8 Pre vs. Post specific skills comparison ESP. (DM-SCC)
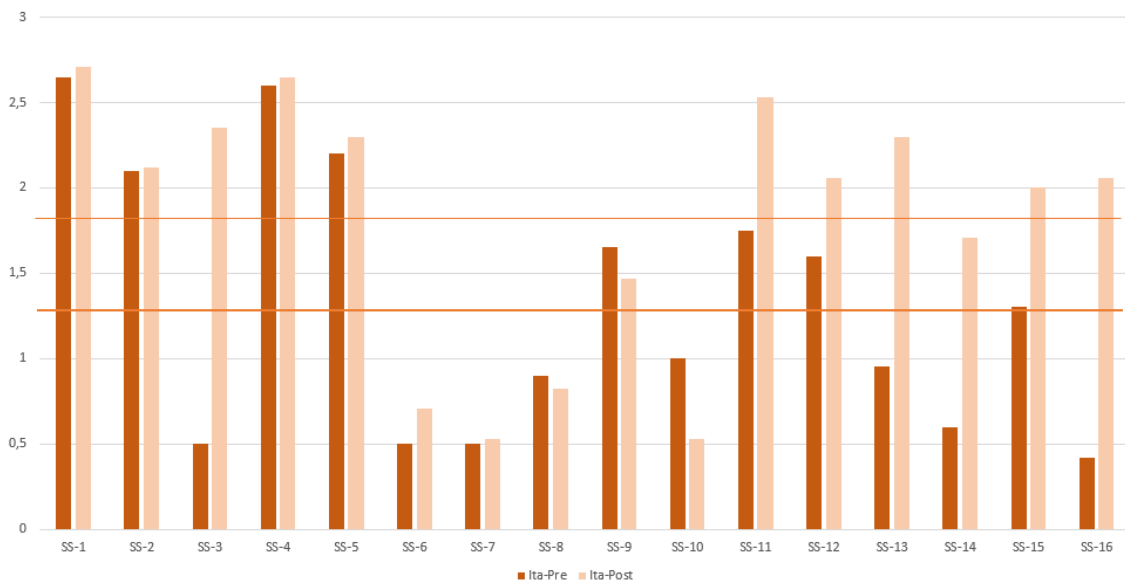
Figure 4-1-9 Pre vs. Post specific skills comparison ITA. (DM-SCC)
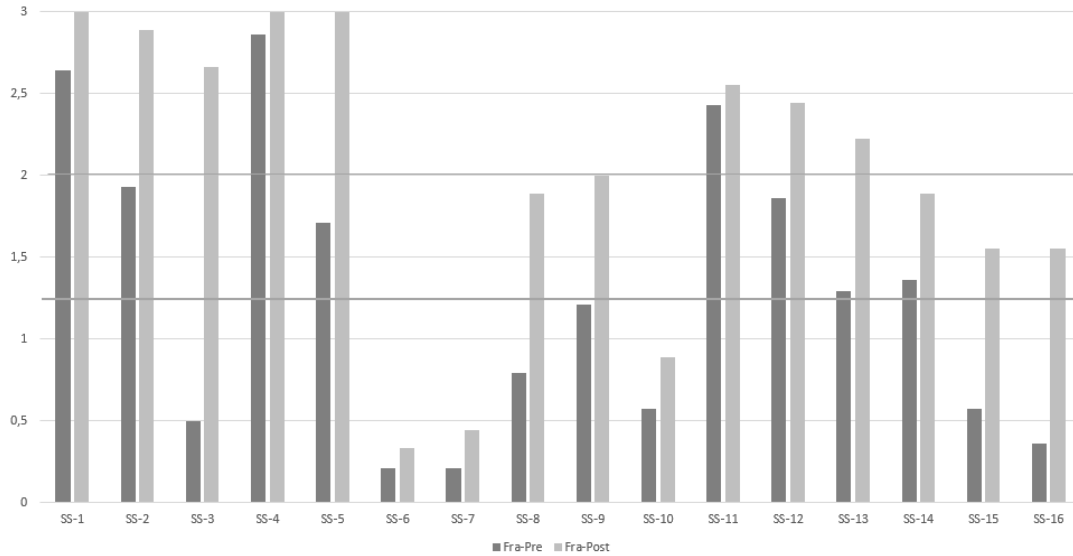
Figure 4-1-10 Pre vs. Post specific skills comparison FRA. (DM-SCC)

As can be seen, there has been a clear increase in the students' skills perception. The group of Spanish students has gone from an average of 1.55 (SD: 0.75) to 1.75 (SD: 0.53), an increase that cannot be considered statistically significant (p = 0.202) but which is nonetheless very interesting as it is precisely the digital systems skill that was initially worst rated, SS 6-10, which has improved. The Italian school group has gone from an average of 1.32 (SD: 0.77) to 1.80 (SD: 0.75), an increase that can be considered significant (p = 0.044) and largely in the SS-3 skills and the SS 11-16 group. Finally, the French students have gone from an average of 1.28 (SD: 0.88) to 2.02 (SD: 0.88), a significant increase (p = 0.012) with a major impact on virtually all the skills surveyed.

4.1.5 Conclusions

Implementation of the initial stages of this kind of project is a complex undertaking. You not only have to coordinate different associations but also schools, and have to fit a series of courses into the curricular and time programme of students and teachers. You also need to generate documentation that is long and complex and additionally has to be adapted to each school's language. In many cases it is also in a format that is unlike the one the students usually use and also about a subject that may well be outside their interests.

These constraints and some initial delay in the management and start-up of the project due to the selected schools led to a somewhat haphazard beginning to the Search Engine Optimisation course, with hurried teacher training, the first surveys on paper and finally a time reduction in the delivery of the course that initially affected the students' motivation. This start-up is also reflected in the need to improve content and IT support and clarify ideas for implementation as well as the teaching method used by each institution and teacher. The satisfaction and usability surveys have enabled us to make out the courses' strengths and weaknesses which are identified as potentialities in future iterations.

The most positive point from this first course is the improvement in the students' specific skills which were focused on the topics of the course. The students' skills have been improved both in

the control group (traditional methodology) and in the experimental group (Scenario Centered Curriculum, SCC), in some cases not significantly but mostly with high significance. This aspect makes us optimistic about this type of training which can generate some initial rejection (low initial motivation indexes) but nonetheless can increase the students' abilities in the end. Albeit without analysis of the data from the following course and about employability, this aspect has the potential to boost the students' job prospects as it enhances their digital skills and competences which are a key factor in the current era of the knowledge society, much of which is digital.

Part of our results and analysis were accepted for the following indexed scientific journal:

- Evaluación del método Scenario Centered Curriculum en función del perfil tecnológico del estudiante, Fonseca, D., Climent, A., Canaleta, X., Vicent, Ll., *EKS - Education in the Knowledge Society*, Accepted: 3/5/2016, Published: December 2016. Vol. 17, No. 3, pp. 67-88, DOI: 10.14201/eks20161736788

4.2   Mobile Commerce Course (MOBCOM)

The second course concerned a proposal for integrated commerce using mobile systems (hereinafter called MOBCOM). The course's objective was to establish a hotel management system both for the company itself and also in terms of services for customers. The students played the various roles identified in the course and had to generate a series of proposals and solutions adapted for use on mobile platforms. This second course was carried out entirely using the project's main methodology, SCC, in two modes: one for work groups per school (which we have called National Courses) and another one formed by students from different schools and countries (which we have called the International Course). The International group was made up of Spanish and Italian students as a result of the agreements at the first Multiplier Event and transnational meeting in Rome, where the French students formally asked to do only the national format because of their students' language problems.

The results from the Pre-Test and the Post-Test for each course are presented in the same order as the data contained in the following sections:

- Pre-Test:
  - Student technological profile
  - Initial motivation
  - SCC motivation
  - Specific skills
- Post-Test:
  - Satisfaction
  - Usability
  - General skills
  - Specific skills
  - Efficacy of the SCC method
  - International impact (only for the second course and the groups of students with different nationalities).

4.2.1 National Courses Data. Pre-Test

The MOBCOM national course was begun by a total of 54 students (see Table 4-2-39) from three schools in the consortium, one per country, who had done the traditional DM course. The average age of students was 21.81 with a standard deviation (SD) of 5.52.

	MD-Traditional Spain		MD-Traditional Italy		MD-Traditional France	
	n.	%	n.	%	n.	%
Men	3	14,2	10	41,1	13	23,0
Female	18	85,8	7	58,9	3	77,0

Table 4-2-39 Sample distribution. National MOBCOM Pre-Test.

Gender distribution cannot be significantly analysed because of the structure of the groups, usually as a result of the type of studies, even though in the end the prior sample is balanced (26 men and 28 women). Nonetheless, the groups are balanced between them with an average of 18 students per course.

Results of the technology profile test

Just as we did with the initial DM course, before the beginning of the course the students did the Pre-Test, a set of questions divided into four basic aspects: their technological profile (which we analyse in this section), their initial motivation for doing the course, their motivation in using the SCC method previously introduced, and the analysis of the specific skills related to the project (data to be analysed in the following sections).

Table 4-2-40 below shows the result of the questions about the students' use of devices and internet access:

	Q1: How often do you use your computer?	Q2: How often do you use services of Internet?	Which devices do you usually use to access Internet (select):					
			PC	Computer at school	Smartphone	Tablet	I don't use Internet	Other
ESP	3,62	4,00	14,29%	0,00%	85,71%	0,00%	0,00%	0,00%
ITA	3,35	3,69	40,00%	30,00%	95,05%	10,00%	0,00%	0,00%
FRA	3,88	3,69	43,75%	81,25%	93,75%	31,25%	0,00%	0,00%

Table 4-2-40 Internet access by devices (MOBCOM-National). In Q1 and Q2 the working scale is 4: daily, 3: occasionally, 2: only at school, 1: rarely, 0: never.

As can be seen from the first questions analysed, we have three groups of students who regularly use computers and have a very high frequency of Internet connection. The most important devices used for this connection are smartphones (with an average use of 91.5%), well above work with computers in the school (average of 37.08% but highly skewed since the group French uses them very frequently at 81.25% while the Spanish group does not do so ever or 0%) and personal computers (average of 32.68%). These figures show that the usual device for connecting to the internet is a mobile phone, while by contrast computers are usually employed for doing projects or playing games.

Table 4-2-41 and Table 4-2-42 set out the students' previous knowledge about digital work programs and systems:

	Identify level of knowledge of the following programs								
	Word Processing	Multimedia Presentations	Hypertext	Spreadsheets	Image processing	Audio/video production	Concept maps	Publication of audio/video	Social media tools
ESP	2,62	2,62	1,86	1,90	2,38	2,05	2,62	2,14	2,62
ITA	0,82	1,82	1,18	1,94	1,94	1,53	1,82	1,59	2,06
FRA	2,44	2,44	0,44	1,88	1,75	1,63	0,25	1,50	2,94

Table 4-2-41 Level of knowledge of programs (MOBCOM-N). The working scale is 3: high, 2: medium, 1: low, 0: none.

	What is your degree of competence in each following systems?							
	Blog	Forum	Wiki	Text chat	Audio/Video conference	E-mail	Social networks	e-Learning platforms
ESP	1,86	1,52	2,43	2,62	2,00	2,86	1,29	1,19
ITA	1,06	0,82	1,47	1,94	1,29	2,50	2,24	1,18
FRA	2,06	2,06	0,38	0,06	1,25	3,00	3,00	1,13

Table 4-2-42 Degree of skill for each instrument (MOBCOM-N). The working scale is 3: high, 2: medium, 1: low, 0: none.

Graphically (see Figure 4-2-11 for a better understanding of the previous Tables) there is a significant difference between the group of Spanish students and the rest (p = 0.002).
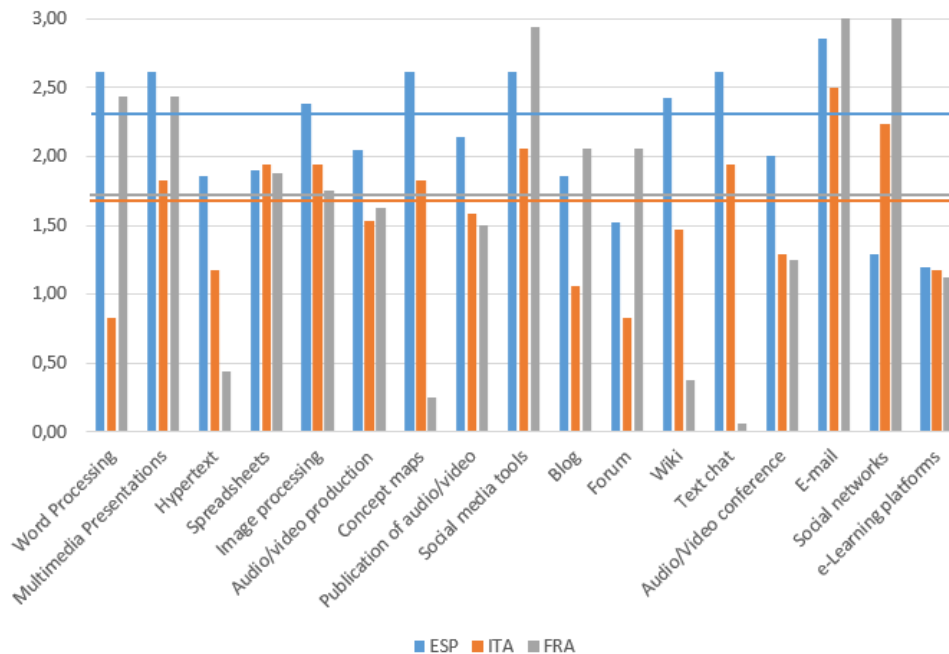

Figure 4-2-11 Comparison of prior digital systems knowledge and skills (MOBCOM-N).

The Spanish group is more technological with good knowledge about word processing, multimedia presentations, image and video processing and basic online communication systems. The Italian student group's knowledge is largely about using e-mail and social media. These were the aspects best rated by the French students who also master basic word processing and multimedia presentations. Systems such as the Forum, Audio/Video conferences and content generation and e-Learning platforms are clearly the aspects where the students are less prepared, an aspect which the project needs to improve in technical terms.

The students' answers to the questions about their prior technological training are shown in Table 4-2-43:

	Q1: ¿Have you participated in ICT training courses?	In case of afirmative answer, how?						
		Forum participation	Using Shared data	On-line meetings	On-site meetings	Merged meetings	E-learning	Other
ESP	1,33	29,41%	47,06%	17,65%	47,06%	0,00%	11,76%	11,76%
ITA	0,12	100,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%
FRA	1,31	7,14%	0,00%	0,00%	71,43%	0,00%	28,57%	0,00%

Table 4-2-43 Participation in ICT training courses (MOBCOM-N). In Q1 the working scale is 2: yes, recently, 1: yes, but not recently, 0: no.

90% of the French students, 75% of the Spaniards and only 6% of the Italians had previously taken ICT training courses, and the types of courses they had done were extremely diverse. While the few Italian students have been trained exclusively in Forum-type systems, the French have mostly received training for online meetings and the Spaniards have divided their interests between data-sharing and online meeting systems. Their level of satisfaction with these courses is shown in Table 4-2-44 below:

	Fulfillment of initial expectations	Fulfillment of professional interest	Positive effects on teaching	Effects on the quality of teching materials	Use in school
ESP	1,94	1,65	2,12	2,12	2,41
ITA	2,00	2,00	2,00	2,00	1,00
FRA	0,93	0,86	1,71	1,00	2,21

Table 4-2-44 ICT training assessment (MOBCOM-N). The working scale is 3: high, 2: medium, 1: low, 0: none.

While the Spanish group's satisfaction with their previous training stands at an average of 2.05/3 (SD: 0.28), the Italian students are down slightly at 1.80/3 (SD: 0.44) and the French largely give it a low score at an average of 1.34/3 (SD: 0.59). Given the percentage of students trained in ICT, their previous perceived level of skill and their satisfaction with the training, these data suggest a difference in ICT level between the Spanish students and the other groups, who seem not so motivated by certain applications or in their training. This aspect will be evaluated in depth later on with the specific tests in order to corroborate this hypothesis. Finally, and looking at the devices and applications that might potentially be used in the project, we review the students' previous uses in Table 4-2-45, Table 4-2-46 and Table 4-2-47 below.

	Using ICT, which of the following tools have you used/use?			
	Computer laboratory	Interactive Whiteboard	Personal Devices	Other
ESP	14,29%	0,00%	85,71%	9,52%
ITA	0,00%	0,00%	5,88%	5,88%
FRA	81,25%	0,00%	43,75%	0,00%

Table 4-2-45 Use of ICT tools in the classroom. (MOBCOM-N)

	Select the ICT that you have used:				
	Moodle	Edmodo	Google Apps	YouTube	Other
ESP	28,57%	14,29%	80,95%	90,48%	23,81%
ITA	0,00%	0,00%	0,00%	11,76%	0,00%
FRA	0,00%	0,00%	87,50%	62,50%	0,00%

Table 4-2-46 Use of ICT services associated with education. (MOBCOM-N)

		In case of afirmative answer, what type?					
	Have you ever used digital educational content to promote "product" ideas?	Content created with text applications	Content created with presentation applications	Content created with LIM software	Content created with educational applications	E-book	Other
ESP	52,38%	38,89%	50,00%	0,00%	16,67%	5,56%	0,00%
ITA	23,53%	0,00%	100,00%	0,00%	0,00%	25,00%	0,00%
FRA	87,50%	57,14%	35,71%	0,00%	7,14%	0,00%	0,00%

Table 4-2-47 Use of digital educational content to promote an idea or "product". (MOBCOM-N)

Table 4-2-45 shows a predominant role for personal computers and devices in ICT use in the classroom where exercises of this type have been done, since the Italian group has minimal previous experience in this field basically consisting of watching tutorials on YouTube. YouTube has also been widely used by the students from the other countries along with Google applications.

Table 4-2-47 shows the percentage of students and uses if they have previously used digital educational systems to promote an idea or product. As can be seen, their behaviour is extremely diverse. While 84.5% of French students claim to have done this type of exercise, only 52.3% of Spanish students say they have and only 23.5% of Italians. The most common are producing content through presentations or text systems while the rest are barely used at all.

By way of summary we have a sample of students with very heterogeneous previous ICT training, albeit with a very low base in the project's core topics. We will have to see how this influences the other aspects of the Pre-Test and the data collated at the end of the initiative.

Results of the initial motivation test

Following the pre-set order of variables to be studied in the Pre-Test, the next step was evaluation of the student's initial motivation. In this respect and as in previous courses, the variables specified were:

- IM-1: To find a job more easily
- IM-2: To find a job consistent than studies with more ease
- IM-3: To find a job that allows you to earn more
- IM-4: To find a job that can take responsibility and autonomy
- IM-5: To find a job that allows you to perform skilled tasks
- IM-6: For growth and personal maturity
- IM-7: To improve my career opportunities
- IM-8: To orient the work
- IM-9: For frequency by classmates / friends
- IM-10: To call / parent council
- IM-11: To call / teachers' council
- IM-12: For lack of other opportunities (work, study, etc.)

Table 4-2-48 shows the results broken down by schools:

	What were the reasons that led you to choose this training course?											
	IM-1	IM-2	IM-3	IM-4	IM-5	IM-6	IM-7	IM-8	IM-9	IM-10	IM-11	IM-12
ESP	1,76	1,71	1,52	1,71	1,62	2,33	2,38	1,86	1,76	0,95	0,81	1,67
ITA	1,13	1,13	1,06	1,38	1,13	1,31	1,44	1,25	1,19	0,63	2,00	0,88
FRA	0,25	0,25	0,31	1,13	1,13	1,00	0,88	1,00	2,13	0,75	2,94	0,25

Table 4-2-48 Reasons for choosing the training course (MOBCOM-N). The working scale is 3: a lot, 2: sufficient, 1: little, 0: by no means.

The average of the studied variables shows a figure of 1.67 (SD: 0.45) for the Spanish students, 1.21 (SD: 0.33) for the Italian school and finally 1.00 (SD: 0.81) for the French one. As with previous courses, the students' initial motivation on a global basis is again low (except for the Spanish group), something to be expected in light of the results of their previous training in the field of ICT. Given that these students did the control course (DM-Traditional), a significant point is that the degree of initial motivation for the course is maintained with respect to the preliminary course (see Figure 4-1-1) with minimal non-significant variations. This information once again provides some reservations about the fit of the topic in the students' training especially in terms of its commitment and time requirements, aspects that will have to be evaluated later on in the usability of and satisfaction with the course.

Likewise, the motivations are very mixed: while the Spanish students identify IM-6 (for personal growth) and IM-7 (to improve my chances of finding a job) as the best rated, the Italians emphasise IM-11 (improving the relationship with teachers) as do the French students. These choices can be seen graphically in Figure 4-2-12 and match the answers given in the initial course (see

Figure **4-1-1**), thus maintaining a certain scepticism about the content and suitability of the course.
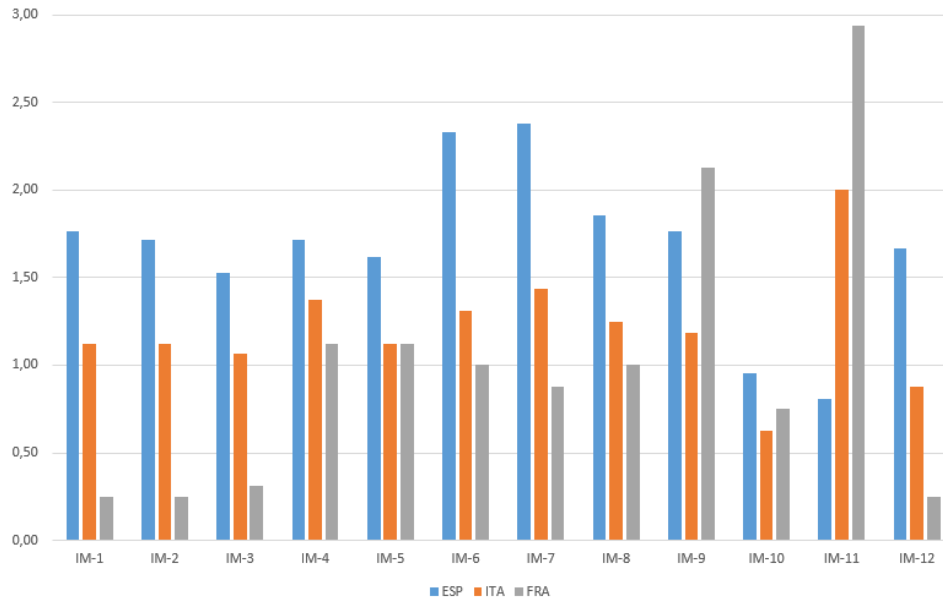
Figure 4-2-12 MOBCOM-National Initial Motivation.

Results of the SCC motivation test

The next group of variables in our analysis concern evaluating the students' motivation for using the SCC methodology. We have identified and defined the following study variables (SCC-M: SCC Motivation):

- CC-M1: Have you ever heard of SCC before?
- SCC-M2: Do you like the idea of engaging in a learning in order to simulate a real work situation, in which you assume an important role in order to solve problems and / or achieve goals?
- SCC-M3: Do you think you can be a good work team member on a specific project?

	SCC-M1	SCC-M2	SCC-M3
ESP	9,52%	78,95%	100,00%
ITA	0,00%	75,00%	68,75%
FRA	87,50%	93,75%	75,00%

Table 4-2-49 SCC knowledge and motivation. (MOBCOM-N)

As can be seen in Table 4-2-49, the vast majority of the Spanish and Italian students said they knew nothing about SCC as they had not used it beforehand, whereas the French group remembered the introduction to the method in the previous course and said they had basic knowledge about the method to be used. An important aspect to note is that the motivation to use the method and work collaboratively through roles is highly rated by students with a very high overall motivation index (for SCC-M2: 83% and for SCC-M3: 81%), better averages than in the previous course.

