Abstract: When designed for professional settings, an eLearning intervention may take into particular account the technological habits of the trainees. Often, in fact, there is a gap between the use people make of ICTs at work and their use in the private life; the gap is particularly glaring when mobile devices are considered. The paper goes through the different phases of a project which aimed at introducing eLearning in the training path of the stagiaires of a Swiss bank. The first phase of the project showed that the expected dynamic of autonomous learning out of work, made possible by the delivery of contents on the PlayStation Portable, did not take place. A study on the technological habits of the trainees led to a re-design of the eLearning activities, in particular of those developed on the mobile device.

Introduction

When designing any educational intervention three are the parameters that should be necessarily taken into account for reaching quality results. Such parameters have been identified on the base of the experience, and are: a) the people involved in the learning activity, who should be provided with the right content, methodological and technological support and adequate communication tools; b) the method of work, that means all the activities designed to help people getting specific knowledge and competence, which have to be designed according to space and time boundaries; c) the contents, that are the objectives to achieve and the resources provided to reach them; contents are developed through the support of technologies that, in the case of eLearning, are digital technologies, and that can have a higher or lower level of interactivity for the student (Cantoni et al. 2007). The three parameters have to be harmoniously integrated into the design, to result in an educational intervention effectively fitting the requirements of the learning scenario.

When the educational intervention has to be designed in an eLearning scenario, the choice of the technology to use plays an important role in the “method” parameter: this choice should be made considering the contents or activities one intends to develop and the target one is addressing. Choosing the technology that should best fit the target does not only mean to define the micro-context where people study or work, that is, for instance, a bank, but also to catch more structural characteristics of the macro-context where the target lives, that is the socio-cultural background. The employees of a Swiss bank, for instance, may be accustomed to be supported in their daily work by complex technologies, perhaps the most innovative on the market, while employees of a bank in central Africa may even be scarcely used to interact with customers through a PC. Then, without going so far, relevant differences may be found in the technological habit people have at work or in their private life.

In order to design effective eLearning interventions, knowing the technological habits of the people involved can help to choose the right technology for the right task and the right kind of students. In this paper, an ongoing eLearning project is presented, which has the aim of introducing eLearning activities in the training strategy of a Swiss bank, the Banca Popolare di Sondrio (Suisse) – from now BPS (Suisse). The project is being carried on by eLab (www.elearninglab.org), the eLearning service of the Università della Svizzera italiana (USI) and of the Scuola Universitaria Professionale della Svizzera Italiana (SUPSI). The project has gone through different phases: in the pilot phase, eLearning activities were introduced into
the training program of a group of stagiaires of the bank, to help them familiarize with basic financial concepts. In this first phase, two technologies were chosen to support training activities: a Moodle-based Learning Management System (LMS), and the PlayStation Portable (PSP). At the end of the pilot phase, an evaluation was conducted, and a parallel study was run: “GenY@BPS(Suisse)”, with the aim of assessing the technological habits of the young employees of BPS (Suisse), i.e., what kind of Information and Communication Technologies (ICT) they use, and what do they use them for. This study was part of a broader research (“GenY@work”), which investigated the same issues at a larger regional scale, involving other companies in Ticino. The results of this study gave precious insights for the prosecution of the project with the bank: on one side, they confirmed the high-level strategic choices, among which the adoption of the PSP to try to bridge the gap between the workspace and the private life of young employees; on the other side, they provided useful suggestions to change or refine some “tactic” choices, such as the kind of contents and activities delivered through the PSP. At the conclusion of the internship period of the stagiaires group, eLearning was extended to all the front-office employees.

This paper presents the different phases of the project, showing how the consideration of the technological habits of the target group of trainees helped the project team to provide a better orchestration of the learning technologies proposed to the class (Dillenbourg & Jermann, 2010), thus helping to refine the design of training activities and enhance their effectiveness.

The BPS (Suisse) project – Phase I

The pilot phase

The collaboration between eLab and BPS (Suisse) started in January 2008, with the aim of redesigning the bank’s current training offer for the new employees through the integration of ICT.