Table 4-2-50 shows the rating of a number of aspects of SCC methodology and students' perception about its utility:

	Among the various moments of which will consist of the learning experience SCC, which you think are the most interesting				
	To simulate a real work problem	Working in a team	To use new technologies	Doing less theory and more practice	To practice foreign languages
ESP	90,00%	95,00%	95,00%	95,00%	45,00%
ITA	81,25%	93,75%	93,75%	93,75%	93,75%
FRA	87,50%	87,50%	100,00%	93,75%	43,75%

Table 4-2-50 SCC aspects considered most useful in principle. (MOBCOM-N)

As can be seen, the method is seen as having great potential practically on a global level (between a 61% average for language skills and 96% for use of new technology) and the results show the students perceive the SCC method as a useful tool for solving real problems, working as a team, using new technology and taking a more practical approach to learning processes. As noted above, the worst rated aspect is its potential for enhancing language skills as this is something that the students believe will not be so clearly improvable by the system (in line with the scores obtained in the previous courses).

In short, these results show the students think that the SCC method can adapt to real cases and enable collaborative work using technologies that move away from classic teaching systems to focus on a much more practical and also effective setting.

Results of the specific skills test

Finally, to round off the Pre-Test we evaluated the variables related to specific skills to be improved with the proposed method. For this purpose we have defined:

- SS-1: Social Network use
- SS-2: Advertising in social networks
- SS-3: SEO Achronym meaning
- SS-4: Facebook use
- SS-5: Instagram use
- SS-6: Tuenti use
- SS-7: Linkedin use
- SS-8: Twitter use
- SS-9: Google+ use
- SS-10: Internet advertising gratuity
- SS-11: Google results hierarchy
- SS-12: Sponsored links acknowledgement
- SS-13: Adword Aknowledgement
- SS-14: Analytics tools aknowledgement
- SS-15: Google advertising system aknowledgement
- SS-16: SMM & Social Networks relation acknowledgement

The results broken down by schools and by degree of use and knowledge of the technology described and related to the project can be seen in Table 4-2-51 and graphically in Figure 4-2-13:

	SS-1	SS-2	SS-3	SS-4	SS-5	SS-6	SS-7	SS-8	SS-9	SS-10	SS-11	SS-12	SS-13	SS-14	SS-15	SS-16
ESP	2,81	2,76	2,05	2,48	1,67	0,48	0,19	1,52	1,71	0,76	2,67	2,43	2,43	2,00	2,14	1,43
ITA	2,41	2,00	0,71	2,12	2,12	0,18	0,18	0,24	1,47	0,59	2,18	1,76	1,50	1,25	1,24	0,47
FRA	2,94	2,81	2,69	2,94	2,31	0,13	0,00	1,44	1,69	0,13	2,75	2,69	2,56	1,50	1,75	1,81

Table 4-2-51 Use of and knowledge about the technology and services listed (MOBCOM-N). The working scale is 3: yes/a lot, 2: quite a lot, 1: a little, 0: no/nothing.
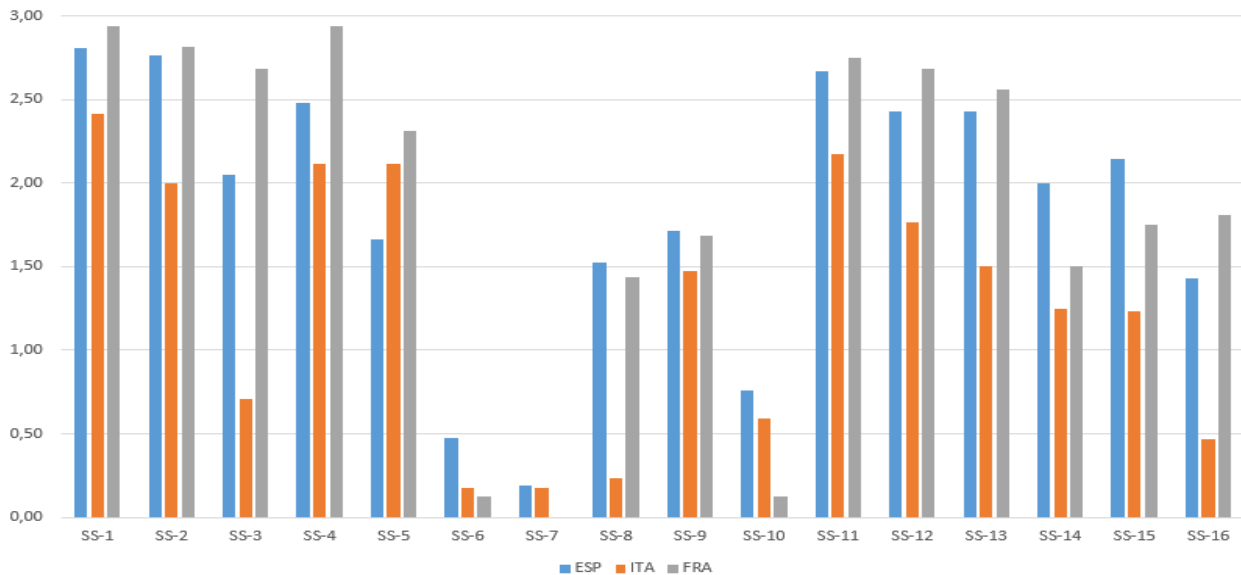
Figure 4-2-13 Course-related ICT use and knowledge (MOBCOM-N). Scale of 3 (yes, known or extensively used, to 0 not used or known).

Overall the averages range from 1.88 (SD: 0.81) for the French school through 1.85 (SD: 0.81) for the Spanish school to 1.27 (SD: 0.79) for the Italian school. The large deviations indicate very high fluctuation between the responses to the resources surveyed. As can be seen in Figure 4-2-13, the variables SS-1 (social media usage, with a combined average of 2.72 out of 3), SS-2 (knowledge of the social media advertising system, A: 2.52), SS-4 (use of Facebook, A: 2.51) and SS-11 (ranking of search results on Google, A: 2.53) are the aspects that reflect greatest student use or knowledge. On average the French and Spanish students (in that order) have better results compared to the Italian students.

By contrast, questions SS-7 (use of LinkedIn, A: 0.12/3), SS-6 (use of Tuenti, A: 0.26) and SS-10 (free internet advertising systems, A: 0.49) are aspects with less overall training. This behaviour is in line with previous Pre-Test evaluations, which would suggest that the degree of previous preparation in ICT in the different schools remains uniform irrespective of the small fluctuations in the sample of students enrolled for the project's courses.

4.2.2 National MOBCOM-SCC Course Data. Post-Test

Results of the satisfaction test

Following the order set for conducting and analysing the Post-Test, the first of its sections contains data about the students' level of satisfaction with the course they did. To assess this parameter several working variables have been identified and grouped by their relationship.

	Are the contents of the course clear?	Is the teaching method novelty respect the common system?	If the above answer is Yes, would in that way?				
			It has more stimulated my participation	It has allowed me to experience and put into practice the knowledge acquired	It has made me think more about the content	It has allowed me to interact with real-life content	Others
ESP	94,44%	100,00%	11,11%	55,56%	11,11%	22,22%	0,00%
ITA	84,62%	69,23%	33,33%	22,22%	22,22%	11,11%	11,11%
FRA	100,00%	92,31%	38,46%	15,38%	15,38%	15,38%	7,69%

Table 4-2-52 Overall satisfaction indexes. (MOBCOM-N)

The first striking point in Table 4-2-52, and which is a significant improvement on the assessments of the first course (both for the traditional method, see Table 4-1-14, and for the SCC, see Table 4-1-33), is the clarity of its contents. In this case the average is a 93% positive rating accompanied by an 87% positive rating for the method's innovation. Given the differentiated profile we found in the Pre-Test, the answers have also been grouped differently mainly between the group of Spanish students and the Italian/French students. In the former case, the course has mainly promoted putting the knowledge acquired into practice (55.56% of the answers), while for the Italians and French the best response is in stimulating their participation (33.33% and 38.46% respectively). This information is important, especially bearing in mind the low initial motivation for the course, and suggests that content which is in principle unrelated and difficult to fit into the structure of the course can be satisfactory in the end as long as the method is appropriate.

As in previous courses, we have gone on to evaluate student satisfaction in aspects related to the proposed materials and methodology based on the following variables:

- LS-1: Relevancy of distributed material
- LS-2: Clarity and completeness of presentations
- LS-3: Effective communication
- LS-4: Adequateness of the duration of presentations
- LS-5: Utility / usability / concreteness of information provided
- LS-6: Clear teaching
- LS-7: Adequateness of the practical part and exercises
- LS-8: Consistency between the theoretical and practical parts
- LS-9: Using of the knowledge acquired in daily life
- LS-10: Development of creativity
- LS-11: Accessibility to technologies
- LS-12: According to what you have said above, as a whole, Are you satisfied or not?

	level of satisfaction											
	LS-1	LS-2	LS-3	LS-4	LS-5	LS -6	LS -7	LS -8	LS -9	LS -10	LS -11	LS -12
ESP	2,22	2,33	2,50	2,17	2,39	2,44	2,33	2,39	2,00	2,72	2,67	100,00%
ITA	2,00	2,00	1,85	1,69	1,69	2,54	1,92	1,62	1,62	1,85	2,00	76,92%
FRA	2,31	2,31	2,15	1,85	2,31	2,62	2,31	2,38	1,69	2,08	2,23	100,00%

Table 4-2-53 Level of satisfaction (MOBCOM-N). The working scale for LS [1-11] is 3: high, 2: average, 1: very low, 0: not at all. For LS-12, the scale is 1: satisfied, 0: not satisfied.

Table 4-2-53 shows the average for each variable and country obtained. If we look at the global scores, the Spanish students have a very high index (2.38/3, SD: 0.20) as do the French (2.20, SD: 0.25), while the Italians have the lowest (1.89, SD: 0.26). However, this figure is significantly higher ($p = 0.004$) than in the case of the traditional DM course (see

Table 4-1-15, where the average was only 1.54) and for the previous DM-SCC course (see Table 4-1-34, where the average stood at 1.62). These results are highly significant and important for the project since not only do they support the methodology used as a method which can increase students' level of satisfaction but they have also improved the course proposal compared to the first iteration.

The aspects that the students are most satisfied with are clarity of learning (LS-6 with an average of 2.53), access to technologies (LS-11 with an average of 2.30) and the development of creativity (LS-10 with a 2.22). By contrast the worst rated indexes are LS-9 (usefulness in everyday life, 1.77) and LS-4 (presentation duration, 1.90), albeit with "pass" scores and above most of the ratings given in the project's first course. Variable LS-12 indicates a very high level of satisfaction overall and in comparative terms is the best of the courses run to date, which supports the conclusions we have come to so far.

As in the previous cases, we asked about possible improvements based on the following working indexes:

- SU-1: Relevancy of distributed material
- SU-2: Clarity and completeness of presentations
- SU-3: Effective communication
- SU-4: Adequateness of the duration of presentations
- SU-5: Utility / usability / concreteness of information provided
- SU-6: Clear teaching
- SU-7: Adequateness of the practical part and exercises
- SU-8: Consistency between the theoretical and practical parts
- SU-9: Using of the knowledge acquired in daily life
- SU-10: Development of creativity
- SU-11: Accessibility to technologies

	Which of the following aspects would you suggest to improve in the course attended?										
	SU-1	SU-2	SU-3	SU-4	SU-5	SU-6	SU-7	SU-8	SU-9	SU-10	SU-11
ESP	**27,78%**	**33,33%**	16,67%	**22,22%**	27,78%	16,67%	27,78%	22,22%	**22,22%**	16,67%	22,22%
ITA	0,00%	30,77%	46,15%	23,08%	**15,38%**	30,77%	15,38%	**7,69%**	**15,38%**	38,46%	0,00%
FRA	0,00%	0,00%	38,46%	**0,00%**	15,38%	38,46%	15,38%	0,00%	**15,38%**	46,15%	7,69%

Table 4-2-54 Improvable aspects of the MOBCOM-N course.

In Table 4-2-54 we have identified in bold the worst-rated level of satisfaction variables (see Table 4-2-53) and shaded the main aspects identified for improvement in greyscales. Oddly enough LS-4 and LS-9, the two least "satisfactory" aspects overall (mentioned by all the groups), are not marked as any of the three major improvements to be made, which are concentrated by repetition in the variables SU-2, SU-3 (related to the clarity and effectiveness of presentations and communication) and SU-10 (development of creativity). However, these three variables are the weakest aspects identified individually by each school (SU-2 for the Spanish one, SU-3 for the Italian one and SU-10 for the French one), which confirms these aspects as components to be improved in terms of the study type and interests of the students in each country.

Results of the use of the method test

To analyse usability we have defined the following working variables:

- U-1: In terms of usability, do you think that the training method is accessible?
- U-2: Do you think that the contents, teaching style, equipment and teaching materials are appropriate to the stated objectives?
- U-3: Do you think that time dedicated to the application of the methodology in the school planning is adequate?
- U-4: The style of training conduction was characterized by mastery of content and clarity
- U-5: Online didactic support and classroom was adequate
- U-6: The training method encourages collaboration and teamwork in order to perform the tasks and achieve the objectives
- U-7: What do you think of the amount of teaching materials?
- U-8: What do you think of quality of teaching materials?
- U-9: The technological support and equipment were intuitive and easy to use , adequate and functional

	Usability								
	U-1	U-2	U-3	U-4	U-5	U-6	U-7	U-8	U-9
ESP	1,89	2,33	2,17	2,11	2,61	2,39	2,17	2,44	2,44
ITA	1,46	1,54	1,46	1,62	1,92	1,62	1,15	1,77	1,54
FRA	2,36	2,21	1,43	2,07	2,43	2,50	1,50	2,36	2,36

Table 4-2-55 Use of the method (MOBCOM-N). The working scale is 3: a lot, 2: somewhat, 1: slightly, 0: not at all.

As shown by the results in Table 4-2-55, the Spanish (2.28, SD: 0.21) and French (2.13, SD: 0.40) groups gave high usability ratings while the Italian group's rating was lower (1.56, SD: 0.21). Breaking this down, the best scores are obtained for the variables U-5 (2.32 on average), U-8 (2.19) and U-6 (2.17) about the quality of the materials, teaching support and whether the method encourages collaborative work. By contrast, the worst ratings are for U-7 (1.61), U-3 (1.69) and U-1 (1.90), aspects which indicate problems in the lack of time and the quantity of work materials and overall a feeling that the method is not accessible. This aspect is clearly related to the training and type of the studies that are being done, and it would seem that the

Italian group, with lesser previous grounding in ICT subjects, identifies a potential additional difficulty of adaptation to the course.

Results of the general skills test

Continuing with the structure used in the above sections, the next set of Post-Test questions is about the students' assessment of perceived improvement in the following general skills:

- GS-1: I learned to express myself better
- GS-2: I use more easily the technical knowledge (mathematics, science, technology)
- GS-3: I'm more sure of myself
- GS-4: I have new ideas that could be turned into business ideas
- GS-5: My desire to learn has grown
- GS-6: I know better the use of information technology
- GS-7: I have increased my interest to work in group
- GS-8: I better recognize the potential of others, appreciating diversity
- GS-9: I find that between school and daily life there are many aspects of continuity that I did not see before
- GS-10: I value more my cultural knowledge
- GS-11: I value more my activities outside school as an experiences that can help me for future work
- GS-12: I was able to make mental connections that before are impossible to me
- GS-13: I am convinced more that every problem comes with a solution
- GS-14: I am able to realize my aspirations after schooling
- GS-15: I understand better the importance of languages
- GS-16: I feel that I am more prepared to overcome an obstacle
- GS-17: I realized that studying and working in a group is much better than studying and working alone
- GS-18: I grew the desire to continue studying after graduation
- GS-19: I think that doing things together with others they yield more results
- GS-20: I have changed my way of thinking about the future work, believing it is more important to the realization of aspirations rather than finding any job
- GS-21: I have improved the use of foreign languages

	GS-1	GS-2	GS-3	GS-4	GS-5	GS-6	GS-7	GS-8	GS-9	GS-10	GS-11	GS-12	GS-13	GS-14	GS-15	GS-16	GS-17	GS-18	GS-19	GS-20	GS-21
General skills																					
ESP	1,89	1,67	2,11	1,89	2,17	2,11	2,22	2,56	1,83	2,11	2,22	1,61	2,22	2,33	2,72	2,11	2,50	2,50	2,11	2,28	1,44
ITA	1,46	1,62	1,31	1,62	1,62	1,92	1,92	1,85	1,31	1,54	1,92	1,62	1,54	1,77	2,38	1,77	1,92	1,23	2,00	2,00	1,54
FRA	1,86	1,93	2,36	1,29	2,07	2,29	2,14	2,50	1,93	2,07	1,93	1,36	2,29	2,29	2,14	2,29	2,36	2,43	2,21	2,43	1,57

Table 4-2-56 General skills (MOBCOM-N). The working scale is 3: a lot, 2: somewhat, 1: slightly, 0: not at all.

As can be seen in Table 4-2-56, the global averages per school stood at 2.12 (SD: 0.32), 1.71 (SD: 0.28) and 2.08 (SD: 0.33) respectively for the Spanish, Italian and French students, with the figure for the Italian group significantly lower (p = 0.000) in line with our previous conclusions. In terms of particular skills, the highest results are for GS-15 (2.42), GS-8 (2.30) and GS-17 (the only one common to the three schools in the top margin with an average of 2.26). These skills concern the need to speak foreign languages, recognition of the interest of group work and the potential this work method brings to diversity.

On the negative side, the three skills to get the worst ratings were GS-21 (1.52), GS-12 (1.53) and GS-4 (1.60), to which GS-9 (1.69) and GS-1 (average of 1.74) should be added as common to the three groups. Again, as in previous courses the students did not perceive any improvement in language skills (GS-21), the system for building mental relationships (GS-12) or generating new business ideas (GS-4).

Another revealing point is shown by GS-9 where the students identify asynchrony between their schooling and everyday social and work needs outside the school. This identification by students is interesting in itself, since without any formal evaluation it indicates the students' development by identifying complex aspects that concern them in terms of their imminent entrance into the labour market.

Results of the specific skills test

As in the previous courses, we then evaluated the level of specific skills perceived by the student. For this analysis we have defined the following variables:

- SS-1: Social Network use
- SS-2: Advertising in social networks
- SS-3: SEO Achronym meaning
- SS-4: Facebook use
- SS-5: Instagram use
- SS-6: Tuenti use
- SS-7: Linkedin use
- SS-8: Twitter use
- SS-9: Google+ use
- SS-10: Internet advertising gratuity
- SS-11: Google results hierarchy
- SS-12: Sponsored links acknowledgement
- SS-13: Adword Aknowledgement
- SS-14: Analytics tools aknowledgement
- SS-15: Google advertising system aknowledgement
- SS-16: SMM & Social Networks relation acknowledgement

	SS-1	SS-2	SS-3	SS-4	SS-5	SS-6	SS-7	SS-8	SS-9	SS-10	SS-11	SS-12	SS-13	SS-14	SS-15	SS-16
ESP	2,65	2,82	2,35	2,71	1,59	0,82	0,41	1,41	1,65	1,24	2,82	2,53	2,65	2,12	2,18	1,76
ITA	2,23	1,92	1,08	1,77	1,92	0,23	0,23	0,62	1,00	0,62	2,00	1,85	1,92	1,54	1,85	1,15
FRA	2,36	2,36	2,21	2,43	1,64	0,21	0,21	1,36	1,86	0,64	2,21	2,36	2,29	1,86	2,07	2,00

Table 4-2-57 Specific skills on uses and knowledge of technology (MOBCOM-N). The working scale is 3: yes/a lot, 2: quite a lot, 1: a little, 0: no/nothing.

Following the method used in the previous courses, the data in Table 4-2-57 can be analysed independently or by comparison with the results of the Pre-Test (see Table 4-2-51).

Independently, the distribution gives us averages of 1.98 (SD: 0.74), 1.37 (SD: 0.66) and 1.75 (SD: 0.75) for the three schools. These figures are approximately 5% higher for the Spanish and Italian schools and 5% lower for the French one but without becoming statistically significant (p = ranging between 0.6 and 0.7, far from the 0.05 which would give us significant changes at 95%).

The best rated aspects are use of social media (SS-1, with an average of 2.41), aspects related to social media advertising (SS-2, 2.37) and Google search ranking (SS-11, 2.35). By contrast, the use of LinkedIn (SS-7, 0.29), Tuenti (SS-6, 0.42) and thinking that Internet advertising may be free (SS-10, 0.83) are the worst rated aspects. The overall results are shown graphically in Figure 4-2-14.
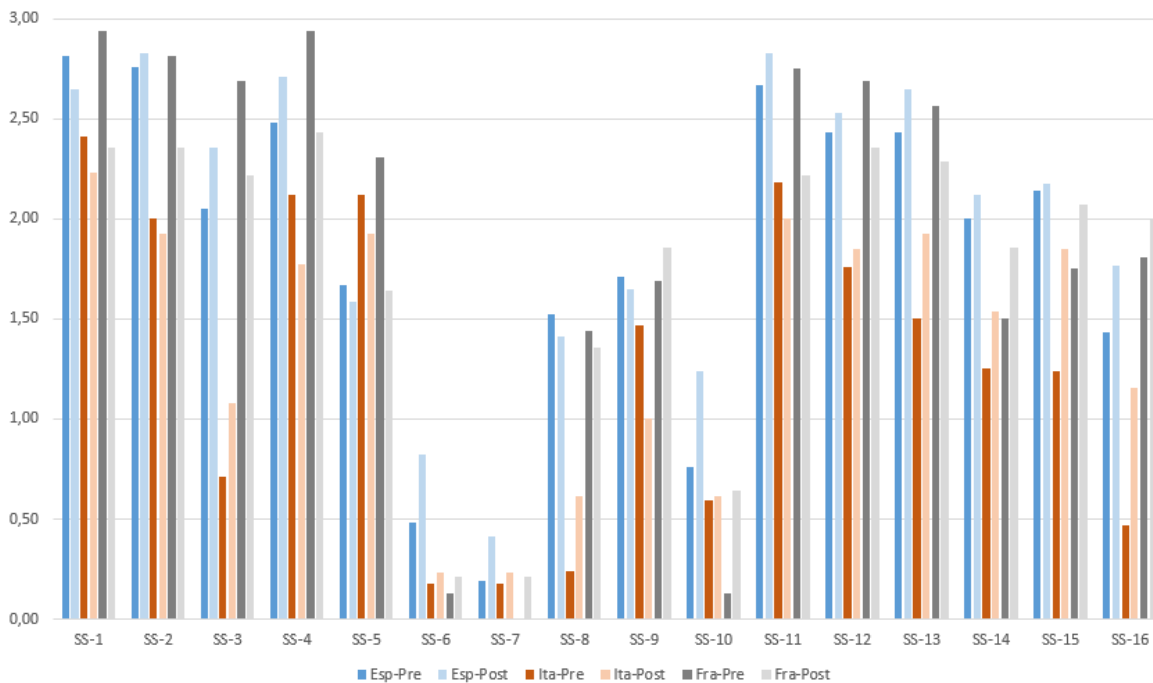
Figure 4-2-14 Pre vs. Post specific skills comparison. (MOBCOM-N)

In order to evaluate in more detail the margin of improvement of each skill by group of students, we have broken down the result of the Pre-Test and Post-Test in Figure 4-2-15, Figure 4-2-16 and Figure 4-2-17 below.
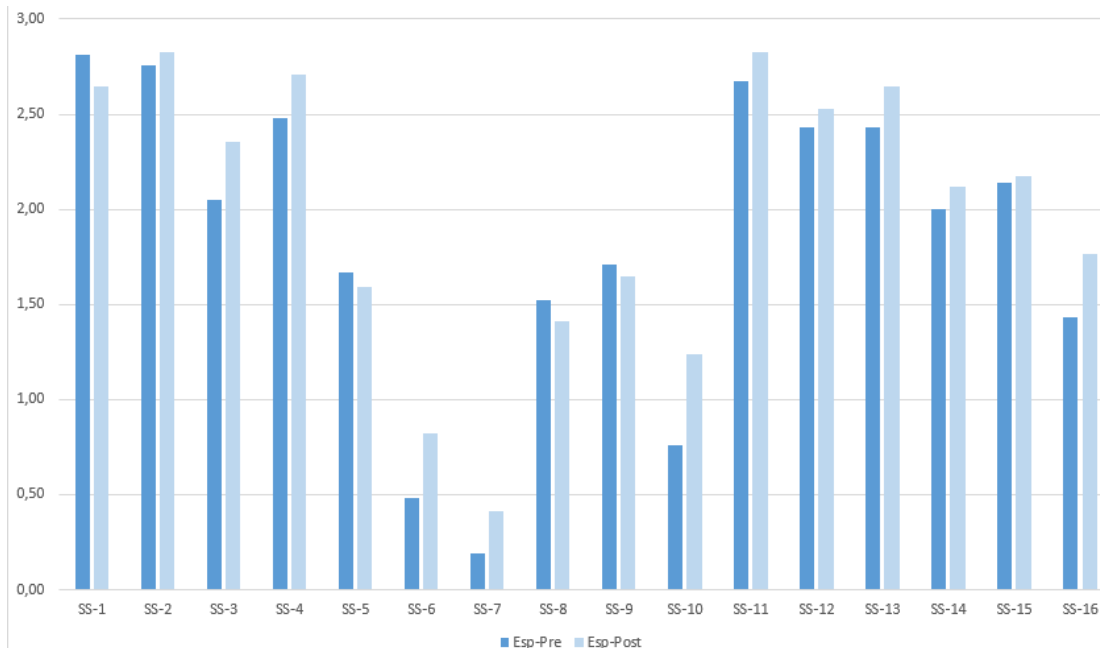
Figure 4-2-15 Pre vs. Post specific skills comparison ESP. (MOBCOM-N)

As can be seen, the highest improvement margins for the group of Spanish students are in the SS-3, SS-6 and SS-16 skills. Likewise there are practically no skills whose rating has fallen and these small reductions are not significant.