The bank pursued three main objectives:

1. To enhance the flexibility of the learning activities, thanks to the personalization of contents and the partial elimination of space and time boundaries;

2. To provide the HR office with a tool to better tutor and monitor the trainees during their learning experience;

3. To reduce time and logistic costs (travel, accommodation, teaching costs).

New employees were usually introduced to their work and, generally speaking, to the financial world, throughout a number of in-site events and ad personam unstructured tutoring. They usually spent three months in each different sector of the bank, for a total training period of 18 months, in order to familiarize with the institutional habits and to identify the most suitable employment area for each of them. Stagiaires were provided with a paper handbook – produced by the Swiss Bankers Association – to get an overview of the main financial issues, and relied on the informal help of their senior colleagues and on the daily practice to apply what they learned. The HR office monitored their progress directly through tests and personal colloquia, and indirectly by gathering comments and assessments from the directors of the offices where the stagiaires spent their time. Due to the institutional growth and to the increase of the number of
employees, the traditional training strategy was no longer adequate, because a time and costs reduction and a closer outcome monitoring were needed (De Ascaniis, Tardini and Cantoni 2009).

Based on these considerations, the following requirements for the new eLearning system were identified:

- it had to be flexible in terms of time (“I learn when I can”), space (“I learn where I can”, i.e., at home, in the office, on the train, etc.) and duration of the learning activities (“I learn as long as I can”);
- it had to allow the individualization of tasks;
- it had to support interaction between new employees and tutors;
- it had to gather valuable data for the assessment of users;
- it had to support blended learning activities, that means that eLearning was not conceived to replace face-to-face lectures.

The technological choice for the new learning system took into consideration both the strategic and the tactic level: the former refers to long-term decisions, which shape the learning environment and determine how its actors will perform. The tactic level, instead, comprises short-term decisions about single courses or activities (Cantoni et al. 2007).

At the strategic level, two complementary solutions were thought to satisfy the requirements:

1. an LMS that could be accessed through a personal account; due to the previous experience of the eLab team, Moodle was chosen as the software for the LMS;
2. a mobile device, namely the Sony™ PlayStation Portable (PSP).

Both the Moodle-based LMS and the PSP allow for ease update and addition of contents, for flexible scheduling of activities, implementation of new courses, and personalization. In this scenario, the main didactical materials were uploaded and made available through the LMS, and they were integrated with multimedia resources loaded on the PSP. Interactions with tutors and among employees were guaranteed by the LMS communication tools (chats, forums, etc.).

During the pilot phase of the project, three courses were opened on the LMS:

1. Banking Today, a course covering the basic notions of banking and finance;
2. Anti-riciclaggio, a course on the fight against money laundering;
3. Product Management, a space for providing information about the new financial products offered by the bank.
The development of contents and learning activities regarded in particular the first course, which was the core one for the group of 17 stagiaires. The *Banking Today* course was designed around the structure of the course developed by the Swiss Bankers Association (see www.bankingtoday.ch), which consisted of 17 parts. For each part of the course, different kinds of didactical resources and activities were developed and/or made available:

- materials for personal study, i.e., the eLearning course created by the Swiss Bankers Association (originally, on CD-Rom);
- some tools for collaborative study, such as a program for the collaborative creation of online conceptual maps and an interactive glossary;
- self-assessment exercises, i.e., quizzes about the issues presented in each module;
- links to relevant websites related to the banking and finance practice;
- a section for gathering feedback from users, which included a forum for general information, a forum for reporting technical problems, a forum for each one of the 17 modules of the course, and a questionnaire for the evaluation of the experience of use of the LMS (see Fig. 1).

![Figure 1: The homepage of the course BankingToday developed on the LMS.](image)
As regards the PSP, considering that its main expected added value was the opportunity of an “anywhere and anytime” learning experience, the intended tactic was to produce fast-consuming content materials and activities. Two kinds of resources were initially developed and uploaded on the PSP:

1. short animations conceived as “pills of knowledge”, i.e., summaries of the contents of the BankingToday course presented on the LMS (see Fig. 2);

2. self-assessment exercises on the contents of BankingToday, such as true/false, multiple choice, drag & drop quizzes.

Figure 2: A “pill of knowledge” about basics of finance developed for PSP.