In the case of the Italian group the largest margins have been achieved for the SS-3, SS-4, SS-13, SS-15 and SS-16 skills. Here there has also been a significant reduction in SS-9 (use of Google+).
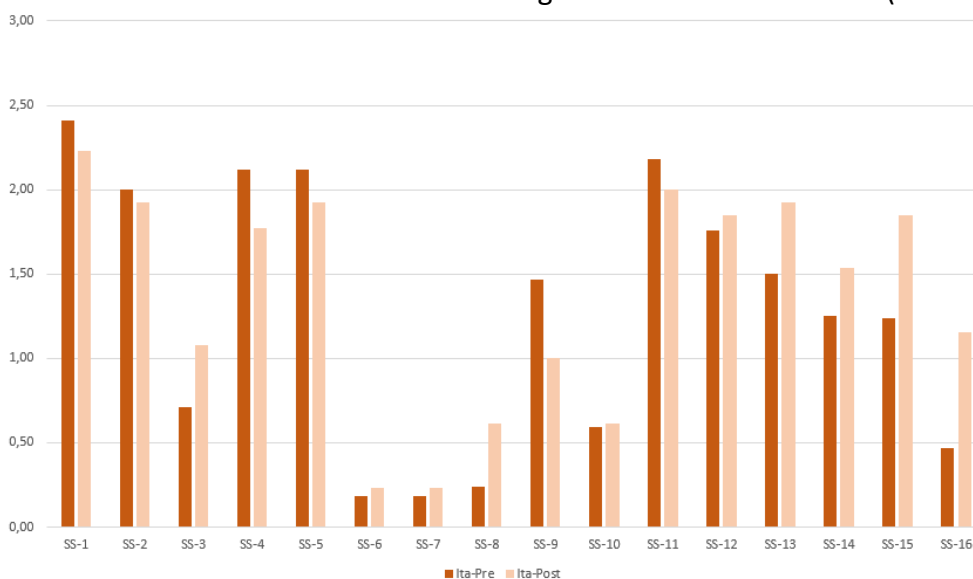
Figure 4-2-16 Pre vs. Post specific skills comparison ITA. (MOBCOM-N)

Finally, for the French group the results show significant increases in the SS-10, SS-14 and SS-15 skills, while worryingly there are significant reductions in the SS-1 group [1-5] and in SS-11 and SS-12.
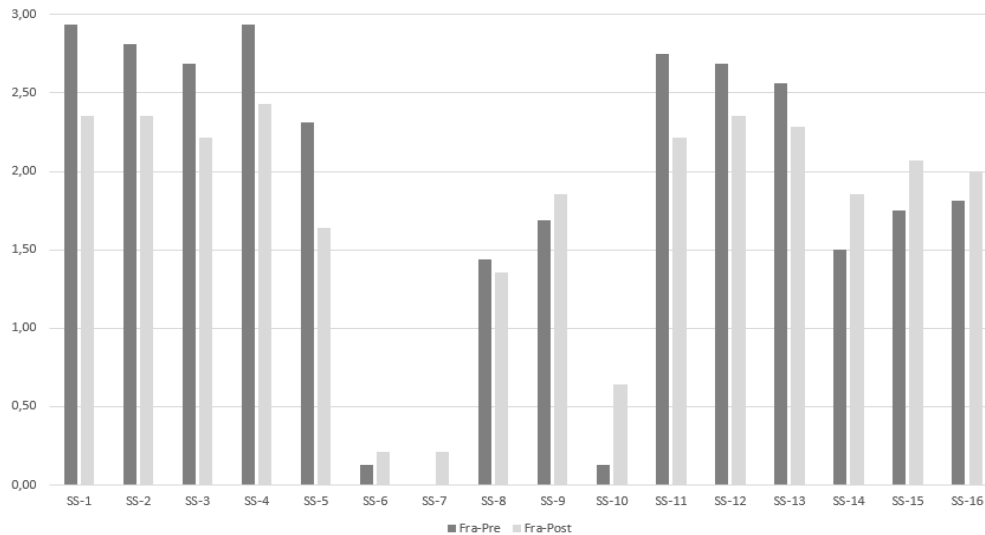
Figure 4-2-17 Pre vs. Post specific skills comparison FRA. (MOBCOM-N)

This potential decline in some of the skills is globally offset by the rise of others. Additionally, and at a more generic level, given the high level of satisfaction and usability of this group of French students, who in turn come from a first unsuccessful DM-Traditional course, this slight decrease is not alarming and could potentially be resolved in a new iteration of a course using SCC methodology.

Results of the SCC efficiency test

As a new feature with respect to the DM course, in this MOBCOM course we included a section in the Pre-Test to evaluate the degree of efficiency of the SCC method. To this end and to simplify its representation we have defined the following variables (Efficiency SCC-ES):

- ES-1: Have you had many problems by studying with the method proposed by the teacher?
- ES-2: Have you needed more time than planned to perform the tasks?
- ES-3: The teacher has properly oriented when you have you have needed his help?
- ES-4: The materials used, have been sufficiently clear?
- ES-5: Have they lacked materials to perform the given tasks?
- ES-6: Were you able to solve the tasks completely autonomously?
- ES-7: The teamwork has helped you to finish the tasks.
- ES-8: Working in a team, have you found well-defined tasks to be performed by each member of the group to achieve the objectives?
- ES-9: Do you think that you have had enough time to perform the tasks?

- ES-10: Have you found missing information in the Step by step guide to perform the course project?
- ES-11: Do you think that you have obtained the skills of the course?
- ES-12: Did you find teamwork difficult to obtain the goals set in the work?
- ES-13: Do you think that reports used to make the deliverables have been enough clear and organized?
- ES-14: Generally do you feel appropriate the materials used?
- ES-15: Have you found to be lacking technological resources during the course?

In Table 4-2-58 below we have depicted the values obtained with the best and worst rated marked in green and red respectively.

	ES-1	ES-2	ES-3	ES-4	ES-5	ES-6	ES-7	ES-8	ES-9	ES-10	ES-11	ES-12	ES-13	ES-14	ES-15
ESP	0,61	0,78	2,50	2,28	0,56	2,11	2,50	2,67	2,39	0,83	2,44	0,72	2,22	2,61	0,56
ITA	0,69	0,92	2,62	1,77	1,85	1,62	2,08	1,85	1,69	1,00	1,54	1,15	1,77	1,69	1,69
FRA	0,86	1,79	2,79	2,21	2,43	1,43	2,50	2,64	1,21	0,93	2,07	0,36	2,21	2,21	0,79

Table 4-2-58 SCC efficiency (MOBCOM-N). The working scale is 3: always, 2: quite often, 1: sometimes, 0: never.

The average per country was 1.72/3 (SD: 0.89) for the Spanish group, 1.59 (SD: 0.48) for the Italian one and 1.76 (SD: 0.77) for the French group, which are not significant differences ($p = 0.642$ in the most distant case). Positive aspects include the variable ES-3 (teacher guidance and help at 2.63), followed by ES-8 (with an average of 2.39 and concerning the appropriateness of group work and task assignment) and ES-7 (average of 2.36 and again referring to group work as support for finishing the job on time).

At the opposite end the negative aspects include ES-1 (0.72, and common to all three schools) which reflects efficiency issues in the student's personal ability to study with the proposed method; ES-12 (0.74) which concerns the problem of resolving the objectives of the practice; ES-10 (0.92) which reports on problems in following tutorials and the step-by-step system requested; and finally ES-15 (1.01) which shows concern about a lack of equipment, information and in general technological systems for conducting the course.

Summary of results

Given that this is a course which has been taken by students who either had not done any training prior to the project or had done it in classes using traditional methods, we believe it is useful to summarise the main data collated:

- Clarity of acquisition and understanding of content has increased significantly (see Table 4-2-52).
- Although priorities have been differentiated by groups, the methodology has mainly fostered practical use of the knowledge acquired and stimulated the participation of students, which are important factors bearing in mind the initial low motivation for the course.
- The level of satisfaction has been very high (see Table 4-2-53).

- These results are extremely significant and important for the project, since not only do they support the methodology used as a method capable of increasing the level of student satisfaction but they have also improved for the course proposal compared to the first iteration.
- High usability indexes have been obtained with the method (see Table 4-2-55), an aspect that indicates the ease entailed by a collaborative work method centred on the student's experiences as an educational system.
- Finally, there has been a clear improvement in the students' specific skills, probably one of the most important aspects since it means they will be better prepared for working life.

In line with these conclusions, we conducted a parallel follow-up study of the Spanish school which did the first course using a traditional system and this second one using SCC. The objective was to evaluate their adaptation to the method and contents of the course, bearing in mind that they are tangential to their training programme. The results have shown how students positively rate the training and believe that it can also help them in their future careers. The outcome of the course and the data analysis performed mean that this experience has been published in the following indexed conference:

- Improving computational skills and curriculum of Vocational Training students. Case Study: Technological Behaviour of pharmacy students in a Digital Marketing Course, Canaleta, X., Fonseca, D., Navarro, I., Climent, A., Vicent, Ll., *TEEM2016 - 4 Technological Ecosystems for Enhancing Multiculturality*, 2-4 November, Salamanca (Spain), in Actas de la Conferencia, Vol.1, pp. 85-90, ISBN: 978-1-4503-4747-1, Editor: Francisco José García Peñalvo, ACM Library, DOI: 10.1145/3012430.3012501

4.2.3   International MOBCOM-SCC Course Data. Pre-Test

As mentioned above and following the agreements between all the project partners and schools, the French students' language problems meant the international MOBCOM SCC course consisted of students from the Spanish and Italian schools. The course was taken by a total of 72 students with a mean age of 20.9 (SD: 3.06) and a gender distribution of 69 male students (95%) and 3 female students (5%); this latter point makes it impossible to draw any conclusions by gender.

Results of the technology profile test
As in the other courses and before starting the course, the students did a Pre-Test involving a range of types of analysis. The first data sampling concerned the technological profile of the students who have taken this international collaborative course (see Table 4-2-59).

	Q1: How often do you use your computer?	Q2: How often do you use services of Internet?	Which devices do you usually use to access Internet (select):					
			PC	Computer at school	Smartphone	Tablet	I don't use Internet	Other
ESP	3,98	4,00	83,64%	1,82%	12,73%	1,82%	0,00%	0,00%
ITA	2,88	3,76	82,35%	11,76%	82,35%	5,88%	0,00%	0,00%

Table 4-2-59 Internet access by devices (MOBCOM-International). In Q1 and Q2 the working scale is 4: daily, 3: occasionally, 2: only at school, 1: rarely, 0: never.

This shows that the current group of students divided into the two participating countries (Spain and Italy) use computers differently (they are much more used by the Spanish) while their Internet connection level is similar (with almost daily connections for all students), which directly indicates very high use of smartphones by the group of Italian students (as we will see later). An interesting aspect is the low use of smartphones for Internet connection by the Spanish group, which would suggest that they primarily use personal computers for this purpose.

Table 4-2-60 and Table 4-2-61 show the results for knowledge of programs and level of skill in particular applications specified in the initial survey:

	Identify level of knowledge of the following programs								
	Word Processing	Multimedia Presentations	Hypertext	Spreadsheets	Image processing	Audio/video production	Concept maps	Publication of audio/video	Social media tools
ESP	2,64	2,40	2,18	2,22	2,20	1,95	1,89	1,96	2,36
ITA	1,94	2,24	1,71	1,88	1,71	1,88	1,76	1,82	2,47

Table 4-2-60 Level of knowledge of programs (MOBCOM-Int). The working scale is 3: high, 2: medium, 1: low, 0: none.

	What is your degree of competence in each following systems?							
	Blog	Forum	Wiki	Text chat	Audio/Video conference	E-mail	Social networks	e-Learning platforms
ESP	1,80	1,73	1,84	2,45	2,27	2,82	2,29	1,73
ITA	1,88	1,82	2,12	2,24	1,71	2,18	2,63	1,88

Table 4-2-61 Level of digital systems skills (MOBCOM-Int). The working scale is 3: high, 2: medium, 1: low, 0: none.

The global averages are 2.16 (SD: 0.32) and 1.99 (SD: 0.27) respectively, figures that do not show any statistically significant difference (p = 0.108). The distribution can be seen graphically in Figure 4-2-18 below. It indicates that although the Spanish school has a higher level of skill in most of the items examined, these differences are only significant for very specific aspects such as training for working with word processors, creating web pages using hypertext and working with email. The other variables have uniform and high behaviours in comparison with the

previous courses and this means the sample has a higher level of knowledge than the ones in the other courses. This aspect is important since in principle motivation might be higher (an issue we will look at in the following sections) as might the demands made of the course, while skills improvement might potentially be reduced since the starting point is higher.
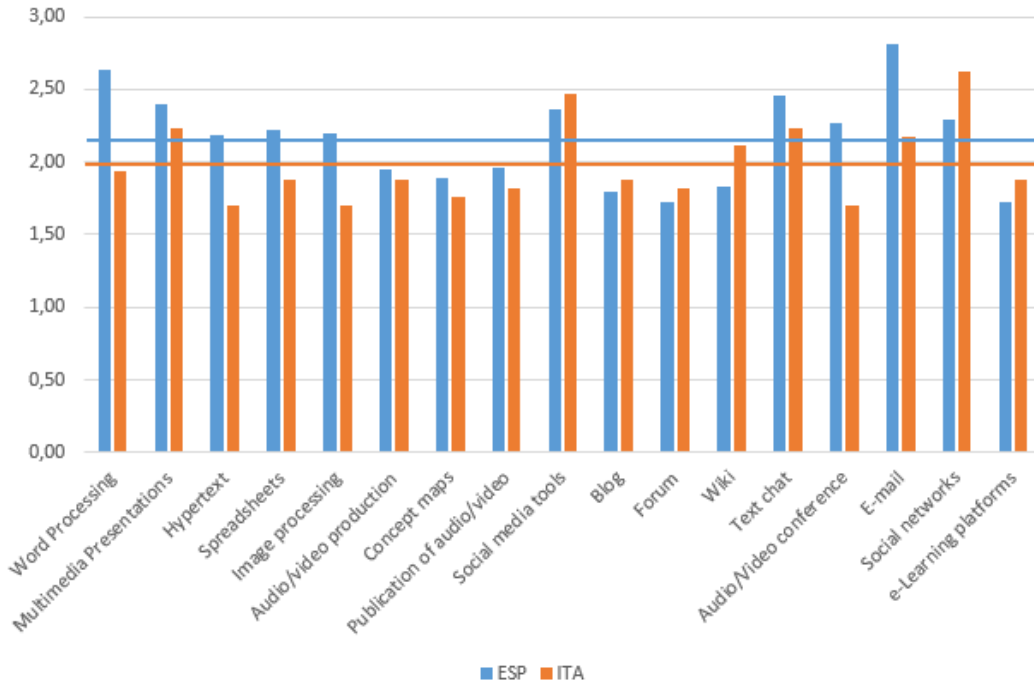
Figure 4-2-18 Comparison of prior digital systems knowledge and skills. (MOBCOM-Int)

The main results for the questions about the students' prior training in ICT are shown in Table 4-2-62 and Table 4-2-63:

	Q1: ¿Have you participated in ICT training courses?	In case of afirmative answer, how?						
		Forum participation	Using Shared data	On-line meetings	On-site meetings	Merged meetings	E-learning	Other
ESP	1,13	42,86%	30,30%	3,03%	24,24%	6,06%	24,24%	27,27%
ITA	0,94	16,67%	25,00%	16,67%	25,00%	0,00%	41,67%	25,00%

Table 4-2-62 Participation in ICT training courses (MOBCOM-Int). In Q1 the working scale is 2: yes, recently, 1: yes, but not recently, 0: no.

	Fulfillment of initial expectations	Fulfillment of professional interest	Positive effects on teaching	Effects on the quality of teching materials	Use in school
ESP	2,09	2,25	2,25	2,43	2,59
ITA	1,47	1,59	1,35	1,56	1,75

Table 4-2-63 ICT training assessment (MOBCOM-Int). The working scale is 3: high, 2: medium, 1: low, 0: none.

94% of the students have received training whether recently or otherwise, and as shown in Table 4-2-62 the distribution of the training is quite heterogeneous making it difficult to extract relevant data. By contrast the degree to which expectations for this training were met gives us significantly differentiated data (p = 0.0001): for the Spanish students the prior training on average gets a score of 2.32/3 (SD: 0.19) in achieving prior goals or expectations while the Italian students only just give it a pass mark at 1.54 (SD: 0.14).

Below we set out and analyse the data on prior experience in using ICT that we have broken down in Table 4-2-64, Table 4-2-65 and Table 4-2-66.

	Using ICT, which of the following tools have you used/use?			
	Computer laboratory	Interactive Whiteboard	Personal Devices	Other
ESP	54,55%	1,82%	29,09%	27,27%
ITA	70,59%	58,82%	35,29%	11,76%

Table 4-2-64 Use of ICT tools. (MOBCOM-Int)

	Select the ICT that you have used:				
	Moodle	Edmodo	Google Apps	YouTube	Other
ESP	83,64%	1,82%	43,64%	56,36%	23,64%
ITA	11,76%	35,29%	58,82%	52,94%	11,76%

Table 4-2-65 Use of ICT services. (MOBCOM-Int)

	In case of afirmative answer, what type?					
Have you ever used digital educational content to promote "product" ideas?	Content created with text applications	Content created with presentation applications	Content created with LIM software	Content created with educational applications	E-book	Other
ESP	20,00%	36,36%	45,45%	0,00%	27,27%	9,09%	9,09%
ITA	35,29%	50,00%	33,33%	50,00%	33,33%	0,00%	16,67%

Table 4-2-66 Use of digital educational content to promote an idea or "product". (MOBCOM-Int)

The data show that the Italian students have worked mostly with school ICT resources (high rates of use of laboratories and systems such as digital displays) while the Spanish group in addition to priority use of school computers also has experience in other systems. In terms of applications, the Spanish students have more experience using Moodle-type learning platforms and match their Italian counterparts in working with the Google+ platform and viewing content on YouTube. Approximately one-third of the students have done previous practice in promoting or positioning of an idea or product using digital systems. The systems used for this purpose are educational and text applications as well as the classic presentations system, none of which involve more collaborative and multimedia methods.

By way of summary and as a comparison with the other courses analysed, we potentially have the group with best preparation in digital systems, and in the case of the Italian group previous experience in training topics that is not good. Most use of ICTs by the sample analysed involved

classic educational and presentation systems, with no obvious training in collaborative and/or multimedia systems which is precisely the focus of the course to be run.

Results of the initial motivation test

As in the Pre-Tests conducted previously and in order to depict the results, we have defined the following working variables:

- IM-1: To find a job more easily
- IM-2: To find a job consistent than studies with more ease
- IM-3: To find a job that allows you to earn more
- IM-4: To find a job that can take responsibility and autonomy
- IM-5: To find a job that allows you to perform skilled tasks
- IM-6: For growth and personal maturity
- IM-7: To improve my career opportunities
- IM-8: To orient the work
- IM-9: For frequency by classmates / friends
- IM-10: To call / parent council
- IM-11: To call / teachers' council
- IM-12: For lack of other opportunities (work, study, etc.)

Table 4-2-67 shows the results:

	What were the reasons that led you to choose this training course?											
	IM-1	IM-2	IM-3	IM-4	IM-5	IM-6	IM-7	IM-8	IM-9	IM-10	IM-11	IM-12
ESP	1,93	1,87	1,59	2,00	2,09	2,37	2,46	2,17	1,59	0,83	0,93	1,00
ITA	1,38	1,75	1,75	2,06	1,94	2,13	1,88	2,19	1,75	1,25	1,50	1,13

Table 4-2-67 Reasons for choosing the training course (MOBCOM-Int). a lot, 2: sufficient, 1: little, 0: by no means.

The average by schools is 1.74 (SD: 0.55) and 1.72 (SD: 0.34) respectively for each of them, figures that do not reflect any significant difference. These figures are generally the highest obtained for any of the courses carried out, in particular the variables associated with aspects of future employment use IM [4-8]. At the opposite end, the improvement of relationships or the lack of other opportunities, IM [10-12], are not considered aspects that motivate students to do the course.

Results of the SCC motivation test

The following section concerns the students' motivation to take a course using SCC methodology. Here we have defined:

- SCC-M1: Have you ever heard of SCC before?
- SCC-M2: Do you like the idea of engaging in a learning that simulated a real work situation, in which you assume an important role in order to solve problems and / or achieve goals?
- SCC-M3: Do you think you can be a good work team member on a specific project?

	SCC-M1	SCC-M2	SCC-M3
ESP	1,92%	93,48%	100,00%
ITA	5,88%	94,12%	88,24%

Table 4-2-68 SCC knowledge and motivation. (MOBCOM-Int)

As in previous courses, the bulk of the students initially did not know what the SCC methodology is or how it is used (see SCC-M1 in Table 4-2-68).

Nonetheless, the idea of working in groups to solve real complex problems (SCC-M2 and M3) gets over 90% positive responses on average. The aspects of SCC viewed as most useful can be seen in Table 4-2-69 below:

	Among the various moments of which will consist of the learning experience SCC, which you think are the most interesting				
	To simulate a real work problem	Working in a team	To use new technologies	Doing less theory and more practice	To practice foreign languages
ESP	89,36%	93,75%	91,49%	80,43%	80,85%
ITA	94,12%	88,24%	100,00%	94,12%	88,24%

Table 4-2-69 SCC aspects considered most useful in principle. (MOBCOM-Int)

Students at both schools consider the method useful in terms of the aspects surveyed with averages around 90%. These results are the highest obtained out of all the courses, which together with the degree of motivation expressed would indicate the high degree of commitment of the sample of students who will take part in the experience.

Results of the specific skills test

Finally, before doing the course we asked about the students' level of skill with the following systems:

- SS-1: Social Network use
- SS-2: Advertising in social networks
- SS-3: SEO Achronym meaning
- SS-4: Facebook use
- SS-5: Instagram use
- SS-6: Tuenti use
- SS-7: Linkedin use
- SS-8: Twitter use
- SS-9: Google+ use
- SS-10: Internet advertising gratuity
- SS-11: Google results hierarchy
- SS-12: Sponsored links acknowledgement
- SS-13: Adword Aknowledgement
- SS-14: Analytics tools aknowledgement
- SS-15: Google advertising system aknowledgement

- SS-16: SMM & Social Networks relation acknowledgement

	SS-1	SS-2	SS-3	SS-4	SS-5	SS-6	SS-7	SS-8	SS-9	SS-10	SS-11	SS-12	SS-13	SS-14	SS-15	SS-16
ESP	2,20	2,52	1,22	1,83	1,33	0,13	0,39	1,04	0,80	0,54	2,57	2,37	1,61	1,52	1,44	0,87
ITA	2,47	2,06	2,59	2,47	2,12	0,76	0,53	0,94	1,53	0,76	2,53	2,35	2,53	2,18	2,18	2,53

Table 4-2-70 Digital marketing knowledge (technology and services) (MOBCOM-Int). The working scale is 3: yes/a lot, 2: quite a lot, 1: a little, 0: no/nothing.

The global average was 1.40/3 (SD: 0.76) for the Spanish students and 1.91 (SD: 0.74) for the Italians, which is the highest figure obtained in all the Pre-Test analyses performed. Although there is a clearly identifiable difference that can be seen in Figure 4-2-19 below, it is not considered statistically significant as p = 0.0649 is above the threshold of 0.05 that sets the significance between differences.
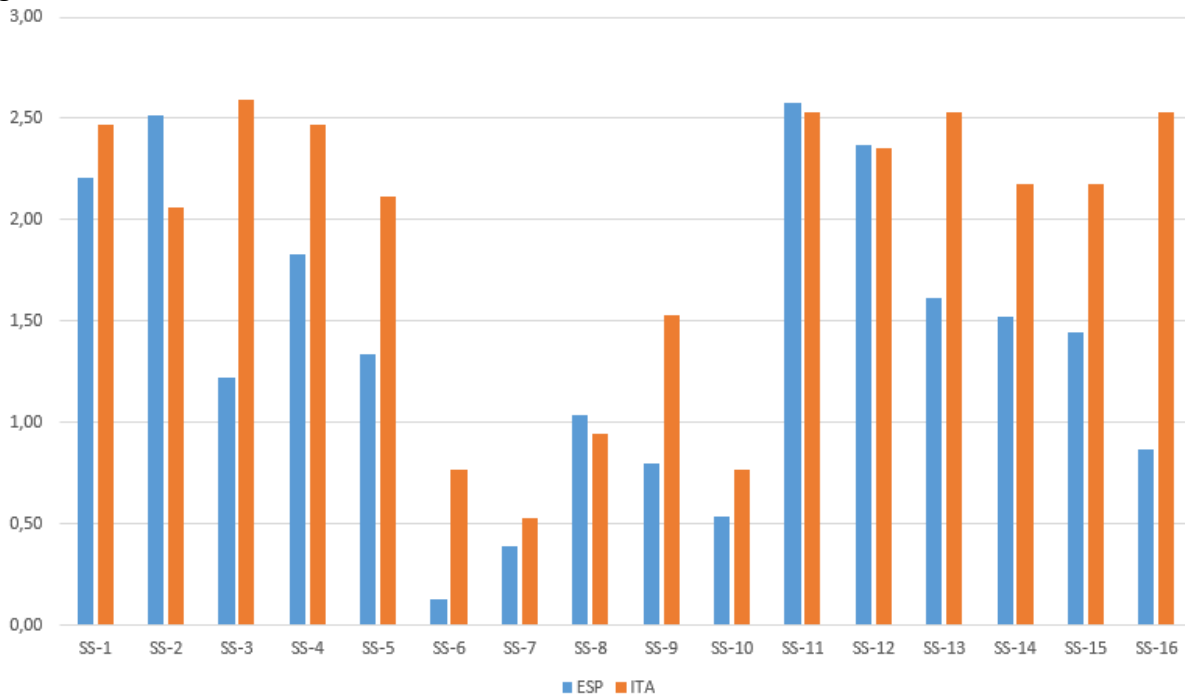
Figure 4-2-19 MOBCOM-Int with SCC methodology course-related ICT use and knowledge. Scale of 3 (yes, known or extensively used, to 0 not used or known).

By way of conclusion, in general and based on the results in the Pre-Test we have two uniform groups of students that will be randomly mixed to form the international working groups. Previous ICT training has focused on the most basic text-based systems, school interaction and presentations, but all of them demonstrate great interest in improving their digital skills, especially in the belief that such skills will help them to get a better job.

4.2.4 International MOBCOM-SCC Course Data. Post-Test

Once the experimental Mobile Commerce course using SCC methodology with international groups (groups with members from the Spanish and Italian schools) had been completed, the Post-Test was carried out. This last section of data gathering was subdivided into six parts which

we will examine in the following sub-sections. To maintain the methodology used in the previous courses, we have continued to differentiate the results by country, an aspect that might be questionable based on the uniform categorisation of the sample (see Pre-Test) and the fact that the groups were mixed. However, differentiation is useful given the differentiated study profile of the schools, an aspect that may enable us to carry out more sectorised analysis based on each school.

Results of the satisfaction test

The first group of data making up the Post-Test concerns the students' level of satisfaction with the training received (see Table 4-2-71):

	Are the contents of the course clear?	Is the teaching method novelty respect the common system?	If the above answer is Yes, would in that way?				
			It has more stimulated my participation	It has allowed me to experience and put into practice the knowledge acquired	It has made me think more about the content	It has allowed me to interact with real-life content	Others
ESP	63,64%	54,55%	0,00%	50,00%	25,00%	16,67%	8,33%
ITA	81,25%	87,50%	35,71%	71,43%	64,29%	0,00%	35,71%

Table 4-2-71 Overall satisfaction indexes MOBCOM-Int.

On average a 72.44% positive rating was given to clarity of content and 71.02% to the innovation of the method in terms of training. These values are positive, especially in the case of Italian students, with positive averages above 80%. The best rated aspects of the course were the method's ability to put previously acquired theoretical knowledge into practice (average of 60.71%) and its ability to get students to think about the course's contents (average of 44.64%).

As in the previous Post-Tests, the students then assessed the following aspects which we simplified by assigning variables as shown below:

- LS-1: Relevancy of distributed material
- LS-2: Clarity and completeness of presentations
- LS-3: Effective communication
- LS-4: Adequateness of the duration of presentations
- LS-5: Utility / usability / concreteness of information provided
- LS-6: Clear teaching
- LS-7: Adequateness of the practical part and exercises
- LS-8: Consistency between the theoretical and practical parts
- LS-9: Using of the knowledge acquired in daily life
- LS-10: Development of creativity
- LS-11: Accessibility to technologies
- LS-12: According to what you have said above, as a whole, Are you satisfied or not?

	level of satisfaction											
	LS-1	LS-2	LS-3	LS-4	LS-5	LS -6	LS -7	LS -8	LS -9	LS -10	LS -11	LS -12
ESP	1,23	1,18	0,73	0,73	1,23	1,36	1,36	1,45	1,18	1,41	1,27	31,82%
ITA	1,81	1,88	1,81	1,88	1,75	1,94	1,88	1,69	1,56	2,25	2,13	75,00%

Table 4-2-72 Level of satisfaction (MOBCOM-Int). The working scale for LS [1-11] is 3: high, 2: average, 1: very low, 0: not at all. For LS-12, the scale is 1: satisfied, 0: not satisfied.

The average for the group of Spanish students was 1.19/3 (SD: 0.24) and 1.87 (SD: 0.19) for the Italian group. This difference is statistically significant (p = 0.000), indicating the Italian students are reasonably satisfied while their Spanish counterparts have a very low level of satisfaction with the course as reflected by variable LS-12. Examining the aspects individually, we have graphically represented their results for better analysis (see Figure 4-2-20).
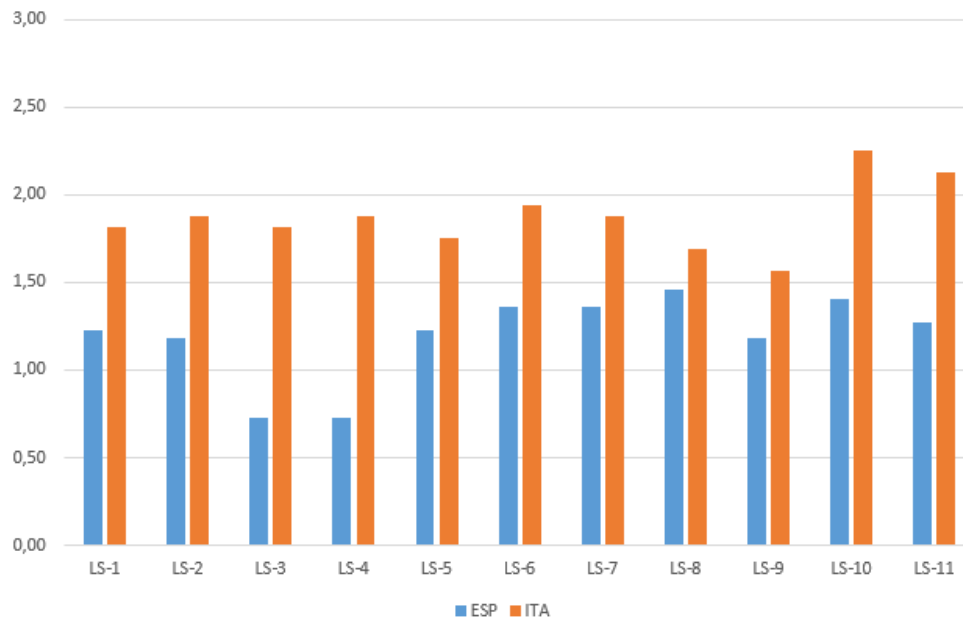
Figure 4-2-20 Comparison of satisfaction variables (MOBCOM-Int). The working scale is 3: high, 2: average, 1: low, 0: not at all

As can be seen, Spanish students have not "passed" (1.5/3) any of the variables surveyed, and only the variables for clarity of teaching (LS-6), theoretical/practical balance (LS-7 and LS-8) and the assistance for creativity provided by the method (LS-10) get near this threshold. The Italian group gives the best rating to the latter variable followed by access to technology (LS-11).

On the negative side there are aspects related to the presentations of the course and their duration (LS-3 and 4) while in the Italian group the usefulness of the course for daily life and the theoretical/practical balance (LS-8 and 9) are the worst-rated aspects.

In qualitative terms, some of the negative aspects for the Spanish students and which were the grounds for the satisfaction ratings concerned the brevity of explanations and working time for resolving the practical cases, bearing in mind that they also had to coordinate with the Italian

students who had different work schedules. This lack of synchrony slowed down the work leading to asynchrony which impacted the achievement of the course's practical objectives.

The students were then asked about the variables which could be improved in future iterations. To analyse these questions the following variables were defined:

- SU-1: Relevancy of distributed material
- SU-2: Clarity and completeness of presentations
- SU-3: Effective communication
- SU-4: Adequateness of the duration of presentations
- SU-5: Utility / usability / concreteness of information provided
- SU-6: Clear teaching
- SU-7: Adequateness of the practical part and exercises
- SU-8: Consistency between the theoretical and practical parts
- SU-9: Using of the knowledge acquired in daily life
- SU-10: Development of creativity
- SU-11: Accessibility to technologies

	Which of the following aspects would you suggest to improve in the course attended?										
	SU-1	SU-2	SU-3	SU-4	SU-5	SU-6	SU-7	SU-8	SU-9	SU-10	SU-11
ESP	36,36%	**22,73%**	**59,09%**	22,73%	13,64%	27,27%	40,91%	27,27%	**31,82%**	31,82%	40,91%
ITA	**31,25%**	56,25%	**43,75%**	25,00%	**31,25%**	31,25%	37,50%	**62,50%**	**31,25%**	37,50%	12,50%

Table 4-2-73 Improvable aspects of the MOBCOM-Int course.

In Table 4-2-73 we have identified in bold the worst-rated level of satisfaction variables for each school based on Table 4-2-72 and shaded the aspects identified in this Table as needing improvement in three greyscales from highest to lowest. The common variables with a low rating (bold) and identified as critical to improve (shaded) include LS-SU-3 (effective communication of the course's topics and contents). Other variables identified in Table 4-2-72 with low ratings such as LS-2 (clarity and completeness of content-related presentations) and LS-8 (consistency between theoretical explanations and practical exercises) have been identified as key aspects to be improved, while LS-9 (usefulness of knowledge acquired in everyday life) is identified as not very satisfactory but not critical as an improvement that affects the course.

Clarity of teaching by teachers (LS/SU-6) and the development of creativity (LS/SU-10) are the only two concepts common to the two schools which are not among the worst rated or among the priority factors for improvement, which means they are the best for the course according to the students' rating.

Results of the use of the method test

For the analysis of this section we have defined the following working variables:

- U-1: In terms of usability, do you think that the training method is accessible?
- U-2: Do you think that the contents, teaching style, equipment and teaching materials are appropriate to the stated objectives?

- U-3: Do you think that time dedicated to the application of the methodology in the school planning is adequate?
- U-4: The style of training conduction was characterized by mastery of content and clarity
- U-5: Online didactic support and classroom was adequate
- U-6: The training method encourages collaboration and teamwork in order to perform the tasks and achieve the objectives
- U-7: What do you think of the amount of teaching materials?
- U-8: What do you think of quality of teaching materials?
- U-9: The technological support and equipment were intuitive and easy to use , adequate and functional

	Usability								
	U-1	U-2	U-3	U-4	U-5	U-6	U-7	U-8	U-9
ESP	0,86	0,86	1,00	1,00	0,90	1,10	1,05	1,10	1,19
ITA	1,50	1,88	1,94	1,44	1,75	1,75	1,38	1,56	1,81

Table 4-2-74 Use of the method (MOBCOM-Int). The working scale is 3: a lot, 2: somewhat, 1: slightly, 0: not at all.

Overall the data presented in Table 4-2-74 show that usability for the Spanish group stands at 1.01 (SD: 0.11) compared to 1.67 (SD: 0.20) for the Italian students. These differences are statistically significant (p = 0.000) between the schools, reflecting a neutral rating by the Italian group and a really low one by the Spanish.

These data together with the answers obtained in the previous section about satisfaction reflect that fact that there were problems in running the course as part of the Spanish school's programme. In the same school the usability average for the previous course stood at 1.54 and satisfaction at 1.34 (1.19 for the current one), figures that reflect dissatisfaction with doing the course and which may be related to the type of students and studies which are much more technological than the other schools, thus leading to an expectation of much more specialised training than the training actually provided. By contrast, in the less technological schools, or rather with training less rooted in ICT, this type of SCC-based training with a predominant use of technologies has achieved better results and even in cases when it was not a type of learning similar to their pathway.

Individually we can highlight the positive behaviour of U-9 (usability of the technical medium and equipment) with an average of 1.50 and U-3 (time commitment to the course) with an average of 1.47. On the negative side there is U-1 (accessibility of the method in terms of usability) which with an average of 1.18 was the worst-rated variable. In second position at the bottom is U-7 (quantity of the teaching materials) with an average of only 1.21, which reflects a view that the method is not simple but rather complex and calls for a greater quantity of materials for its better compression.

Results of the general skills test

The following section concerns the degree of acquisition of general skills due to doing the course. We have defined the following acronyms to help depict the aspects surveyed:

- GS-1: I learned to express myself better
- GS-2: I use more easily the technical knowledge (mathematics, science, technology)
- GS-3: I'm more sure of myself
- GS-4: I have new ideas that could be turned into business ideas
- GS-5: My desire to learn has grown
- GS-6: I know better the use of information technology
- GS-7: I have increased my interest to work in group
- GS-8: I better recognize the potential of others, appreciating diversity
- GS-9: I find that between school and daily life there are many aspects of continuity that I did not see before
- GS-10: I value more my cultural knowledge
- GS-11: I value more my activities outside school as an experiences that can help me for future work
- GS-12: I was able to make mental connections that before are impossible to me
- GS-13: I am convinced more that every problem comes with a solution
- GS-14: I am able to realize my aspirations after schooling
- GS-15: I understand better the importance of languages
- GS-16: I feel that I am more prepared to overcome an obstacle
- GS-17: I realized that studying and working in a group is much better than studying and working alone
- GS-18: I grew the desire to continue studying after graduation
- GS-19: I think that doing things together with others they yield more results
- GS-20: I have changed my way of thinking about the future work, believing it is more important to the realization of aspirations rather than finding any job
- GS-21: I have improved the use of foreign languages

	GS-1	GS-2	GS-3	GS-4	GS-5	GS-6	GS-7	GS-8	GS-9	GS-10	GS-11	GS-12	GS-13	GS-14	GS-15	GS-16	GS-17	GS-18	GS-19	GS-20	GS-21
ESP	0,73	0,64	0,82	0,68	0,82	1,05	0,91	1,09	0,59	0,55	0,68	0,59	1,18	1,00	1,50	0,82	1,27	0,86	1,05	0,86	0,64
ITA	1,56	1,63	1,88	1,69	1,94	1,50	1,63	1,44	1,56	1,81	1,94	1,56	1,75	1,75	2,38	1,63	1,81	1,63	1,94	1,94	1,63

Table 4-2-75 General skills (MOBCOM-Int). The working scale is 3: a lot, 2: somewhat, 1: slightly, 0: not at all.

The overall average obtained from the results shown in Table 4-2-75 stands at 0.87/3 (SD: 0.25) for the Spanish group and 1.74/3 (SD: 0.21) for the Italian students, a statistically significant difference (p = 0.000).

In particular, the most highly rated skill with an average of 1.94 was GS-15 (Now I understand the importance of languages better) followed at some distance by GS-17 (I have realised that studying and working in a group is much better than working alone) and GS-19 (I think doing

things with other people makes it possible to get more and better results). These results are very interesting as they partly reflect and corroborate some of the project's objectives such as the emphasis on the issue of language teaching and a methodological change in teaching to make it more based on collaborative project work to improve students' understanding of the study subjects.

At the other extreme, the worst rated skills with an average of 1.08/3 were GS-9 (I have discovered aspects of daily life I was previously unaware of) and GS-12 (I have made mental connections that were previously impossible for me), followed by GS-21 (I have improved my language skills) at 1.13. These aspects continue to reflect firstly a lack of time and/or efficacy of the method to explore multi-language work and secondly the need to establish closer connections between the student's everyday lives and their educational practices.

Results of the specific skills test

To assist with the representation of the variables we have established the following relationships:

- SS-1: Social Network use
- SS-2: Advertising in social networks
- SS-3: SEO Achronym meaning
- SS-4: Facebook use
- SS-5: Instagram use
- SS-6: Tuenti use
- SS-7: Linkedin use
- SS-8: Twitter use
- SS-9: Google+ use
- SS-10: Internet advertising gratuity
- SS-11: Google results hierarchy
- SS-12: Sponsored links acknowledgement
- SS-13: Adword Aknowledgement
- SS-14: Analytics tools aknowledgement
- SS-15: Google advertising system aknowledgement
- SS-16: SMM & Social Networks relation acknowledgement

	SS-1	SS-2	SS-3	SS-4	SS-5	SS-6	SS-7	SS-8	SS-9	SS-10	SS-11	SS-12	SS-13	SS-14	SS-15	SS-16
ESP	1,91	2,32	1,45	1,64	1,41	0,32	0,64	1,27	0,41	0,77	2,41	2,23	1,91	1,77	1,73	1,14
ITA	2,50	2,31	2,50	2,63	2,06	0,38	0,44	0,56	1,19	0,75	2,38	2,44	2,19	1,75	1,69	1,88

Table 4-2-76 Specific skills on uses and knowledge of technology (MOBCOM-Int). The working scale is 3: yes/a lot, 2: quite a lot, 1: a little, 0: no/nothing.