The pilot phase of the project was run along 4 weeks between June and July 2008. All participants received a personal account to access the LMS and a PSP, where the available contents had been already uploaded. An introductory workshop organized by eLab was offered, in order to present to the participants the objectives and structure of the pilot phase, and to teach them how to use the LMS and the PSP. At that time only 4 of the 17 modules of Banking Today were available: the pilot phase, in fact, was thought to give the necessary feedback to decide how to carry on the implementation of the other materials.

Results of the pilot phase

After the end of the pilot phase, all participants were invited to a half-day evaluation workshop, where their feedback about the new learning strategy proposed by the bank was collected: participants were first asked to fill in a questionnaire to draft their general profile and to investigate their experience with both LMS and PSP, then a focus group was held in order to let them talk and compare their experiences.
Generally speaking, the feedback was positive. The main findings of the pilot phase can be summarized as follows (De Ascaniis, Tardini and Cantoni 2009):

- participants preferred to study on paper materials, but to do exercises and tests on the LMS and PSP, because of their multimedia functions;

- the PSP resulted to be used mainly at home during relaxing moments, in the evening and during the week-end, or while travelling. A young woman significantly reported that she made some exercises on the PSP while waiting for the pasta water to boil;

- activities on the LMS were performed mainly from the office, during periods of minor workload; accesses to the LMS were more frequent on Monday and Tuesday, while there had been almost no accesses during week-ends;

- among the activities proposed on the LMS, the availability of many quizzes was very much appreciated, because this allowed participants to self-evaluate their progresses;

- among the activities proposed on the PSP, the “pills of knowledge” were not much appreciated, because they were mostly text-based – thus, uncomfortable to be read on the PSP monitor – and too content-restrictive – thus, unsuitable to address complex financial contents;

- on the contrary, the exercises on the PSP were highly appreciated, because of their multimedia and interactive features.

The use of the PSP caused a sort of “gadget effect”, arousing the participants’ surprise and curiosity: its appreciation can be traced back not only to the acknowledgment of its functionalities, but mainly to its social perceived features: “a gadget calls the attention because it is “cool” (…). In addition, a gadget can become an icon, a sort of identification theme to attest one’s belonging to a group. This is the case for the PSP, which helped the integration of the stagiaires into the work context, allowing them to say proudly: “my bank lets me study with a PSP!”” (De Ascaniis, Tardini and Cantoni 2009). Thanks to this “gadget effect”, PSP could help in bridging the gap between private spaces and workspaces, bringing some training activities into the private space (at home, on the train), and promoting the integration of the young employees into their work context.

Based on the participants’ feedback, the design of the eLearning experience was partially re-thought, trying to stress more the multimedia features of the PSP (see Fig. 3).
In parallel with the re-design phase, a research was conducted with the young employees of the bank (i.e., all those who were born after 1980), in order to understand their technological habits, i.e., what kind of ICT they use in both their private life and work activities, and which tasks they usually perform through them. The findings of this research helped to re-design the eLearning program for BPS (Suisse) stagiaires, and will be presented in the next paragraph.

Gen Y at work @ BPS (Suisse)

The study was part of a broader research project conducted by the NewMinE Lab (www.newmine.org) of USI between June 2008 and June 2009, called GenY@work.

Understanding today’s learners

“Gen Y” stands for “Generation Y”, that is one of the expressions currently used to address people born after 1980. They are also called with a number of other names, which refer to studies adopting the so-called digital approach to education (Bennett, Maton, & Kervin 2008; Bullen et al. 2009; Rapetti & Marshall, in press; Schulmeister, in press): Digital Natives (Prensky, 2001), Net Generation (Oblinger & Oblinger, 2005), Millennials (Howe & Strauss, 2000; Strauss & Howe, 1991), New Millennium Learners (Pedrò, 2007), Homo Zappiens (Veen & Vrakking, 2006), LoDE-Learners of Digital Era (Rapetti & Cantoni, 2010). They all point to the fact that because young people grew up in a world deeply permeated by ICTs, they have developed a different way to learn and, thus, a different way to work, if compared to their older fellows. Purpose of GenY@work was to investigate such assumption on a local level, answering the question: what is the role of ICTs in the learning experience of young employees in Ticino? Two were the goals:
• finding out whether it really exists a “technological potential” within Gen Y people, and understand how it can be exploited to better work and learn;

• understanding the use Gen Y makes of ICTs; young people have been looked at as actors in the learning action (Rapetti & Cantoni 2010).