The averages obtained by school were 1.46/3 (SD: 0.65) for the Spanish school and 1.73 (SD: 0.80) for the Italian school. These averages should be looked at in comparison with the data obtained in the Pre-Test, when they were 1.40 and 1.91 respectively. As can be seen, the Spanish students have slightly increased their skills while the Italians have seen their level fall, although these differences cannot be considered statistically significant as they are well above

the threshold (*p* = 8190 and *p* = 0.5126, the respective values of the Pre vs. Post comparison between the Spanish and Italian results). As shown in Table 4-2-76, the best rated skills are SS-11 (knowledge of the Google search system with an average of 2.39/3), SS-12 (knowledge of a sponsored link, average of 2.33) and SS-2 (knowledge of the advertising system on social media, average of 2.32). At the other end of the scale is use of Tuenti (SS-6, average of 0.35), LinkedIn (SS-7, average of 0.54) and awareness of Internet advertisement costs (SS-10, average of 0.76/3). Graphically the global and country results can be seen in Figure 4-2-21, Figure 4-2-22 and Figure 4-2-23 below.
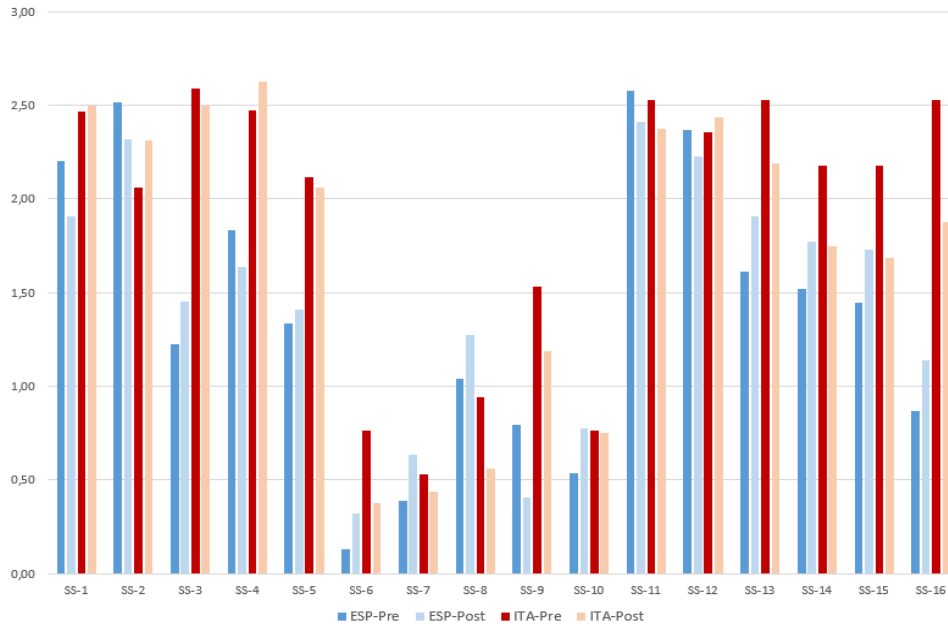

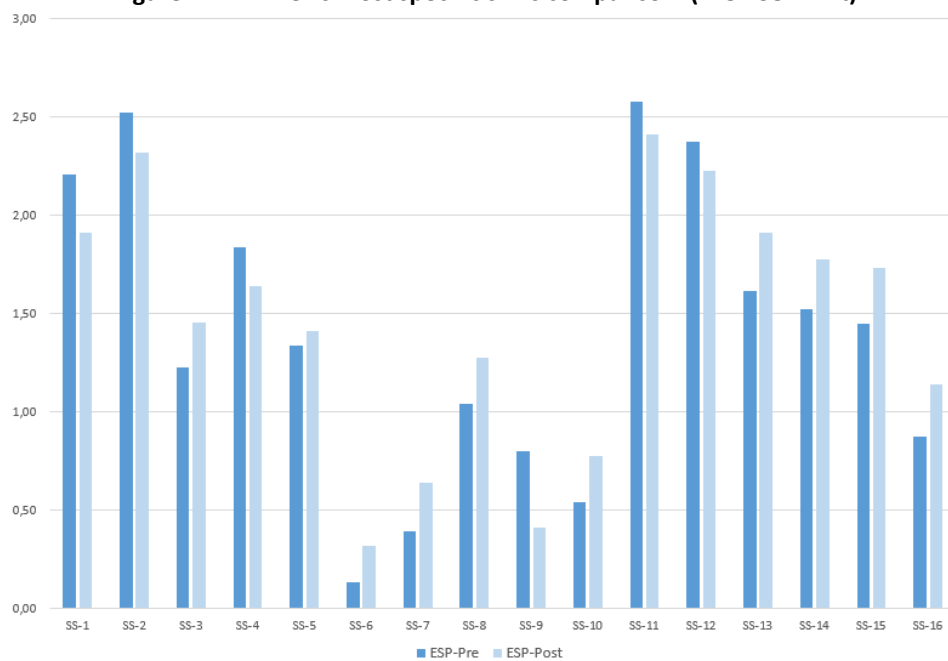**Figure 4-2-21 Pre vs. Post specific skills comparison. (MOBCOM-Int)**

Figure 4-2-22 Pre vs. Post specific skills comparison ESP. (MOBCOM-Int)
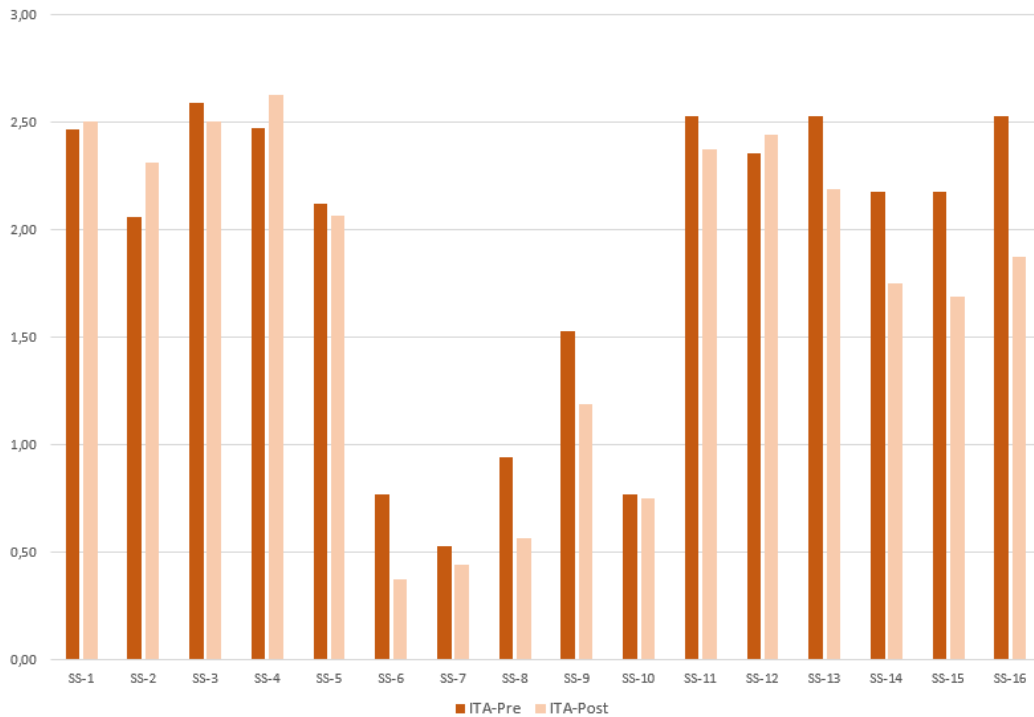
Figure 4-2-23 Pre vs. Post specific skills comparison ITA. (MOBCOM-Int)

By way of summary, the low usability and satisfaction of the Spanish students has been transformed into a slight improvement in the perception of skills, while the good results obtained by the method in the Italian group have not been significantly reflected in a skills improvement as in previous courses.

Results of the SCC efficiency test

As in the case of the national courses, below we have extracted data about the SCC method's degree of efficiency according to the students. As in previous sections and to help with studying them, we have associated the following acronyms with the study variables:

- ES-1: Have you had many problems by studying with the method proposed by the teacher?
- ES-2: Have you needed more time than planned to perform the tasks?
- ES-3: The teacher has properly oriented when you have you have needed his help?
- ES-4: The materials used, have been sufficiently clear?
- ES-5: Have they lacked materials to perform the given tasks?
- ES-6: Were you able to solve the tasks completely autonomously?
- ES-7: The teamwork has helped you to finish the tasks.
- ES-8: Working in a team, have you found well-defined tasks to be performed by each member of the group to achieve the objectives?
- ES-9: Do you think that you have had enough time to perform the tasks?
- ES-10: Have you found missing information in the Step by step guide to perform the course project?

- ES-11: Do you think that you have obtained the skills of the course?
- ES-12: Did you find teamwork difficult to obtain the goals set in the work?
- ES-13: Do you think that reports used to make the deliverables have been enough clear and organized?
- ES-14: Generally do you feel appropriate the materials used?
- ES-15: Have you found to be lacking technological resources during the course?

In Table 4-2-77 below we have depicted the values obtained with the best and worst rated marked in green and red respectively.

	ES-1	ES-2	ES-3	ES-4	ES-5	ES-6	ES-7	ES-8	ES-9	ES-10	ES-11	ES-12	ES-13	ES-14	ES-15
ESP	1,35	1,60	1,60	1,50	1,40	1,45	1,30	1,10	0,90	1,40	0,95	1,55	1,35	1,25	1,60
ITA	1,38	1,50	2,31	1,75	1,88	1,75	1,63	1,75	1,75	1,56	1,44	0,94	1,81	1,88	1,44

Table 4-2-77 SCC efficiency (MOBCOM-Int). The working scale is 3: always, 2: quite often, 1: sometimes, 0: never.

On average, the Spanish group rated efficiency at 1.35/3 (SD: 0.22) and the Italian one at 1.65 (SD: 0.30), a difference that can be considered statistically significant (p = 0.0054). Clearly the best-rated aspect at 1.96/3 is ES-3 (teacher help when needed), while ES-11 is at the opposite end of the scale where students feel that they have not acquired the skills for which the course was designed (with an average of 1.19). As can be seen, the low average rating for ES-12 (second from bottom with an average of only 1.24) indicates the failure to achieve the skills the course was intended to provide due to the difficulty of organising group work. This aspect has already been noted above and indicates the problems of synchronisation between the Spanish and Italian students who had different programmes, semester periods and schedules, aspects that in many cases entailed collaborative work in non-teaching hours.

Results of the international impact test
Lastly, and in addition to the other Post-Tests carried out previously, this course has rated a final group of aspects concerning doing the course internationally with mixed groups.
As in previous cases we have subdivided the information into several tables to help with its analysis.
Table 4-2-78 shows the ratings for the following terms (Team Work – TW, Materials – M):
- TW-1: I have found it easy to communicate with members of my work group
- TW-2: There have been well-defined tasks to be performed within the working group
- TW-3: I had problems with the use of tools for communication between members of the working group
- TW-4: I have been able to share the materials related to the project deliverables.
- M-1: I had the materials with a language that I understood
- M-2: I had to complete the materials for the performed tasks
- M-3: I needed tools to perform translations of materials or texts developed by the other members of my work group
- M-4: I had to help my group members with issues related to language materials or comments

- M-5: I needed more material in my own my language
- M-6: I had to find more resources on the internet because the materials I had available on the teaching platform were not clear enough

	About team work				About Materials					
	TW-1	TW-2	TW-3	TW-4	M-1	M-2	M-3	M-4	M-5	M-6
ESP	0,81	1,00	1,57	0,86	1,95	1,24	1,14	1,38	1,10	1,29
ITA	2,13	1,81	1,38	1,88	1,94	2,06	1,69	1,38	1,56	1,56

Table 4-2-78 Teamwork and rating of materials (MOBCOM-Int). The working scale is 3: always, 2: quite often, 1: sometimes, 0: never.

Variable-by-variable analysis shows and confirms the Spanish students' group work problems (TW-1) as well as the definition of hand-in tasks (TW-2) and hand-in procedures (TW-4). However, these problems are not so prominent in the group of Italian students who nevertheless note difficulties in the use of communication tools among group members (TW-3). This case shows how the training/level in prior technological tools has been a barrier that has impacted the proper implementation of the project. This suggests that working with common educational settings and/or prior training which homogenises the students' abilities with the common systems that need to be used in a common project may well be necessary in future iterations of similar courses.

Moving on to the second block of responses concerning materials, the students from both countries had an intermediate level of English which enabled them to understand the contents (M-1, with an almost identical rating) without any difficulty. The lowest scores from the Spanish group in this section should be analysed as they indicate the almost non-existent need to translate, find, add or interpret materials and contents, which is a positive aspect. Here the Italian students needed to make a somewhat greater effort, but the fact of not breaching the 2/3 barrier would suggest that the contents have been appropriate for conducting the course.

The next block of components to be analysed are (Teaching – T, Skills – S):

- T-1: The teacher has always answered quickly the questions I have asked him
- T-2: The teacher has always answered the questions I have asked him with enough clarity
- T-3: The language used by the teacher has been adequate and has allowed me to communicate with him without any problem
- T-4: Time differences have make me difficult the working communication with the teacher
- T-5: In general, it has not become any problem having a teacher from another school
- S-1: Working with students from other schools, has make me much more difficult the learning process
- S-2: The language used with students from other schools, has make me much more difficult the learning process
- S-3: Working with colleagues from other schools has motivated me to carry out the work
- S-4: Different methods of working with colleagues from other schools, has make me more difficult to work with them

- S-5: Overall I consider myself satisfied with what I have learned in the course

The grouped results can be seen in Table 4-2-79 below:

	About the teacher					About skills				
	T-1	T-2	T-3	T-4	T-5	S-1	S-2	S-3	S-4	S-5
ESP	1,33	1,24	1,76	1,52	1,05	1,57	0,90	0,90	1,67	0,81
ITA	2,31	2,25	2,19	1,06	1,56	1,25	1,44	1,88	1,19	1,81

Table 4-2-79 About the teacher and skills. The working scale is 3: always, 2: quite often, 1: sometimes, 0: never.

As can be seen, the Italian group gives a significantly better rating to the teacher's support during the course as well as the time spent on carrying out the project compared to the results of the Spanish group. Focusing on skills and their degree of achievement in terms of different situations, the answers to S-1, S-2 and S-4 that identify problems get a good overall rating (centred around the perception "1: sometimes") from both schools. In the case of S-3 which identifies motivation, there is a high response by the Italian group (in line with the one obtained in the Pre-Test, see Table 4-2-67, Table 4-2-68 and Table 4-2-69) and a much lower perception by the Spanish group which seems not to have adapted to the course proposal done. This perception is reflected in the response to S-5 where the Spanish group identifies low satisfaction with the course in line with the more in-depth rating we obtained in Table 4-2-72.

4.2.5 Conclusions

This second course has involved a mobile commerce platform experience using SCC methodology in two modes: one in closed groups of one school per country (national groups) and another cross-cutting one with students that formed mixed groups from the Spanish and Italian schools. The initial motivation of the international groups (see Table 4-2-67) was greater than that expressed by the members of the national subgroups (see Table 4-2-48) and the following trends have been identified in the students' profiles:

- In Spain the students' initial motivation is improving their ability to find work.
- Meanwhile in France and Italy they see the new course proposals as an opportunity to improve their abilities in terms of group work and relations with the educational setting, attaching less importance to the future career aspect.
- Analysis of the results by type of work group (national vs. international) clearly identifies an interest among students in the international group in improving their future work prospects. By contrast the national work groups only significantly pick out improvement of the setting and teacher relationship as a useful aspect but always with medium-low ratings.

Once the courses had been completed and comparing the results of the SCC work method (between the ones obtained in the Pre-Test and the Post-Test), it is in our view a useful method for improving teaching and one which enables students to work in real environments that prepare them for entering the labour market. Access to technology, group work and real projects have been highly rated aspects, although the fit of the theme in the course programme

![Erasmus+ logo]

Enhancing Motivation and performance of Professional Training students based on Immersive methods in International Environments

and the compatibility of the syllabus with their everyday training have been aspects that have hindered implementation and sometimes resulted in low satisfaction rates.

If we compare the results of the course in its two modes (national vs. international), the result is clear and conclusive: the level of satisfaction (see Figure 4-2-24), usability (see Figure 4-2-25) and the level of skills acquired whether general (see Figure 4-2-26), specific (see Figure 4-2-27) or connected with SCC (Figure 4-2-28) have all been better for the national groups.

The satisfaction of the national groups achieved an average of 2.16/3, well above the 1.53 of the students who did the international course (statistically significant difference p = 0.000) and without any variable that has reversed the trend.
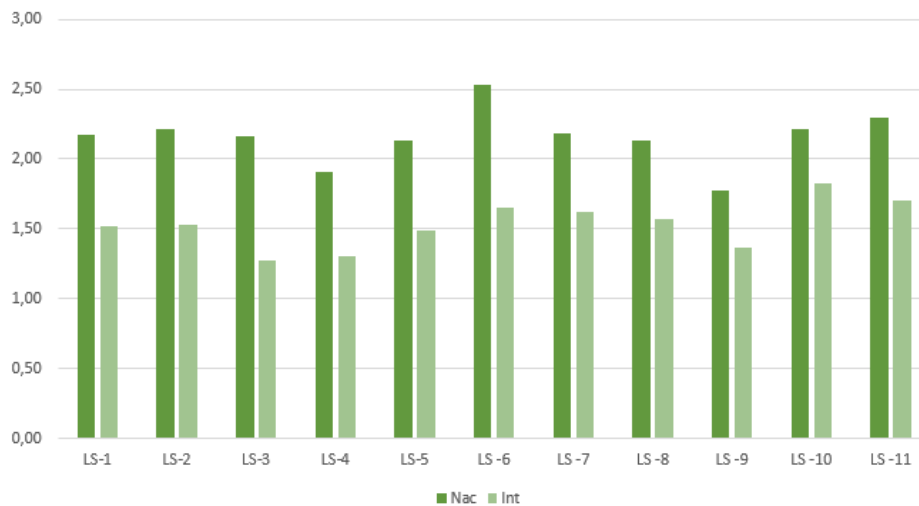

Figure 4-2-24 Satisfaction comparison.

Usability follows the same pattern as satisfaction. The national average stands at 1.99 while in the case of the international group students it falls to 1.34, once again a significant difference (p = 0.000).
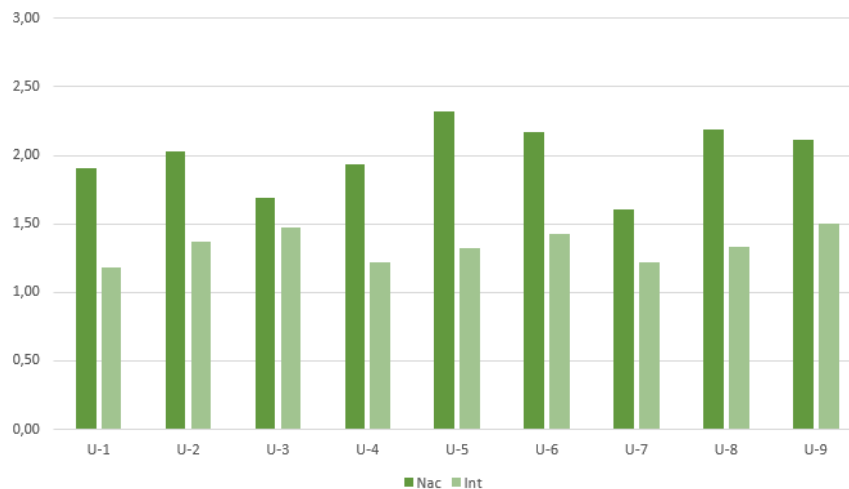
Figure 4-2-25 Usability comparison.

130

This behaviour of variables more focused on the user experience (satisfaction and usability) has been reflected in the skills level that the students have demonstrated. While compared with the start of the course the level of general skills through SCC has gone up, it is still much better when the course is done in the national mode. In this case the average stands at 1.97 compared to the 1.31 of the international course, a significant difference ($p = 0.000$).

Figure 4-2-26 General skills comparison.

The specific skills result is the first results analysis to show some positive variation in the international group's results (up to 5 variables). The national average stands at 1.70 while the result of the international group is 1.59, a minimal difference that has no significance ($p = 0.6602$).

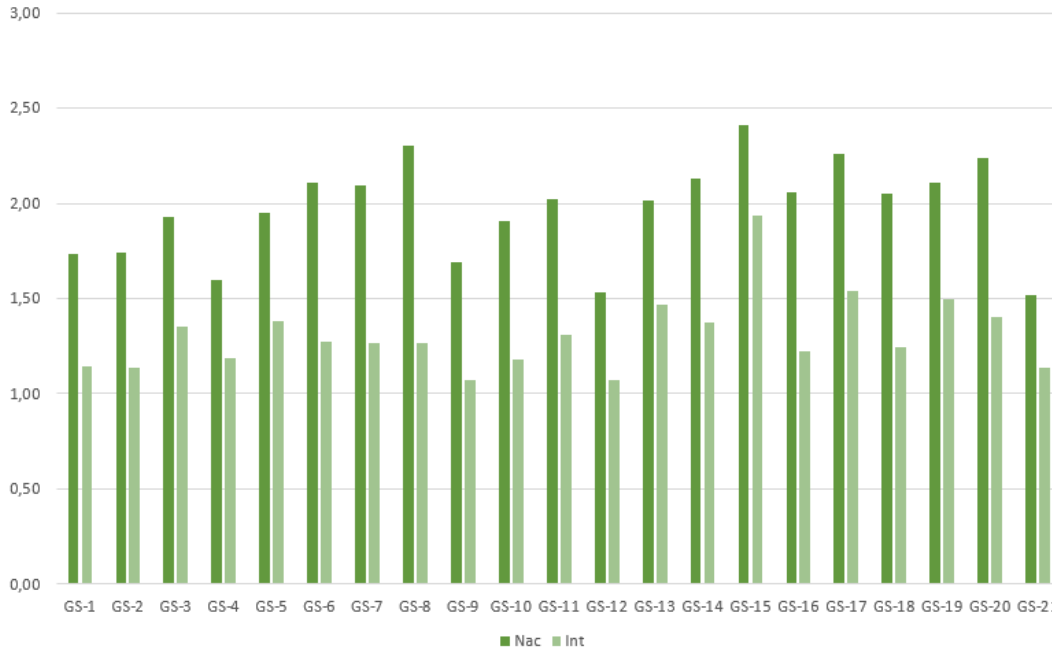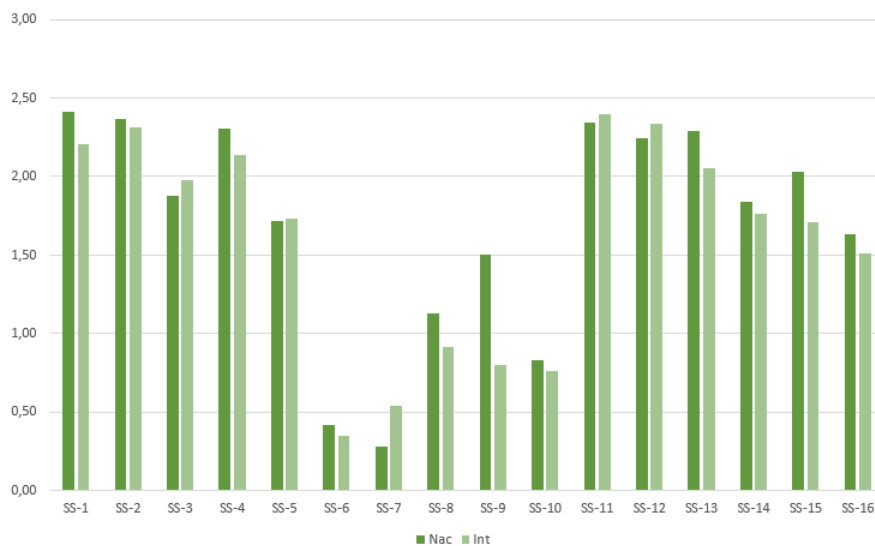**Figure 4-2-27 Specific skills comparison.**

Finally, in terms of the results obtained for the skills related to the SCC method, the average for the student groups that took the national courses is 1.69 compared to 1.50 for the international group. As in the case of specific skills, this difference is again non-significant ($p = 0.2831$), an aspect that equates the response between the two types of course in relation to the skills closest to the proposed method.
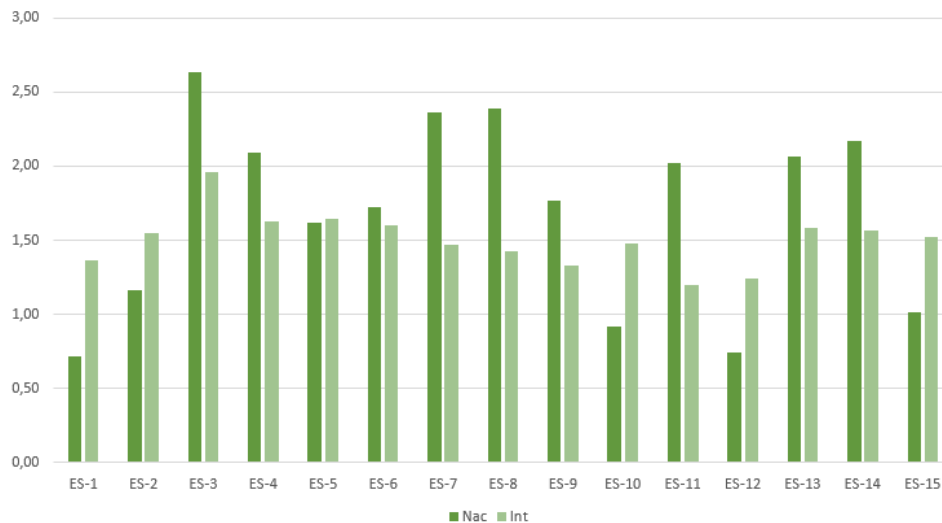
Figure 4-2-28 SCC skills comparison.

Finally, part of these results and their analysis have been presented and accepted at:

- 12ª Conferencia Ibérica de Sistemas y Tecnologías de la Información (CISTI – 2017, 21-24 June, Lisbon, Portugal), under the title: "*Usability and satisfaction assessment of vocational training students in terms of their initial motivation. Mobile Commerce course using SCC methodology*" Fonseca, D., Canaleta, X., Climent, A.

5 Employability Analysis

5.1 Introduction

We examine here the results of three different samples in the school years 2014-15 and 2015-16. According to a general taxonomy, the first sample is the most traditional because it has used the traditional method in the SEO course and the SCC local method in the MobCom course and it comprises three schools (Ist. Cavanis – Possagno, TAPSD La Salle – Palma, TFP La Salle – Palma); the second sample includes only the Groupe scolaire Saint Joseph La Salle – Auxerre, that has used the SCC local method both in the SEO and the MobCom courses; the third sample is the most advanced, because it includes two schools (Ist. Sacri Cuori – Barletta, Salesians Sarria – Barcelona) that have used the SCC local method in the SEO course and the SCC international method in the MobCom course. For the sake of brevity, hereinafter we call them respectively Group 1, Group 2 and Group 3.

GROUPS	SCHOOLS	TEACHING METHODS		EMPLOYABILITY ANALYSIS	
				YEAR	
1	Istituto Tecnico Economico e Tecnologico - ISTITUTO CAVANIS - POSSAGNO (IT)	Traditional	SCC-local	2014/15	2015/16
	TAPSD - COLEGIO LA SALLE - PALMA - Illes Balears (ES)	Traditional	SCC-local	2014/15	2015/16
	TFP- COLEGIO LA SALLE - PALMA - Illes Balears (ES)	Traditional	SCC-local	2014/15	2015/16
2	GROUPE SCOLAIRE SAINT JOSEPH – LA SALLE - AUXERRE (FR)	SCC-local	SCC-local	2014/15	2015/16
3	ISTITUTO TECNICO - SUORE SALESIANE DEI SACRI CUORI - BARLETTA (IT)	SCC-local	SCC-international	2014/15	2015/16
	Escola formació professional i batxillerats - SALESIANS SARRIÀ - BARCELONA (ES)	SCC-local	SCC-international	2014/15	2015/16

Enhancing Motivation and performance of Professional Training students based on Immersive methods in International Environments
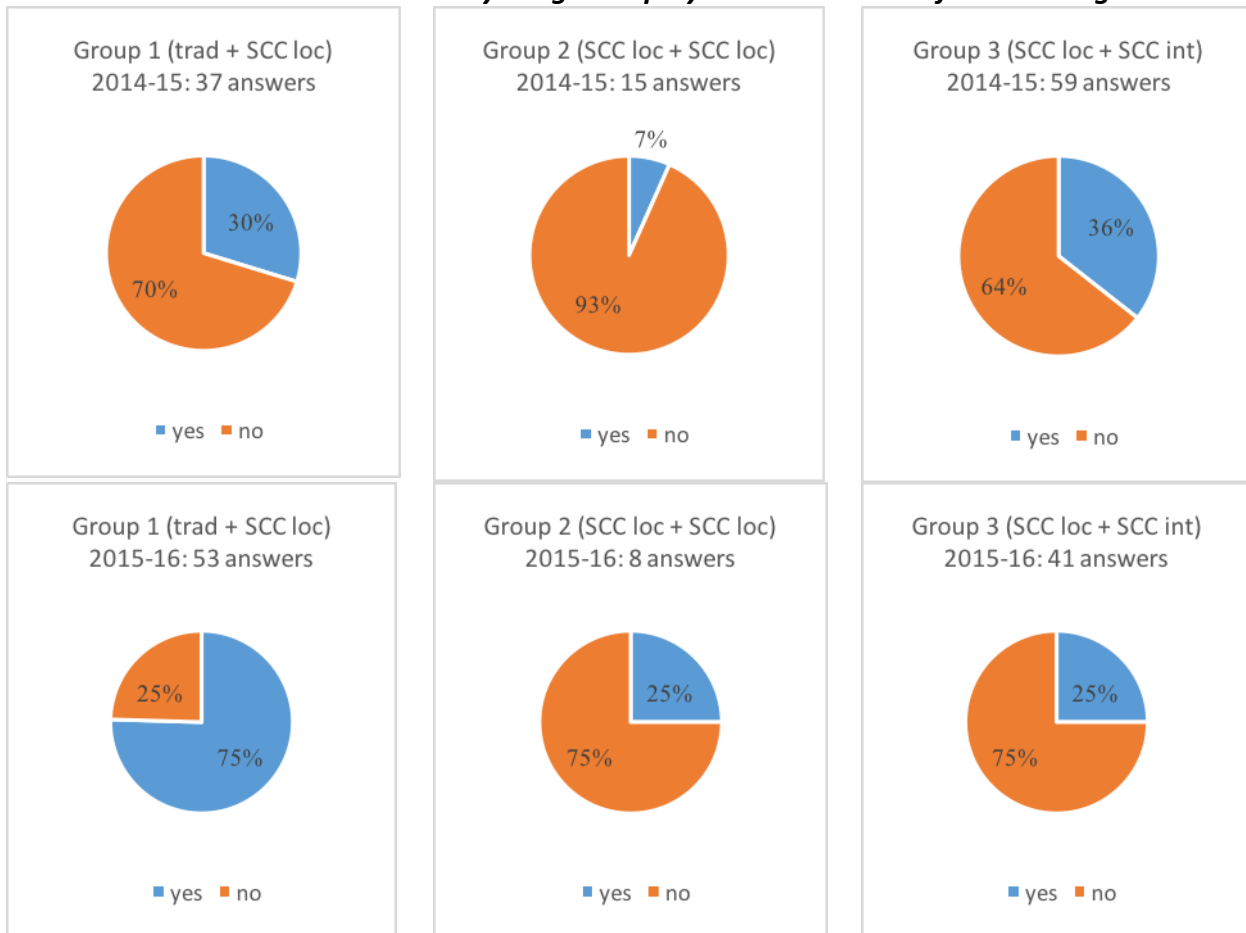
5.2   Employability analysis

In addressing the employability analysis of the Learning4Work project, it is good to point out that Group 2 has often results that we can scarcely compare with the other two groups, both because the group is composed only of one school and because the trend of the answers is frequently different from the two others (perhaps the questionnaire has been completed too fast or somehow superficially).

The first question (see Table 1) asked if students have actively sought employment at the end of their training.

Table 1 – *You have actively sought employment at the end of the training?*

Group 1 (trad + SCC loc) 2014-15: 37 answers	Group 2 (SCC loc + SCC loc) 2014-15: 15 answers	Group 3 (SCC loc + SCC int) 2014-15: 59 answers
30% yes / 70% no	7% yes / 93% no	36% yes / 64% no
Group 1 (trad + SCC loc) 2015-16: 53 answers	Group 2 (SCC loc + SCC loc) 2015-16: 8 answers	Group 3 (SCC loc + SCC int) 2015-16: 41 answers
75% yes / 25% no	25% yes / 75% no	25% yes / 75% no

As you may have noticed, the answers have not a clear trend. In school year 2014-15 the third group has a trend similar to the first one (around a third of students have sought employment) while in Group 2 just 7% of students have made the same thing. In 2015-16, Groups 2 and 3 have 25% of affirmative answers while Group 1 has 25% of no. Apart from this last result, we can observe that job search is not a very urgent matter for the majority of the students, perhaps because most of them prefer to continue their studies than to find a job. The answers to the subordinate question (how many months after the end of the training did you start to look for a

job?), in the diagrams that follow, have a clearer trend (see Table 1.1.): in most cases students have begun to find work very soon: more than half have begun in the first or second month, especially in 2014-15. In 2015-16, we can observe less rush.

Table 1.1 – *If yes, how many months after the end of the training did you start to look for a job?*
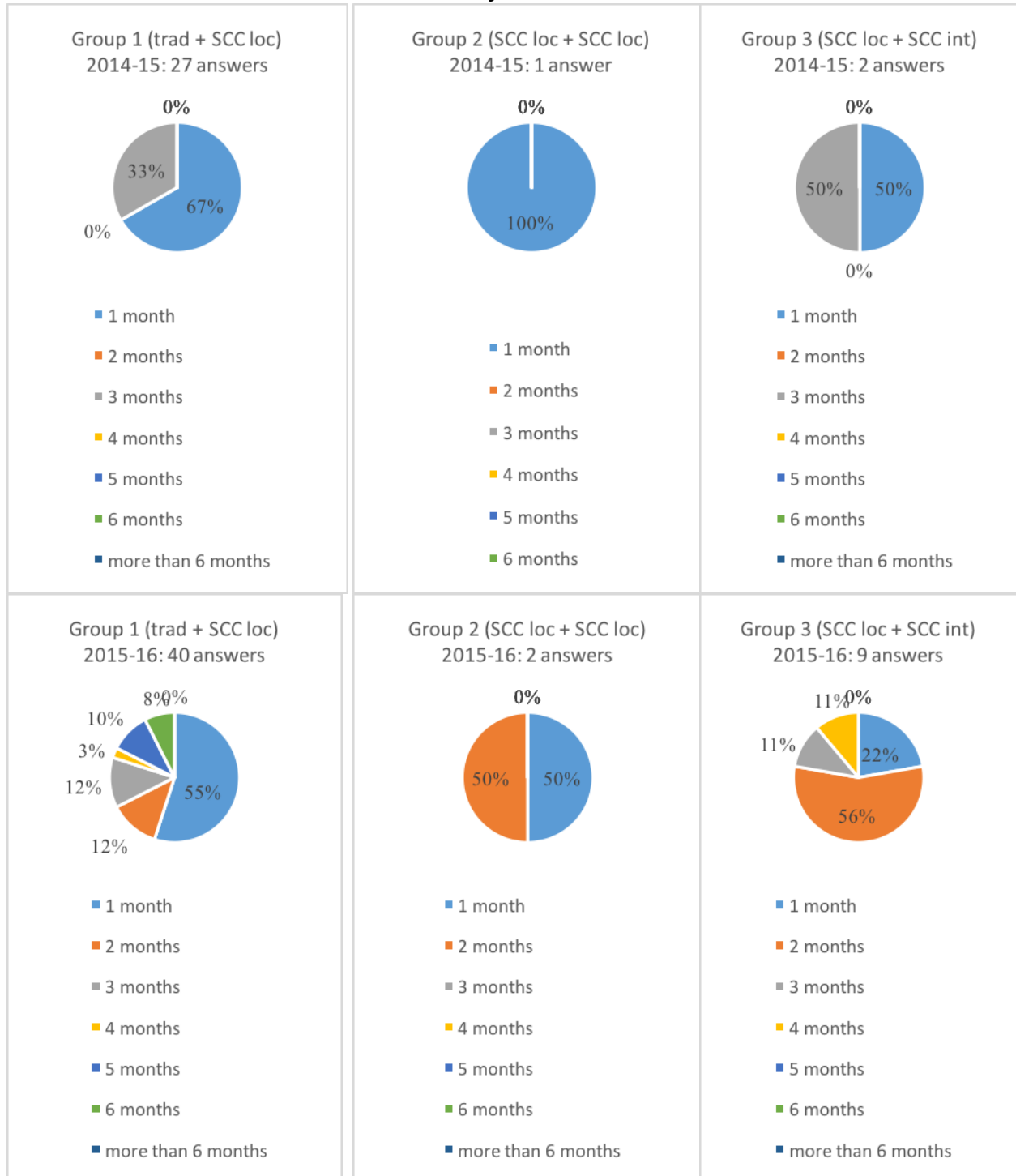
The duration of employment relationships (see Table 2) seems to vary greatly in the different samples, but for a better comprehension it can be useful to exclude Group 2, because it has only two answers in 2014-15 and four in 2015-16.

For the other two groups, the difference is above all between the two school years, because in the first year most of the students (86-95%) have found a permanent time contract. But in the following year the situation is different, because just a quarter of the students (19-28%) have such a contract and the duration of other contracts is shorter, without significant differences between the first and third groups.

Table 2 – *The duration of the contract or employment relationship longer than you are getting (typology)*
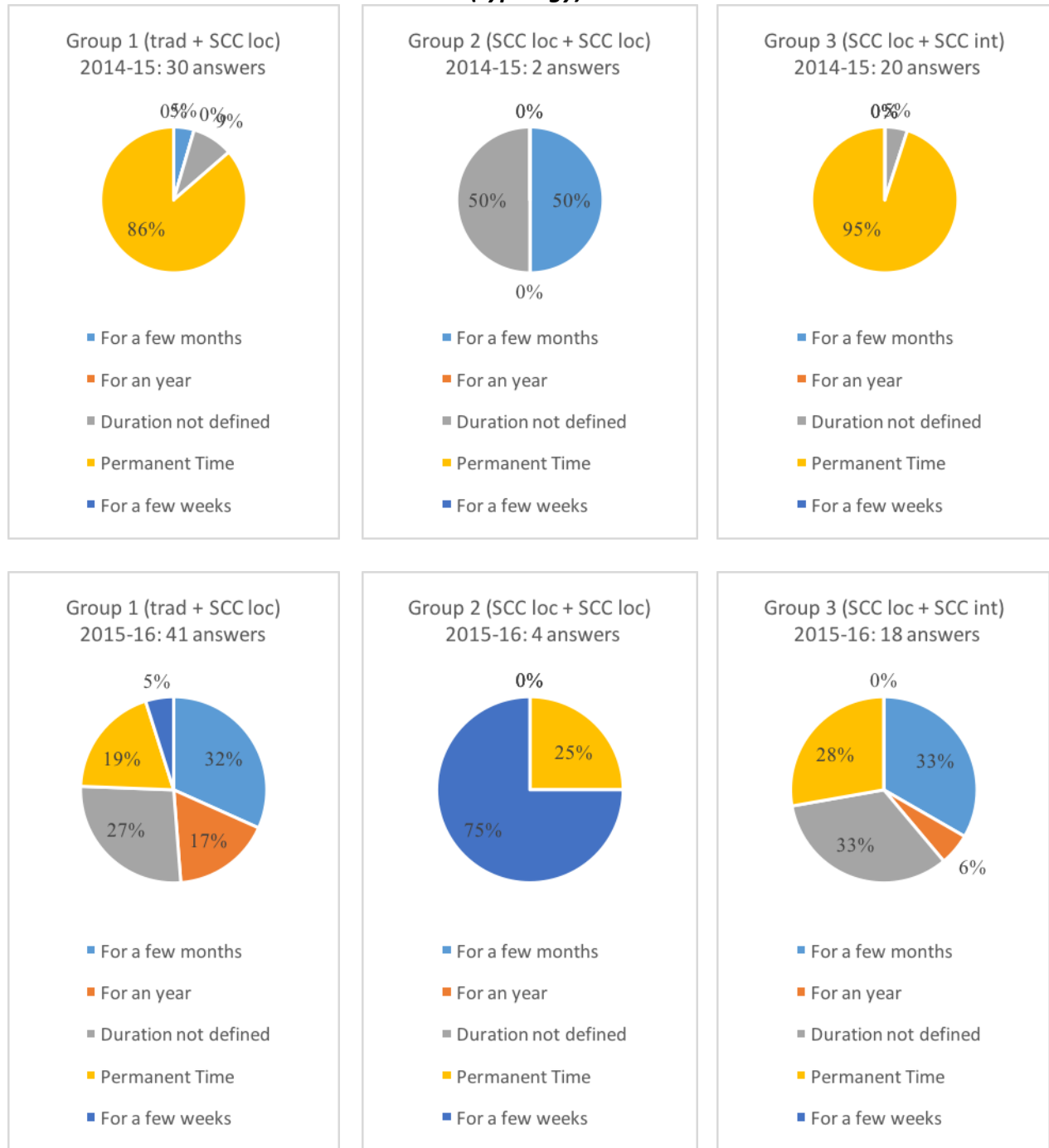
Anyway, the working time – full and part time – is nearly the same in all the groups (see Table 2.2.) with a clear prevalence of full time, which is more widespread in 2014-15 (90-100%) than in 2015-16 (75-76%). As the schools are the same, we can suppose that the job market got worse in the second year.

Erasmus+

Enhancing Motivation and performance of Professional Training students based on Immersive methods in International Environments

Table 2.2 – *The duration of the contract or employment relationship longer than you are getting (time)*

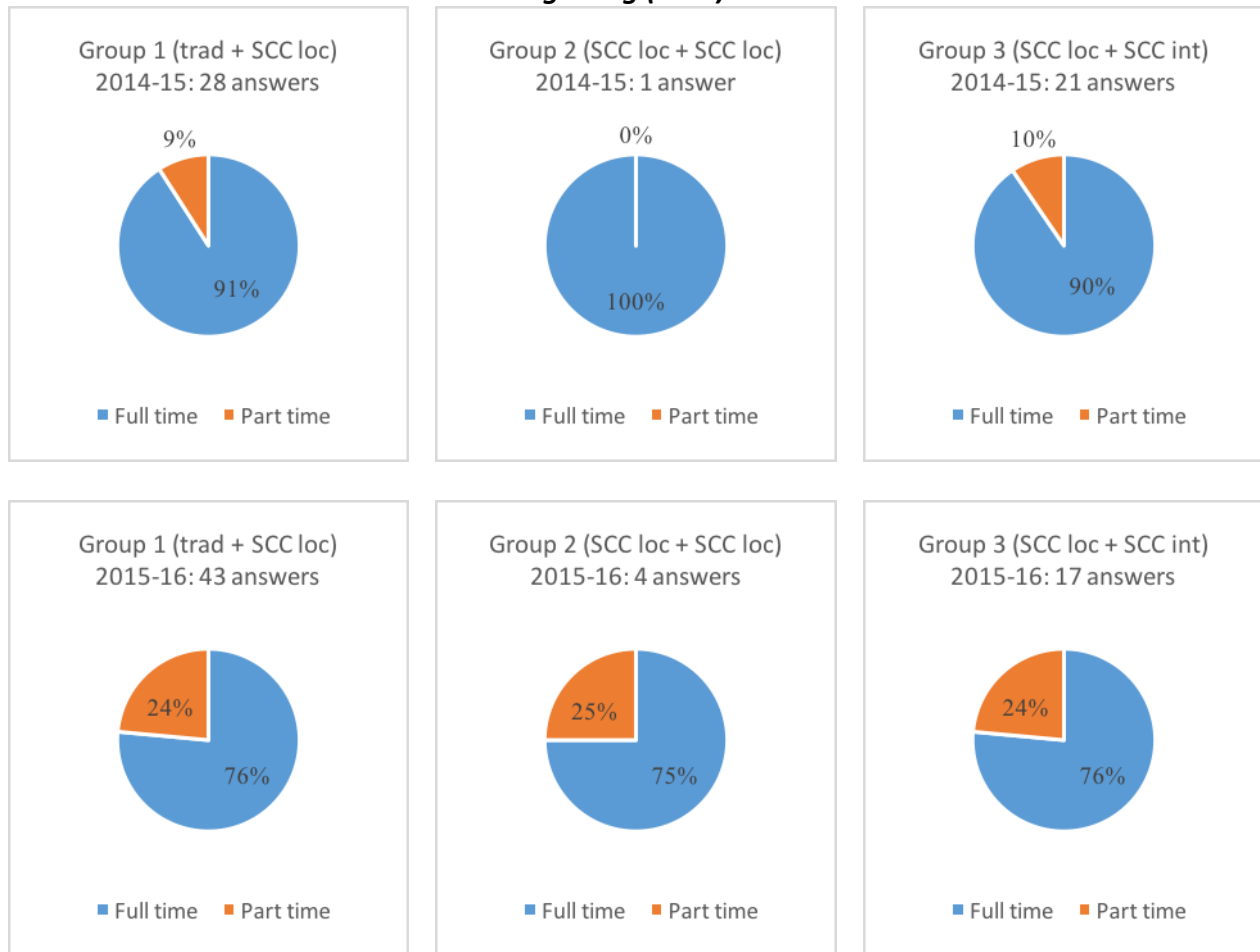| Group 1 (trad + SCC loc) 2014-15: 28 answers	Group 2 (SCC loc + SCC loc) 2014-15: 1 answer	Group 3 (SCC loc + SCC int) 2014-15: 21 answers
9% / 91% — Full time, Part time	0% / 100% — Full time, Part time	10% / 90% — Full time, Part time

| Group 1 (trad + SCC loc) 2015-16: 43 answers	Group 2 (SCC loc + SCC loc) 2015-16: 4 answers	Group 3 (SCC loc + SCC int) 2015-16: 17 answers
24% / 76% — Full time, Part time	25% / 75% — Full time, Part time	24% / 76% — Full time, Part time

It is interesting to see how students have found their job (see Table 3, where the groups are compared for each year). In the first group, the most traditional one, in both school years the pole position is for the advice of family members or friends, followed by a close second role of the training center where the student did the training (2014-15) or the company where the student did the internship (2015-16). In each case, personal knowledge is important; in fact in 2014-15 there is still a significant third position of the requests to employers (which involve a personal contact) but very few have used more institutional ways (and nobody has searched for a job through a public competition).

The second group, has too few answers to give us a significant trend. The third group, the most experimental one, shows an uncertain trend: in school year 2014-15 the first and second positions are requests/applications to employers and the company of the internship, but in 2015-16 the same positions are occupied by the work for a family or self-employed business and by the company of the internship (and nobody has used institutional channels). So we can

conclude that for every student, regardless of experimental or traditional sample, employment opportunities are usually traditional and linked to acquaintances.