The research involved six companies based in Ticino: three banks, a consultancy firm operating in the banking sector, a newspaper publishing house and an industrial gas turbine society. A sample of 236 employees took part to the research: 109 women (46%) and 127 men (53%), whose average age was 23 years old. The research was structured in two steps: 1) a questionnaire – filled in by all the participants – aimed at sketching out the “media diet” of the sample, and 2) an ethnographic session designed using LEGO™ bricks, to which only a selected sub-sample (35 employees) was asked to take part.

1) The expression media diet refers to the consumption people make of media – in this case, of digital media. It does not only refer to the kind of digital devices employed, but mainly to the ways, times, reasons and duration of their consumption. The aim of sketching out the media diet of a sample of people is not to make considerations about acceptance or adoption of technologies (Rogers 1962), but rather to investigate the process of their appropriation. Appropriation is the personalization in the use of a certain technology, once it has been adopted (MEDIAPPRO 2006). Outlining the media diet of young employees of BPS (Suisse) seemed a way to understand the reasons why stagiaires have been reluctant to adopt and, even more, to personalize an appealing and diffused mobile device such as the PSP (Leckart 2009; Rapetti et al. 2010).

2) Lego sessions were designed following the concept of “self-projection”. Sub-samples of 4 to 6 people were sorted out among those who replied to the questionnaire, and were asked to build representations of the relation they have with digital technologies. LEGO™ bricks helped them to build three typologies of models: the favorite digital technology at work, the favorite one in their private life and the technology (digital or not) most employed to support learning. The second step was to put the artifacts on a common landscape, divided into two parts, one representing the work context and the other representing the private life context. The last step was to connect the artifacts put on both parts of the landscape, and to describe the final picture in terms of personal technology use (Gauntlett 2007).

The technological habits of BPS (Suisse) young employees

Employees of BPS (Suisse) participated to the Gen Y@work research on January 2009. 55 of them (23 male and 32 female) satisfied age requirement, i.e., they were born after 1980 and, thus, belong to the Generation Y. The average age was 25 (ranging from 19 to 29). 5 out 55 employees were involved in the Lego session; they were selected according to the distribution of age and working task variables. The following paragraphs present the results of the questionnaires and those of the LEGO™ session.

Results of the questionnaires

Owned digital tools

More than 60% of the sample owns: a video-game console (83.6%), a printer (81.8%), a digital camera (70.9%), a palm or pocket PC (67.3%), an I-pod or MP3 player (63.6%).
Daily Internet Access

Participants access the Internet mostly at home, from 1 to 3 hours (38.2%). At work, the Internet is mainly used between 30 minutes and 1 hour (52.7%). Many respondents say to access the Internet through mobile devices, but for no more than 30 minutes (83.6%).

Online activities

10 tasks are accomplished by participants through digital technologies “every day” or “every week”: listening / watching a video / audio (69.1%), downloading (or copy / paste) text (45.5%), downloading
image (45.5%), downloading music/audio files (40.0%), e-banking (38.2%), updating antivirus (36.4%),
reading newsletters or alerts (36.4%), reading blogs (32.7%), forwarding articles to friends / colleagues
(32.7%), evaluating an online service (32.7%).

Most used digital applications

At least 50% of the sample declares to use: video sharing (e.g., Youtube) (64.7%), instant messaging
(e.g., Skype, MSN) (62.7%), wiki (56.9%), social networking (e.g., FaceBook, MySpace) (56.9%).

Learning in the Knowledge Society

The preferred learning strategies are: retrieval of information through search engines (54.5%),
attending class lectures (47.3%), autonomous study (45.5%).