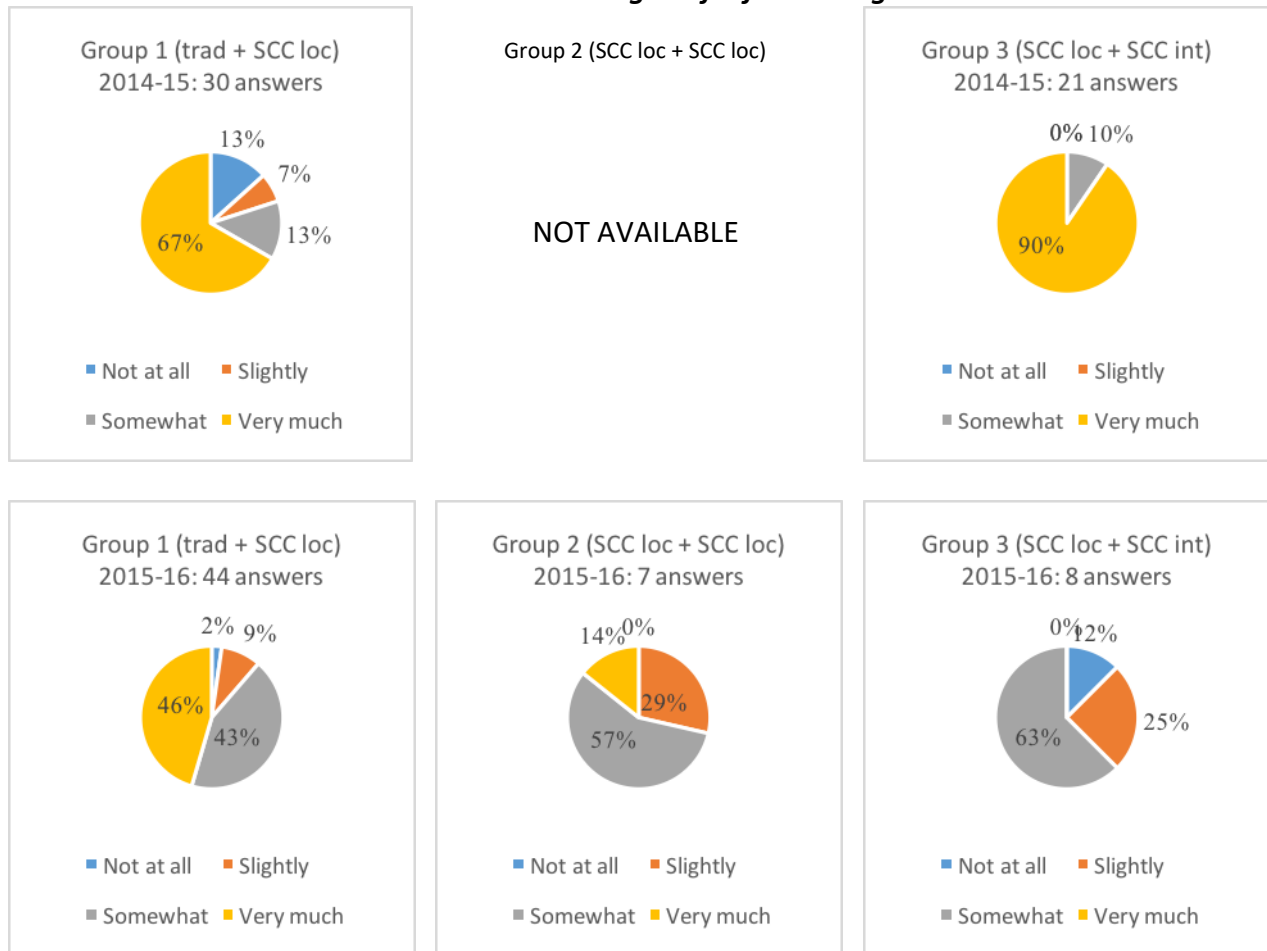**Table 3 – *How did you find work?***
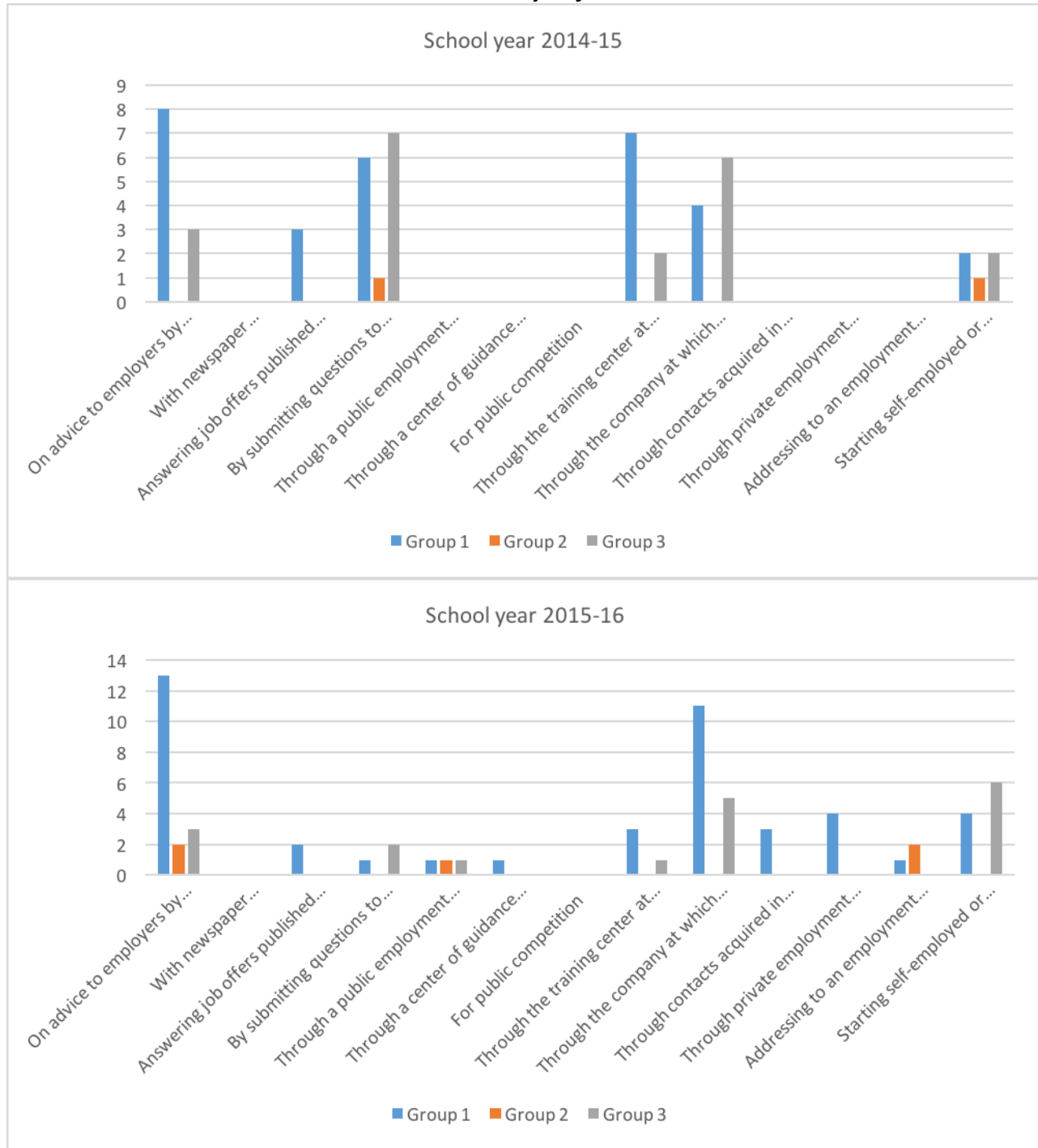
The evaluations about the utility of the training are rather different (see Table 4). In school year 2014-15 the second group is not available and the first and third ones are very satisfied with their training in order to find work, but in 2015-16 the groups are more different because the first one is still satisfied (89% by adding "very much" and "somewhat" answers) while the third group is harsher with very few answers and 37% of negative answers (not at all + slightly). Also the second group is a little harsh with 29% of slightly answers. So we can suppose that the conditions of the training have been perhaps different between the two years (different students, different teachers, different personal relations, etc.) and that the third group (which followed the most experimental method) can have developed a more demanding attitude (but the sample is too small to draw any conclusion).

If we go into the details about the more useful factors of the training, we find a very diversified distribution of the answers. At first we must remember that the question asks a subjective evaluation and not an objective measure, but the wide range of answers shows that students have reflected enough before answering and so the results describe at least some macro-trends.

Table 4 – *Was The Training Useful for Finding Work?*

Group 1 (trad + SCC loc)
2014-15: 30 answers
13%
7%
13%
67%
Not at all Slightly Somewhat Very much

Group 2 (SCC loc + SCC loc)
NOT AVAILABLE

Group 3 (SCC loc + SCC int)
2014-15: 21 answers
0% 10%
90%
Not at all Slightly Somewhat Very much

Group 1 (trad + SCC loc)
2015-16: 44 answers
2% 9%
46%
43%
Not at all Slightly Somewhat Very much

Group 2 (SCC loc + SCC loc)
2015-16: 7 answers
14% 0%
29%
57%
Not at all Slightly Somewhat Very much

Group 3 (SCC loc + SCC int)
2015-16: 8 answers
0% 12%
25%
63%
Not at all Slightly Somewhat Very much

The fifth question asked how useful the students found some factors of the training. The answers are distinguished into eight factors.

Table 5.1 – *In particular, how did you find the training provided? (Indications of professors and tutors)*
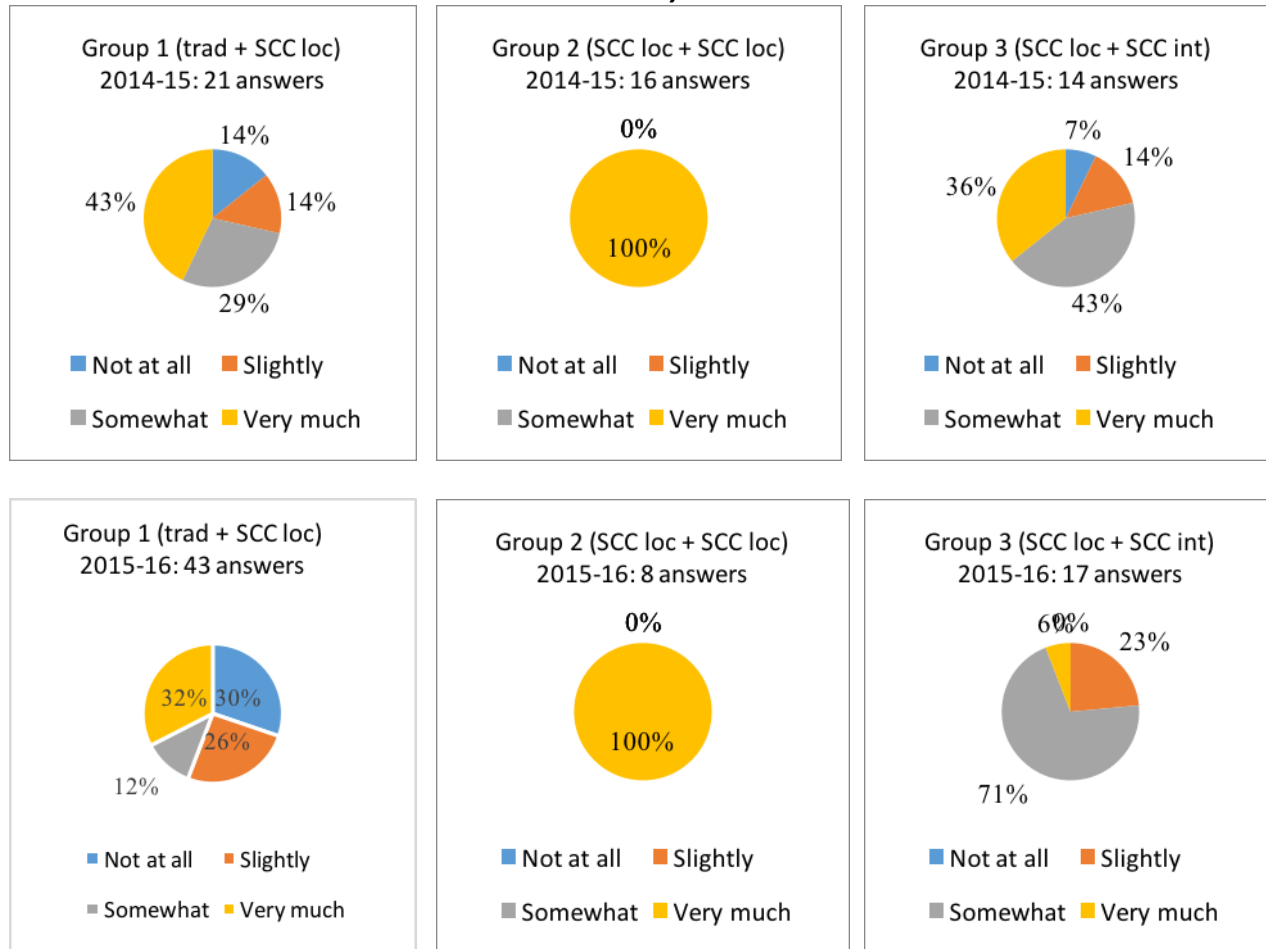
The indications of professors and tutors are usually appreciative (see Table 5.1). Except for group 2, which has given always the same answer (very much in both school years), the other two groups have a different development: the first group is more satisfied in 2014-15 (72% positive answers) than in 2015-16 (44%); the third group is more consistent because it has 79% of positive answers in 2014-15 and 77% in 2015-16. We can probably suppose that the experimental and international methods have conducted teachers to a greater commitment. So we can have some evidence about the better results of the SCC method, especially in the international version.

The role of the subjects studied and the general culture has been more appreciated, especially by groups two and three (see Table 5.2). The first group, in fact, gives 65% of positive answers (somewhat + very much) in 2014-15 and 53% in 2015-16, but all the students of the second group answer at the highest level in 2014-15 and the percentage of the same values is 77% in

2015-16. In the third group we have 96% of positive answers in 2014-15 and again 77% in 2015-16. In this case we can conclude that students have distinguished the role of contents and methods from the role of the teachers.

Table 5.2 – *In particular, how did you find the training provided? (Subjects studied and general culture)*
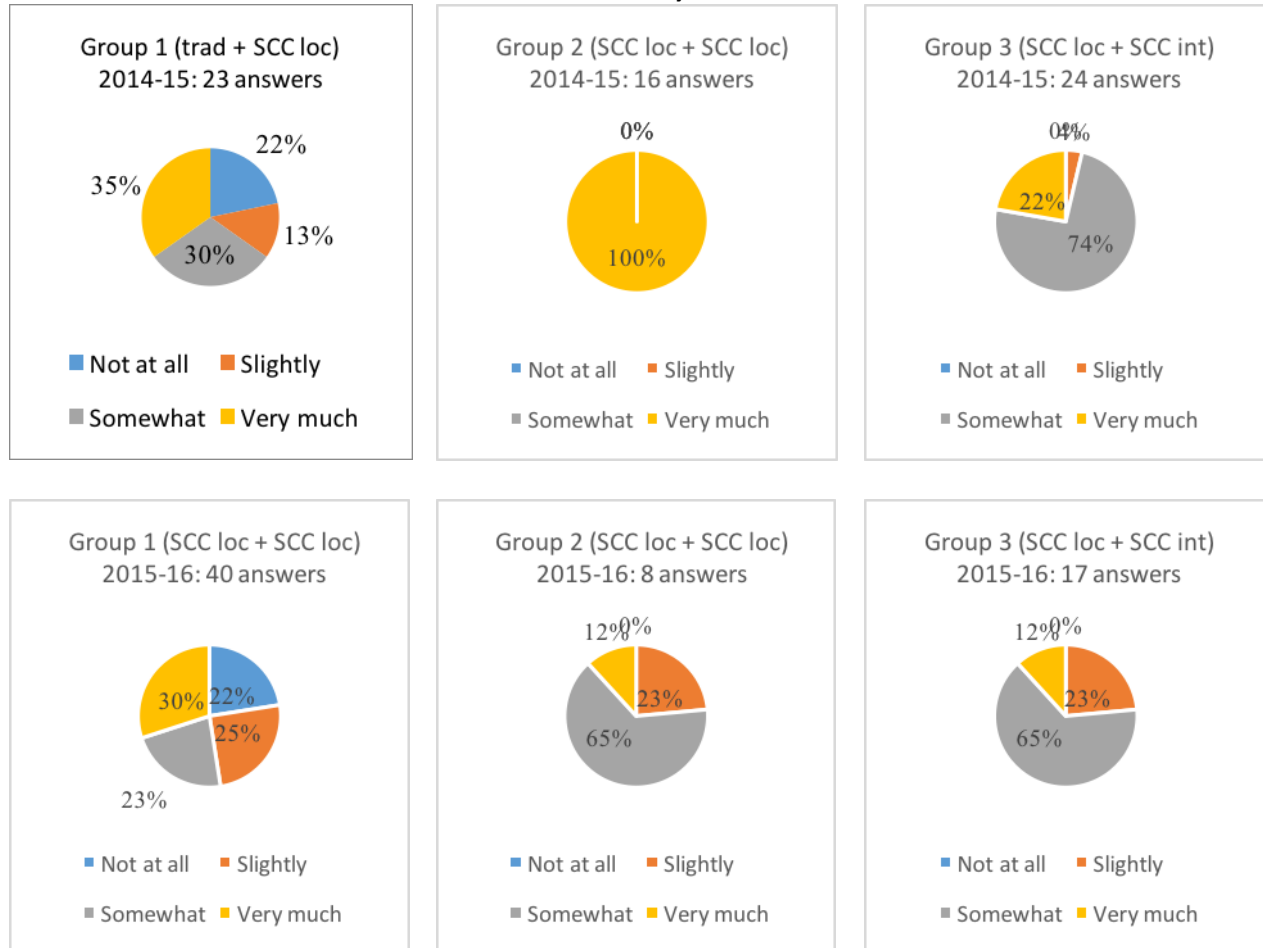
About the use of technology (see Table 5.3) we can observe a little more satisfaction in the students of the more advanced groups, but the difference is not so clear. In the first group technology has been useful for 70% of the students in 2014-15 but only for 56% in 2015-16; the second group is available only in 2015-16 with 75% of positive answers; the third group (which has probably used more technology) is once again more consistent with 78% and 77% of positive answers in the two years.

Table 5.3 – *In particular, how did you find the training provided? (The use of technology)*

Group 1 (trad + SCC loc) 2014-15: 23 answers	Group 2 (SCC loc + SCC loc)	Group 3 (SCC loc + SCC int) 2014-15: 27 answers
Not at all 22%, Slightly 8%, Somewhat 35%, Very much 35%	NOT AVAILABLE	Not at all 4%, Slightly 18%, Somewhat 52%, Very much 26%
Group 1 (trad + SCC loc) 2015-16: 32 answers	Group 2 (SCC loc + SCC loc) 2015-16: 8 answers	Group 3 (SCC loc + SCC int) 2015-16: 17 answers
Not at all 17%, Slightly 27%, Somewhat 34%, Very much 22%	Not at all 12%, Slightly 13%, Somewhat 25%, Very much 50%	Not at all 6%, Slightly 17%, Somewhat 65%, Very much 12%

The work placements in companies (see Table 5.4) have a very different development in the two years: a general positive judgment in 2014-15 and a general negative judgment in 2015-16. The first group has a more consistent development with 63% of positive answers in the first year and 58% in the second one. In the second group, instead, there is a deep opposition between the first year (all the students have answered very much) and the second year (no very much answers and 75% of negative answers). The third group looks like the first one in 2014-15 (60% positive) and looks like the third one in 2015-16 (29% positive). So we must conclude that the experience has been affected by local conditions: perhaps it is necessary a certain amount of luck.

Table 5.4 – *In particular, how did you find the training provided? (The work placements in companies)*

Group 1 (trad + SCC loc)
2014-15: 27 answers
26%, 44%, 11%, 19%
Not at all, Slightly, Somewhat, Very much

Group 2 (SCC loc + SCC loc)
2014-15: 11 answers
0%, 100%
Not at all, Slightly, Somewhat, Very much

Group 3 (SCC loc + SCC int)
2014-15: 20 answers
20%, 15%, 25%, 40%
Not at all, Slightly, Somewhat, Very much

Group 1 (trad + SCC loc)
2015-16: 45 answers
18%, 47%, 24%, 11%
Not at all, Slightly, Somewhat, Very much

Group 2 (SCC loc + SCC loc)
2015-16: 8 answers)
0%, 25%, 50%, 25%
Not at all, Slightly, Somewhat, Very much

Group 3 (SCC loc + SCC int)
2015-16: 17 answers
6%, 0%, 23%, 71%
Not at all, Slightly, Somewhat, Very much

The specialized skills carried out in the laboratory are usually appreciated, but not too much (see Table 5.5). In 2014-15 the second group is not available and first and third ones have a similar development (respectively 55% and 60% of positive answers). In 2015-16 the first group is more dissatisfied with only 43% of positive answers; instead the second and third groups have the same result (65% of positive answers).
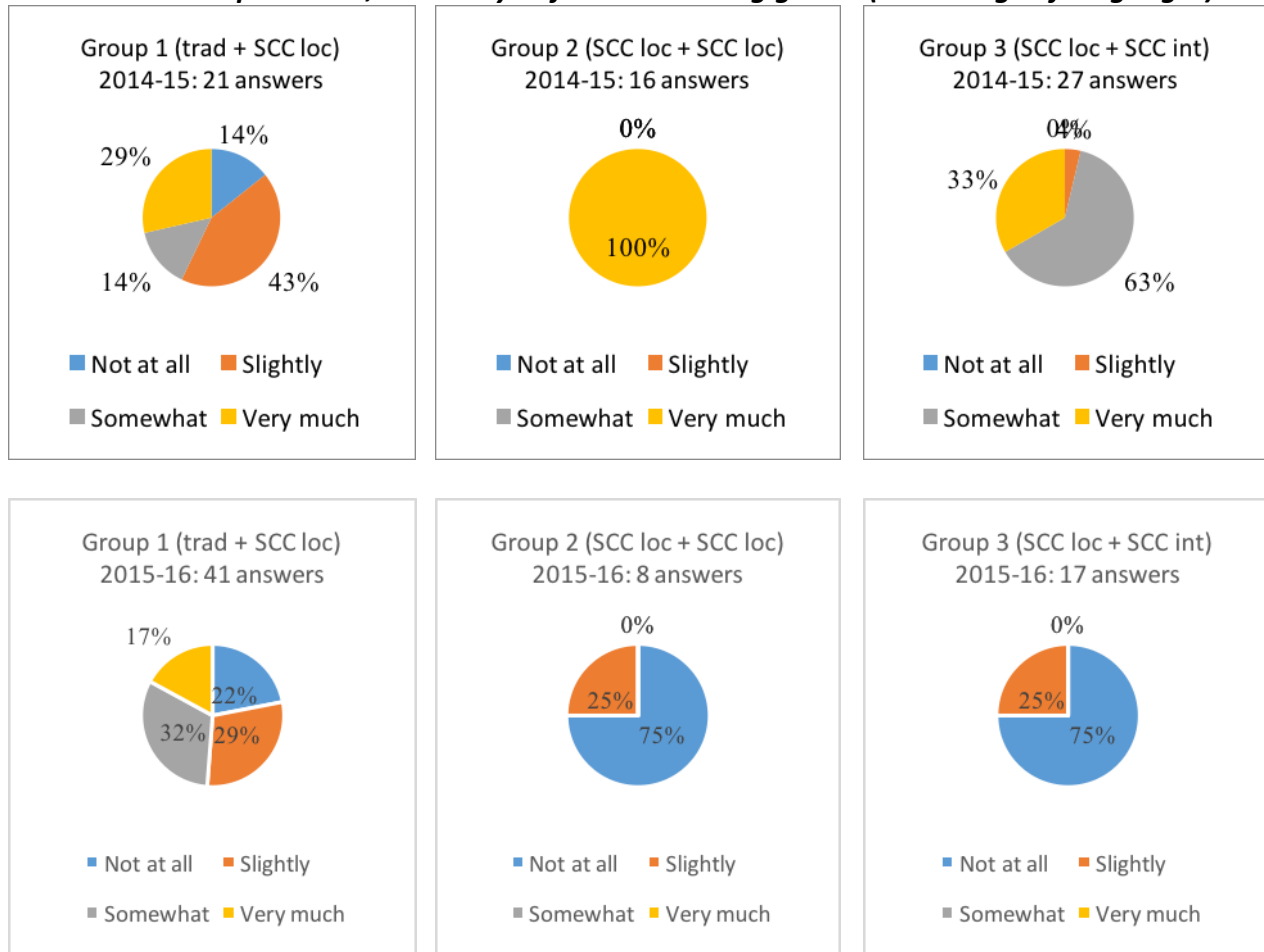
Table 5.5 – *In particular, how did you find the training provided?*
(Specialized skills of such work carried out in the laboratory)
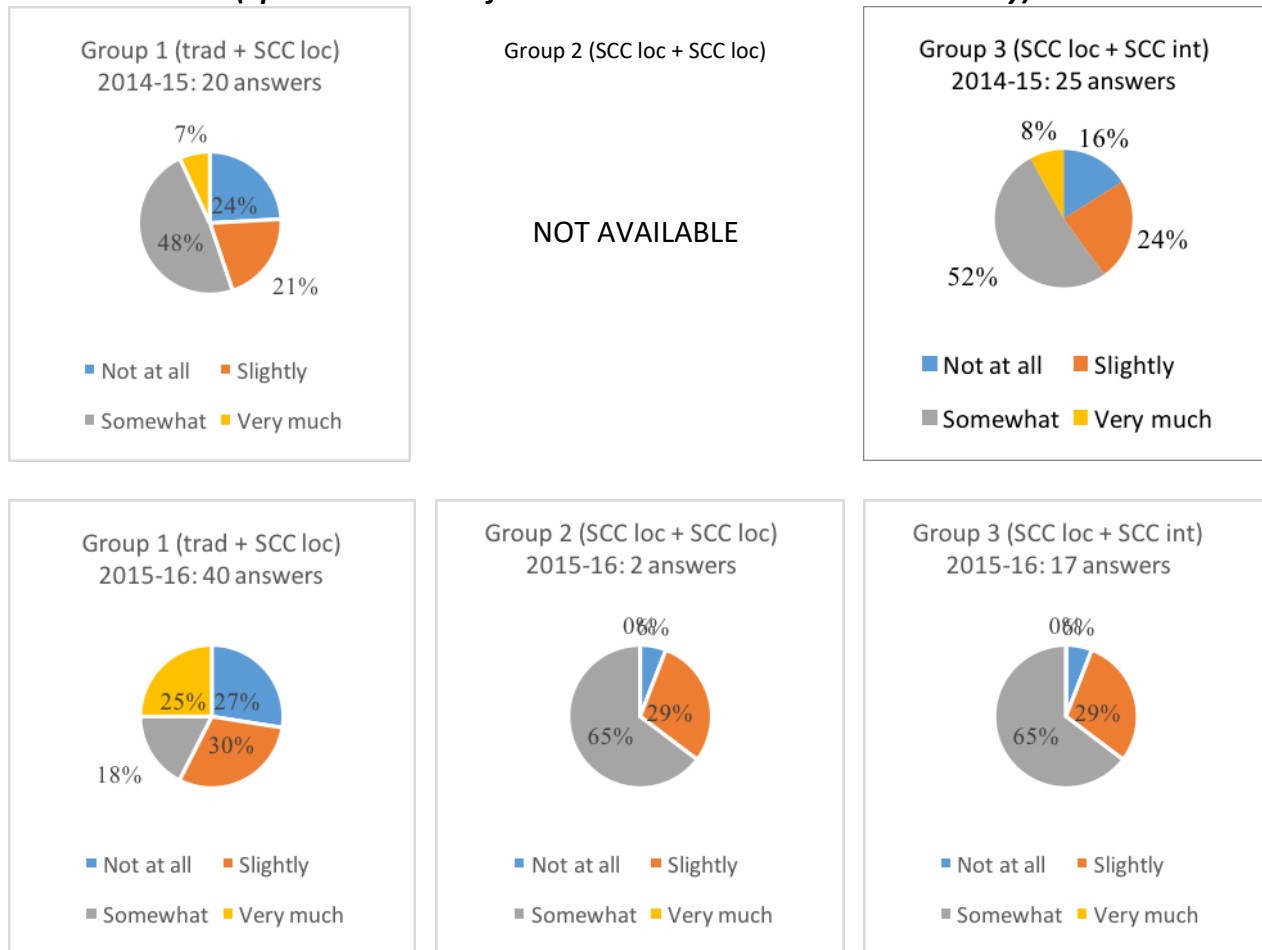
The knowledge of languages shows a strange polarization between the two years (see Table 5.6). In the first group the positions are nearly the same (43% positive in 2014-15 and 49% in 2015-16), but in the second and third groups we have respectively 100% and 96% of positive answers in 2014-15 and 100% of negative answers in 2015-16. It is difficult to explain this development because the schools and the methods are the same; the situation in the third group is particularly strange, because it adopts the SCC international method and must often use foreign languages. Perhaps this is due to a change of teachers, but we don't know this variable.

Erasmus+

Enhancing Motivation and performance of Professional Training students based on Immersive methods in International Environments

Table 5.6 – *In particular, how did you find the training given? (Knowledge of languages)*

The greatest appreciation seems to be expressed to the two last cross curricular factors. The compliance with the rules (see Table 5.7) is very appreciated in 2014-15 by the first group (78% of positive answers) and even more by the second (100%) and third groups (96%). In 2015-16 the second group gives again 100% of very much answers; the first and third group decline slightly, respectively with 71% and 82% of positive answers, but these are still very high percentages.

Table 5.7 – *In particular, how did you find the training given? (Compliance with the rules)*
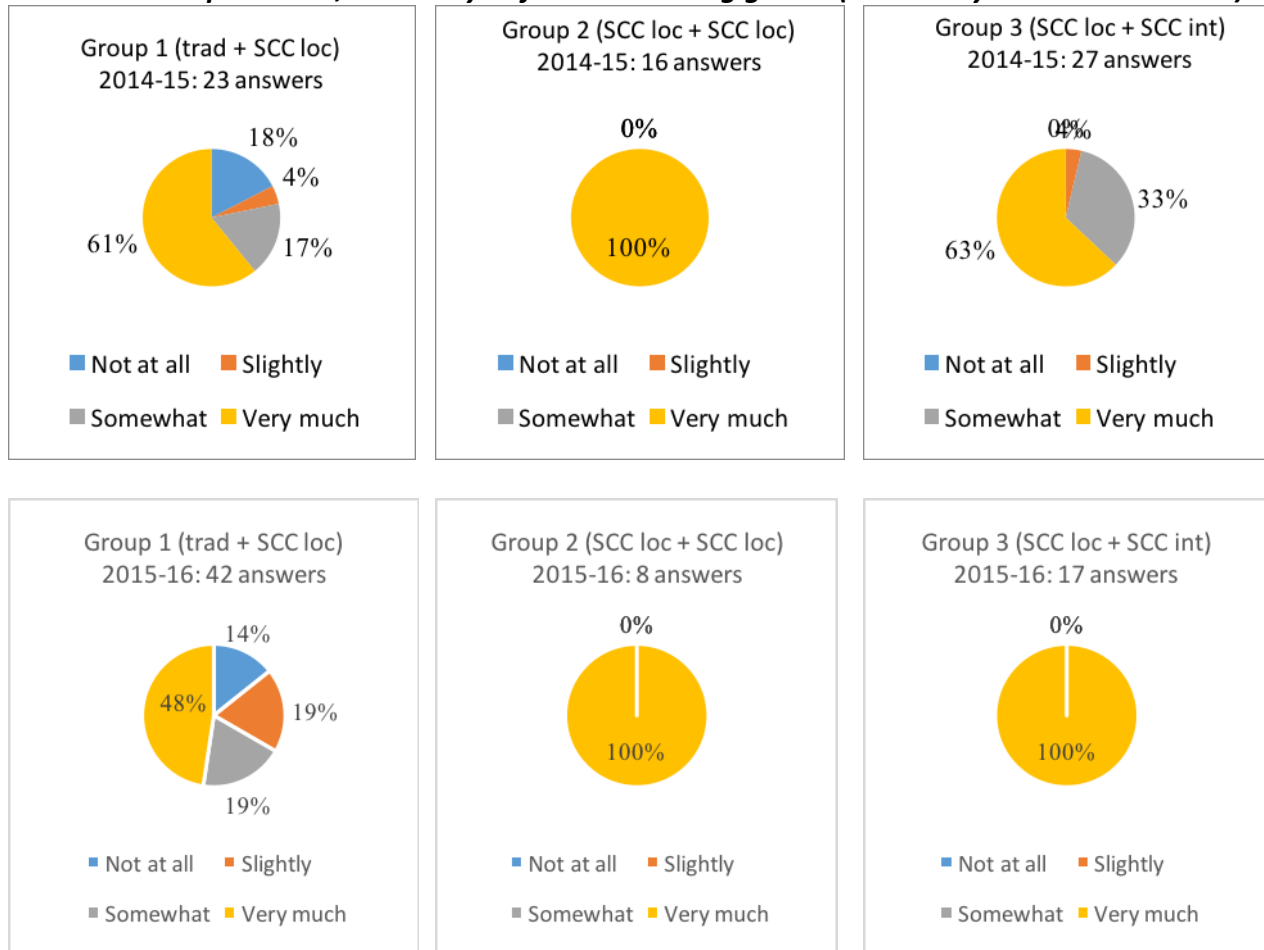

Group 1 (trad + SCC loc)
2014-15: 23 answers

18%
4%
61%
17%

Not at all   Slightly
Somewhat   Very much

Group 2 (SCC loc + SCC loc)
2014-15: 16 answers

0%
100%

Not at all   Slightly
Somewhat   Very much

Group 3 (SCC loc + SCC int)
2014-15: 27 answers

0% 4%
52%   44%

Not at all   Slightly
Somewhat   Very much

Group 1 (trad + SCC loc)
2015-16: 42 answers

17%
12%
57%
14%

Not at all   Slightly
Somewhat   Very much

Group 2 (SCC loc + SCC loc)
2015-16: 8 answers

0%
100%

Not at all   Slightly
Somewhat   Very much

Group 3 (SCC loc + SCC int)
2015-16: 17 answers

0%   18%
29%
53%

Not at all   Slightly
Somewhat   Very much

The ability to relate to others (see Table 5.8) obtains again high percentages and it is significant that the most enthusiastic students are in groups 2 and 3 and we can think that the result is related to the experimental method, especially in the third group. In detail, in 2014-15 the first group has 78% of positive answers and the others have 100% and 96%; in 2015-16 the first group declines to 67% of positive answers, while the other two groups give 100% of very much answers.
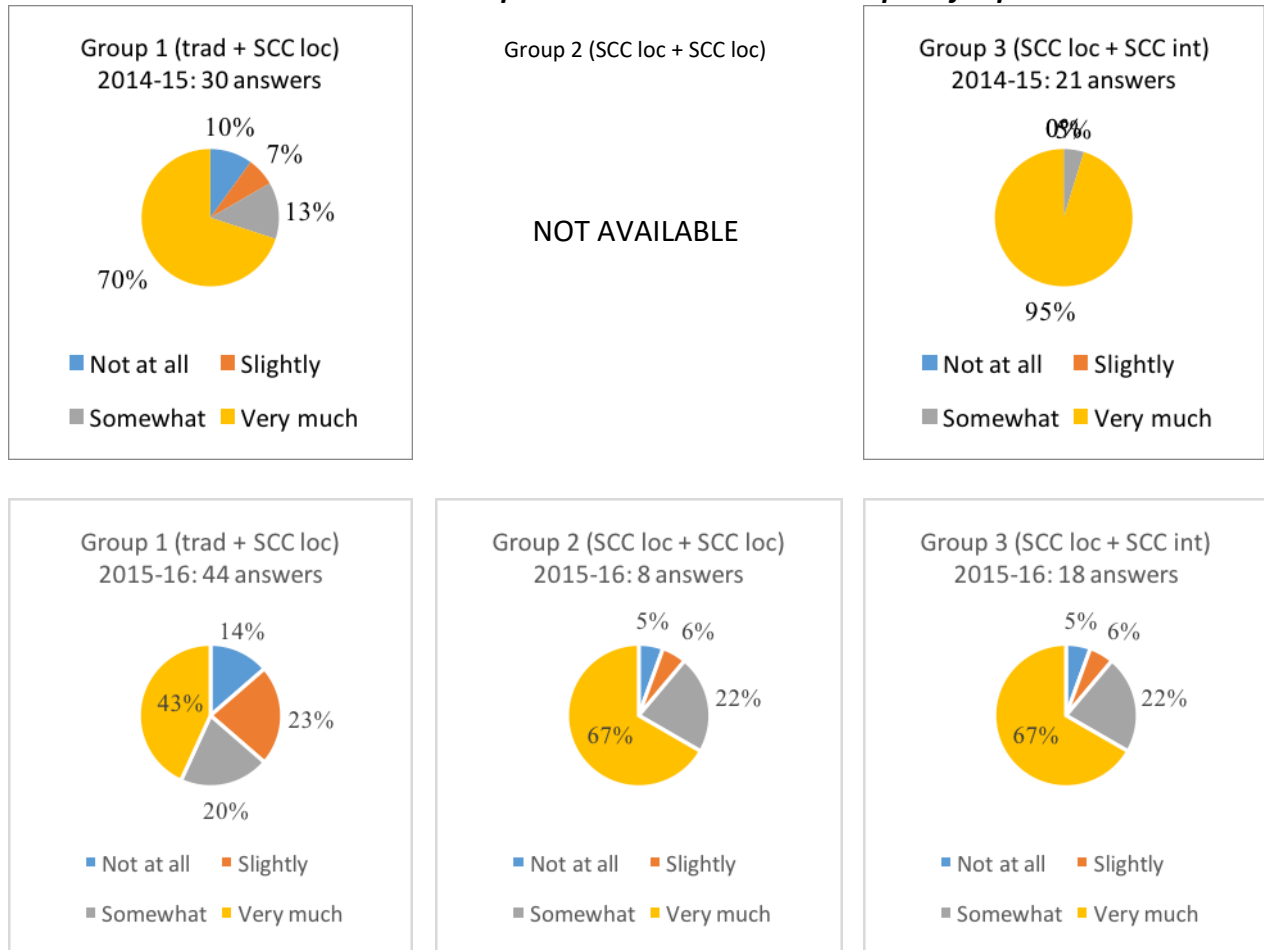
Table 5.8 – *In particular, how did you find the training given? (The ability to relate to others)*

Group 1 (trad + SCC loc) 2014-15: 23 answers	Group 2 (SCC loc + SCC loc) 2014-15: 16 answers	Group 3 (SCC loc + SCC int) 2014-15: 27 answers
18% · 4% · 61% · 17% · Not at all · Slightly · Somewhat · Very much	0% · 100% · Not at all · Slightly · Somewhat · Very much	0% 4% · 33% · 63% · Not at all · Slightly · Somewhat · Very much
Group 1 (trad + SCC loc) 2015-16: 42 answers	Group 2 (SCC loc + SCC loc) 2015-16: 8 answers	Group 3 (SCC loc + SCC int) 2015-16: 17 answers
14% · 19% · 19% · 48% · Not at all · Slightly · Somewhat · Very much	0% · 100% · Not at all · Slightly · Somewhat · Very much	0% · 100% · Not at all · Slightly · Somewhat · Very much

Finally, the current occupation is almost consistent with the frequented path (see Table 6). In 2014-15 it is consistent for 83% of the students of the first group and for all the students of the third group; the results of the second group are not available. In 2015-16 the occupation is consistent only for 63% of the students of the first group, while the other two groups give the same results: 89% of positive answers.

Table 6 – *The current occupation is consistent with the path frequented?*

Group 1 (trad + SCC loc)
2014-15: 30 answers

10%
7%
13%
70%

■ Not at all   ■ Slightly
■ Somewhat   ■ Very much

Group 2 (SCC loc + SCC loc)

NOT AVAILABLE

Group 3 (SCC loc + SCC int)
2014-15: 21 answers

0% 5%
95%

■ Not at all   ■ Slightly
■ Somewhat   ■ Very much

Group 1 (trad + SCC loc)
2015-16: 44 answers

14%
23%
20%
43%

■ Not at all   ■ Slightly
■ Somewhat   ■ Very much

Group 2 (SCC loc + SCC loc)
2015-16: 8 answers

5% 6%
22%
67%

■ Not at all   ■ Slightly
■ Somewhat   ■ Very much

Group 3 (SCC loc + SCC int)
2015-16: 18 answers

5% 6%
22%
67%

■ Not at all   ■ Slightly
■ Somewhat   ■ Very much

5.3   Conclusions

In this project, employability analysis is one of the most important aspects to be analysed, as through the application of the SCC methodology, the aim is to improve the training of students and to facilitate their development in a more qualified job. To be able to do so, one of the objectives was obtaining more information about the evolution of the students' profile, with regard to skills as well as their degree of employability.

The SCC methodology aims to favour students, during their training, being prepared to undertake a qualified job. Although it would appear that this was promoted, conclusive conclusions cannot be extracted for two main reasons.

On the one hand, the training received by the students only represents a small percentage of all the training received during the Professional Training courses; perhaps this percentage is not entirely significant and it does not have sufficient impact on the students. On the other hand,

the employability analysis period is very short-term, as employability is only analysed a few months after the completion of the students' studies.

As there is not a wider margin, it is not possible to see the long-term impact of this training, which would probably not be shown immediately on the student's incorporation into the work market, and the evolution of their professional career would have to be analysed. Therefore, it would be necessary to follow up on the student for a longer period of time to be able to extract conclusive data. This is an extremely difficult task due to the follow-up and contact with the students who graduate from the centres.

The project is clearly found in the community strategic priorities 2014/20. The transfer of learning strategies and skills that help Professional Training students in their motivation and job placement is one of the project's objectives. This first employability study gives a solid base for perfecting future studies and being able to obtain more relevant data. Although the current results are not conclusive, they offer highly valuable information and the lessons learnt, inasmuch as the analysis itself is as or more important than the data obtained from them.

Access to the work market by Professional Training students a priori seems closer in time than other groups in other education phases. In any case, there are also certain symptoms that seem to indicate that there could be a trend among them to continue their studies and training instead of joining the work market immediately.

The new approaches of the proposal guide students to improve their skills, both basic and transversal ones as well as more specific ones, which include digital skills and the ability to access the labour market. In this respect, if we segment the students who participate in the study, we can see a set of interfering variables that condition certain results from a more local point of view. For example, the perception or environment of a student in the centre of a large metropolis (for example Barcelona) is not the same as in a smaller, geographically different town (Palma would be an opposing example, as it is an island in the Mediterranean). The work environment is very different in both places and makes it difficult to establish criteria or common behaviour in these casuistries. The type of studies followed by the students also conditions or interferes with the perception of the usefulness of the training methodology received by the students. Professional Training students with non-technological studies clearly perceive the contents and the training received as an added value to their training, while students in the technological area consider these contents to be yet another concept, without giving them special relevance as part of their training. This is why the former see their training as an added value that boosts their job placement while the latter do not. Independently of the methodology used. Therefore, the interfering variables disguise the overall results although in these local groups they have had the expected success.

There are even more interfering variables that have clearly conditioned the perception of the students in the aspect of their usefulness in the labour market. The incorporation of the Digital Marking and Digital Commerce courses in the study plans of each centre conditioned the

perception they had of themselves and, by extension, the positive or negative valuation that they made of them in terms of their usefulness. In the centres that incorporated the courses as part of the academic curriculum, the students generally perceive the contents and methodology applied as something innovative. However, in the centres that incorporated the courses as an additional content to the study plan, they were perceived by students as a highly significant overload and initially created a sensation of rejection independently of their real usefulness. Consciously or unconsciously, this determined their state of opinion and their willingness to give a negative value to any aspect related to them, including in the case of employability.

The interviews carried out on students who left and the questionnaire given provide highly interesting information about the students' short-term perception. It is difficult, with this immediacy, for the student to be able to visualise or realise whether the training received has improved their skills facilitating access to the work market. There needs to be more time to have a greater perspective and perception.

It was observed that looking for a job was not the main priority of students, and even decreased during the 2015-16 academic year. In the case of students who join the work market, they do so almost immediately after the end of their courses although through the data obtained from the questionnaires, it would seem that the labour market got worse during the 2015-16 academic year as compared to 2014-15. It was verified that students mainly join the work market full-time and find the training they have received useful for their professional future, and in general, students were satisfied with the training received, in particular with the teachers and the use of technology.

The lessons learned should serve so that in future projects, the measurements and analyses made allow more conclusive data to be obtained, although employability requires greater follow-up, effort in compiling information and time horizon.

Getting to know the environment in which we apply the project with this new degree of depth should enable us to refine the process of acquiring data about employability in the future and, of course, to give continuity to the project in later phases.

6   Conclusions

The use of the SCC methodologies that the schools participating in the project introduced led to a substantial improvement in students' motivation, having a positive effect on the results obtained during the learning process. We would also highlight the benefits for the participating centres and the dissemination made, as a group of teachers was trained in the use of these methodologies, in addition to the preparation of two courses, SCC methodological guide and guide and forms for evaluation that were extremely useful in the schools, both for the courses introduced as well as for new experiences that they carry out.

We hope that the effort made will be beneficial and that having all the material available in four languages —English, Spanish, Italian and French— will facilitate its use in the participating schools as well as in other schools, in view of the dissemination made of the project, its presence on the web and the materials available with a Creative Commons licence.

By doing the project in two phases, first through the Digital Marketing course and after with the E-Commerce course, the learning and adaptation to the new methodology was made easier for the students as well as the teachers. A greater use of the training in E-commerce was found, due to the experience acquired in the Digital Marketing course and also through having been able to make changes in the organisation that made its introduction easier.

As we have explained and verified based on the study carried out in the chapter on the analysis of results, the application of the SCC-based methodology provides many benefits.
The students feel more independent throughout the learning process, they manage and organise their time more effectively, they are aware of their needs and are more motivated to achieve. They are the protagonists and, more importantly, we believe, their motivation for solving the scenario grows. If we add to all this, the fact that as the project advances they see tangible results close to their environment, they have even more reason to continue working and learning. Obviously, the task of the teacher is very important throughout this process, who must "monitor" the progress and offer support when they feel it to be necessary.

With respect to the Digital Marketing course, and starting out with students and teachers with no previous experience in the SCC methodology, we can point out a significant increase in the acquisition and understanding of the contents with a very high level of satisfaction.
This evidence is very important for the project, as it has been observed that even when starting with low motivation and participation, these improved as the course advanced.

A high level of usability was also seen with this method, something which, among others, facilitated the collaboration between the various members of the workgroups. Finally, an improvement in the specific skills of the students was found, which was one of the most important aspects as it meant having students who are better prepared for their working life.

Based on the comparative analysis when a course was given using traditional methodology and later another course using SCC methodology, the students valued it very satisfactorily and believe that it is going to help them in their professional future.

In the second course of E-commerce, it was found that the initial motivation of the international course was greater than that of the local (national) courses, although with differences depending on the country.

In Spain, students were seen to be more motivated for their job placement and in France and Italy, they saw it as an opportunity to improve their work in groups and their relationship with the educational environment, giving less importance to the professional future aspect. The international groups, however, showed greater interest in their professional future.

In any case, it was not easy for students to be able to coordinate the training with the rest of the subjects and commitments acquired at school. We believe that this is an aspect that needs to be improved, as it leads to low levels of satisfaction. It was seen that the level of satisfaction, usability of the method, level of skills acquired (general and specific) was better for the local or national groups.

One important aspect of the project was that by means of the various tests carried out, both before as well as after the courses, in addition to their follow-up to analyse their impact on job placement, there has been much greater availability of information about students, identification of profile and habits, aspects that the centres have found to be very useful, independently of the SCC courses given.

Another relevant factor we observed is that it greatly conditions the perception of the students of the training depending on how it has been incorporated into the study plans for each centre. In the centres that incorporated the courses as part of the academic curriculum, the students generally perceive the contents and methodology applied as something innovative. However, in the centres that incorporated the courses as an additional content to the study plan, they were perceived by students as a highly significant overload and initially created a sensation of rejection independently of their real usefulness. Consciously or unconsciously, this has determined their state of opinion and their willingness to give a negative value to any aspect related to them, including in the case of employability.

Overall, we considered the project to have been a highly satisfactory experience, with very interesting tangible results and we believe that the objectives set have been met. Innovative methodologies were used that provided an improvement in the students' training and increased their level of success.

To do this, two courses based on immersive worlds, projects and roles were prepared and are currently available. International cooperation has also been encouraged, as well as group work through carrying out the E-commerce course between students from different countries.

All this has allowed us to see to what degree different innovations can be simultaneously applied in a group of students, to verify the benefits of the SCC methodologies compared to traditional learning methods and finally, it has enabled us to obtain greater information about the students' evolution, both academically as well as in terms of employability.

We have observed that the expected results were produced. Students' motivation increased, their commitment to the workgroups and the class improved, as well as their level of satisfaction. Students' motivation also improved, which is something we consider to be very important in the education process, promoting the use of ICT tools that facilitate their collaboration as well as knowledge of their own languages and the work of international environments. All this allowed the students' training to be improved and helped in their job placement process.

Apart from the benefits of the project based on the obtaining of the objectives proposed, a significant aspect are the lessons learned, particularly in practical aspects when working in international environments and non-homogenous centres, with respect to the training of their students, teachers and teaching organisation.

All the partners that participate in the project, despite differences due to different cultural, teaching or organisational contexts did, at all times, serve the dialogue for the common good of the project, and it has been a continuous learning process that has enabled us to grow and improve our experience as teachers. Having previous experience in joint work in other projects facilitated the teamwork and we hope that in the immediate future, we will be able to participate in new challenges.

All material and data disseminated through this publication and the corresponding project outputs, show that the expected results were achieved.

Now, we hope that the results and experiences obtained can be spread to other centres in the European Community, as well as schools in our networks in other countries.