Results of the LEGO™ session

When asked to express their concept of learning through ICTs, participants showed a “composite” learning
attitude: traditional learning tools are paired with mass media tools, which are seen as reliable sources of
information, and with digital tools, which are used both to have a first approach to a specific issue and to search for
more detailed information. The three learning tools are used in combination, and outline personalized learning
strategies. The models that players built in the first phase of the LEGO™ session to represent their favorite way of
learning represented:

- Personal notes, conceived as a personal way of elaborating knowledge;
- Book, which allows customization (Fig. 4);
- Radio, useful to get information and to learn languages (Fig. 5);
- TV, pointed out as a way for indirect learning (Fig. 6);
- Internet and PC, seen ad complementary tools to be used together with paper materials (Fig. 7).

Fig. 4: LEGO™ representation of book.

Fig. 5: LEGO™ representation of radio.
The participants argued that the tangible aspect of a learning tool puts it closer to the student’s feeling, in the sense that it fosters the awareness of the learning process thanks to its “material component”. Tangible tools like personal notes and books received, in fact, many connections on the general landscape, coming from almost all the digital tools represented to describe work and private life media consumption. Combining qualitative observations with quantitative results of the questionnaire, it emerges that the young employees of BPS (Suisse) own and use a huge number of digital technologies and are massively active on the web, but they express a conservative learning style, in which traditional (non digital) technologies are wider preferred to ICTs.

In the second phase of LEGO™ session, participants were asked to build a landscape representing the interaction among digital and learning technologies in their working and private life. The landscape revealed a misalignment between the use of ICTs at work and their use in the private life. Only two models were put in the work-part of the landscape, and they were the office PC and other digital tools used to accomplish work-tasks, such as the printer or the scanner. They were identified with the word “deadline”, to point out that ICTs at work are seen only as a means to be on time with deadlines and not as promoters of a different – richer, easier, more appealing – approach to work. The private-life-side of the landscape, on the other side, showed a prevalence of mobile devices, showing that participants acknowledged a huge use of mobile devices in a number of activities carried on daily, not directly connected with work. Significantly, learning technologies were placed on the line dividing the work-part from the private-life-part of the landscape: the participants explained that learning technologies are seen as opportunities to improve both working activities and private-life dynamics, but that such opportunities need still to be caught.

The BPS (Suisse) project – Phase II

The data collected through the evaluation of the pilot phase and the study GenY@BPS (Suisse) led to re-design some of the activities developed on Moodle and the educational use of the PSP. During the re-design, stagiaires kept on using the platform, which were completed on February 2009 with the development of the remaining modules of Banking Today.

Direct involvement of students in the design of eLearning
Data showed that the young employees of the bank did not like to use the internet connection from their office PC to communicate with colleagues or to share information. This trend can explain the scarce use stagiaires made of the forums on the platform, both during and after the pilot phase. Forums were intended to support informal collaboration among fellow stagiaires, and to ask for help about content materials and exercises to a tutor, who was selected by the HR office among the bank older employees.

In the course BankingToday, 19 forums were opened, but during their training period (from June 2008 to December 2009), only a couple of times stagiaires used them. They even preferred to go and ask older colleagues instead of posting a message for the tutor. The main forum was used by the platform managers to give general information about the project, but most of the times personal e-mail was preferred, because e-mail was the quickest way to reach the concerned target. BPS (Suisse) is a medium size bank in Lugano, where most of the employees know each other and are used to collaborate and to offer reciprocal support: so, it is not a problem for them to raise the telephone receiver and call a colleague, or to knock on his/her door. Therefore, even if ICTs can provide them with new communication tools, the personal, face-to-face channel would anyway win on every other.

The 17 modules of Banking Today were enriched with a glossary to be filled in collaboratively, and with a wiki for each module, which was intended to synthesize in a few questions and in the corresponding answers (like in a sort of FAQ) the main topics of the module. Both glossary and wikis were ignored by trainees. On the other side, they used systematically the self-assessment exercises and looked up the suggested links for going in depth of specific topics. Informal feedbacks from the stagiaires pointed out the raising of a sort of competition; the platform, in fact, keeps track of users’ activities, thus allowing them to look at and compare their scores on exercises with those of fellow-stagiaires. Stagiaires knew well that the HR office could monitor their activities on the platform and, most of all, that they had access to their scores. Thus, a competition raised among the stagiaires to get the best results.

The scarce interest for collaborative activities and, on the reverse side, the high attention for individual performance, suggest that in a high competitive context as that of a bank, the opportunities eLearning can give for enhancing team building and capitalizing individual knowledge and competence, are not automatically caught, but they should be explicitly declared when setting the objectives, and they should be systematically pursued when designing the learning activities.

Collaboration among stagiaires was not only an objective per se, at which the bank intended to aim for enhancing team spirit, but it also became clear that a collaborative attitude lets better emerge effective needs of learners, and provides valuable insights into the work context. A number of informal feedbacks, which were systematically collected from stagiaires and from the HR office, reported that stagiaires frequently discussed among each other or directly with HR about the relevance and usefulness of specific eLearning activities for their training. This suggested to directly involve stagiaires in the design of eLearning activities, so to better consider their needs and to exploit their experience on the field. It was therefore started a personal collaboration between the stagiaires group and the instructional designers of eLab. Each stagiaire was assigned a module of Banking Today, and was asked to elaborate new exercises to be added to those already provided on the platform, and to imagine a real life scenario, i.e., a realistic situation of their daily work in the bank related to the issues presented in the module. For instance, it frequently occurs to front office employees that customers go asking to change money that is no more in circulation. To be ready to face such situation, the employee should be able to recover and apply right
rules and procedures. A digital resource – like a video tutorial – could be of help in case the employee no more remembers the procedure or is not sure how to apply it. For each scenario, participants had to identify also the adequate activities or resources to be developed (e.g., video, animations, audio-interviews) and the most adequate technology to support them (e.g., Moodle or a mobile device). The main goals of this activity were: to verify and enhance field knowledge, to promote collaboration, to capitalize the knowledge and experience gained by the stagiaires by placing it at disposal of future stagiaires of the bank, and to promote the awareness that designing and realizing ad hoc learning activities requires expertise and care, thus strengthening their sense of responsibility towards training. All the works stagiaires produced during this phase of the project were presented and discussed with the HR office, who used them also as an indirect evaluation of their learning progresses.

Mobile devices to support in class lectures

*GenY@work* showed a wide presence of mobile devices among the bank young employees:

- 83.6% of them had a game console,
- they all had a cell-phone and use it with many functions other then calling,
- more than 60% of them had a palm and an mp3 player.

The research also showed that the most used technology at work is the office PC together with the printer, while the most employed one out of work is the cell-phone. The LEGO™ session confirmed the discrepancy between technological habits at work and those out of work: LEGO™ models represented mainly people using mobile technologies in their private life and, furthermore, mobile devices did not appeared among the preferred technologies for learning. Such results, together with the experience gained during the first phase of the project, suggested that:

- the young employees of the bank were able to use mobile technologies and, in fact, they principally relied on their support in the private life, but
- they did not yet catch the opportunities mobile devices give for helping work practice and, moreover, for learning.

Two kinds of learning interventions were realized to put at good use the technological competence young employees have, and to enhance their awareness of ICTs as good allies for learning:

1) an application for PSP was developed for supporting an in class course on *Time Management*

2) a treasure hunt via SMS was designed, to crystallize knowledge related to the local financial market.

*A virtual agenda for time-management on PSP*

The learning program offered by BPS (Suisse) to its stagiaires included: a series of lectures on core financial issues, eLearning activities and some courses aimed to develop soft skills. These courses were grouped in a training program called “Formazione umanistica” (“Humanistic training”), which was taught by a Swiss expert in vocational training, Mr. Marco Ricci. One of these courses, held in Spring 2009, was
devoted to promote time-management skills. Trainees were asked to do a preparatory exercise, which they were instructed to download from the platform and upload on the PSP. It was a virtual agenda to be filled up with assigned tasks. For each task trainees had to calculate the range of time required to accomplish it and to assign it a priority degree (Fig. 8). They had 8 minutes to complete the exercise, at the end of which they were asked by the system to send their agenda via e-mail to the course teacher, to work as discussion base during the class. The agenda was intended to represent a realistic situation, that is the typical scenario employees should manage at the beginning of a workday, when they have to organize work-tasks, taking into account time boundaries and unexpected events. The exercise was designed to be as dynamic as possible, so that while the user organizes tasks and assigns time slots, unexpected events may occur, which have to be managed as well: for instance, a call from a bank customer asking for immediate solution to a problem, a colleague asking for some help, or a “material need” like paper for the printer (Fig. 9). The PSP allowed to design the tasks to be put in the virtual agenda exploiting different formats: an audio file with all the sounds typical of a phone call to represent the message of a customer left on the answering machine of the office; an animation to represent a colleague opening the office door to ask for help; and so on. The preparatory exercise was the starting point for the discussion raised by the teacher during the first day of the course.

![Figure 8: Virtual Agenda: main frame.](image-url)
A treasure hunt via SMS

The second activity proposed during the course on *Time Management* was a treasure hunt via SMS. Participants were divided into groups, and were provided with a cell-phone per group. They had to go around Lugano looking for information about the services and offers of other banks, to compare them with the ones offered by BPS (Suisse). They received questions and sent answers via SMS. The central system traced answers and time spent. If the answer was wrong, groups received anyway the following question, in order to let the city-round go on. The winners were decided according to the scores collected through the correct answers, the amount of time spent and the comparative analysis between the products of BPS (Suisse) and those of the other banks. The treasure for the winners was a timer for each group member, to keep with the course topic. Goals of the treasure hunt activity were:

- verify the understanding of specific modules of *Banking Today*
- manage time and enhance problem-solving
- promote team-work and support team-building
- experience learning through mobile technologies

Game-style quiz for PSP

Both the virtual agenda on PSP and the treasure-hunt via SMS represent successful cases of blended-learning, that are educational activities where technologies are a valuable support for class lectures.

The feedback collected after the pilot phase of the project led to a re-design of the eLearning resources on PSP. A greater number of quiz for self-assessment was created, which resulted to have been the most used and appreciated by learners. The nature of the device was, then, recovered, in that exercises were framed with a game structure. The typologies of quiz were inspired by well-known TV quiz and widespread games. Their goals were to support the acquisition of a specific financial language, crystallize key concepts and understand the connection among them.
Some game typologies are described below.

**Bank-crossword:** it is a crossword made up of words taken from the financial domain (Fig. 10).

![Figure 10: Bank-crossword](image)

**Safe of Fortune:** it is inspired to the TV quiz “Wheel of Fortune”. As it happened in the TV quiz, the safe – which is the equivalent of the wheel – is opened by the player “to buy” vowels or consonants, which help him/her to guess the right answer. Every time the player opens the safe, his/her score lowers (Fig. 11).

![Figure 11: The Safe of Fortune.](image)
**Semantic memory**: it is a version of the widespread memory game, where the player has to discover couples of identical or corresponding images. Here, couples are made up of images bound by a conceptual correspondence. The image of an ounce corresponds, for instance, to the image of a gold bar, because the ounce is the unity of weight for gold (Fig. 12).

![Figure 12: Semantic memory.](image)

**Who wants to be a millionaire?**: it is inspired to the homonymous TV quiz. The competitor gains gold bars by giving the right answer to increasingly difficult questions; when s/he is in doubt about the answer, s/he can ask for some help to the audience or call home (Fig. 13). Questions are grouped according to their difficulty into 15 levels; the system randomly takes one question each time, which has 4 possible answers. For each level 10 questions have been elaborated, so that the system has a good likelihood to choose a different combination of questions for different competitors. It is possible to stop the quiz at any moment and go on afterwards; partial or final results can be sent to the personal e-mail-box or to the player’s personal page on Moodle.

![Who wants to be a millionaire?](image)
The implementation of quizzes took some months of work, so that they did not enter into the regular training program of stagiaires. They all were tested by learners, and refined according to their feedback, but no data were collected on their use-experience.

**The BPS (Suisse) project – Phase III**

*Autonomous managing and development of eLearning*

In December 2009, the stagiaires completed their training period; many of them were employed by the bank and distributed among different offices. Nevertheless, eLearning for them was not finished. In fact, in January 2010, the third phase of the collaboration between BSP (Suisse) and eLab started. This time, it was not about introducing stagiaires or new employees into the financial world, but it was about training all the employees who worked at the front-office – i.e., employees who directly interact with customers – on the products and services offered by the bank. From an internal investigation it emerged, in fact, that front-office employees devoted less time to keep themselves up to date about new products and even to refine their selling strategies of key products and services of the bank. This attitude did not foster the bank growth and the acquisition of new customers. The HR asked for an eLearning system which:

a) represented a univocal point of reference where to find materials for individual study and assessment exercises

b) allowed to keep track of the effort spent by each employee for training activities and of the results obtained

c) was as easy to use as possible, to allow also older employees a comfortable access to technologies

d) fostered employees’ awareness of their poor specific knowledge

e) systematically checked their knowledge on specific products

As concerns the technological habits of the new (extended) target of learners, they share the fact that they spend almost their whole day working in front of a PC and they have their personal e-mail constantly opened, which is the most used ICT for communicating with customers. Furthermore, the technological choice followed the explicit request of the HR to have a new platform managed internally. Such request may lead to a couple of considerations. First, it may be viewed as a positive evaluation of the previous collaboration: the platform was perceived as a real added value for the training program of stagiaires, and as an accessible technology which did not require expert technical competence. A second observation is that the bank, during the project, did not remain a spectator of the process of eLearning integration, but it became aware of a new way of approaching training and caught the opportunities given by ICTs to support it. The request of the HR office to develop an eLearning system to be run autonomously shows that they feel comfortable not only to use but also to manage eLearning.
Therefore, the technological choice for the third phase of the project was twofold: a Moodle-based platform was installed in the bank to host materials and assessment activities about the bank products and services, and a system of quiz delivered by e-mail was proposed, to achieve goals d) and e), in particular.

**Moodle for training front office employees on the bank new products**

The training program about the bank products and services addressed all the front-office employees, that are an heterogeneous group from the point of view of technological habits. Of the about 100 employees concerned, only a minority were digital natives (55), and this minority did not revealed a “digital technological habit” when learning strategies were concerned. Thus, the main criteria the platform had to meet was to be highly usable, in terms of easiness of contents retrieval and navigation. It was decided to open a course for each product or service offered by the bank; each course contains information organized according to questions and answers as if they were FAQ. The “search” function (on the top left side of Fig. 14) allows the user to make a precise search among all the courses on the platform. At the completion of each course, the user is asked to make an evaluation test, whose results are registered in the system.

![Figure 14: A course about a product of BPS (Suisse) on Moodle.](image)

**An e-mail-quiz system**

The e-mail-quiz system was conceived for the specific goals of making the employees aware of the need of keeping themselves up-to-date about the bank products and services, pushing them to make a regular self-assessment of their knowledge, and monitoring their training activity. Every day the system sends one (or more) e-mail (the sender appears to be the HR office) to the personal mailbox of each employee, containing a closed question about a certain product or service; the employee has only to open the e-mail and answer the question; she receives an immediate feedback: if the answer is wrong, s/he is
provided with the right solution and its explanation. S/he has a fixed time-range to answer the question, after which the question “expires” (Fig. 15). Time constraints is intended to force the employee to give immediate answer. The central system registers the whole process, thus allowing the system managers to observe how many people regularly answer, what are the individual scores, which questions were correctly answered, and which ones were mostly mistaken, thus helping to identify problematic topics.

Conclusions

The pilot phase of the project developed by eLab on mandate of BPS (Suisse) highlighted that in order to design effective eLearning activities in professional settings, the technological habits of the trainees should be carefully considered. The investigation on the technological habits of BPS (Suisse) young employees revealed a gap between the use they made of ICTs at work and in the private life, and let emerge that, in spite of a conservative learning attitude, they were well aware of the opportunities given by ICTs to learning. The project was systematically refined, to adjust eLearning activities to meet the effective needs and technological habits of the target group. In the first phase of the project, a mobile device was introduced as a strategic choice to support and foster learning everywhere and every time, but the autonomous learning dynamic did not take place, for two main reasons.

a) The relation among trainees developed not as a collaboration, but rather as a competition for obtaining the best results in front of the HR. Stagiaires spent, in fact, their learning efforts to accomplish online tasks and to solve exercises on Moodle, whose scores could be monitored by HR, but ignored all those eLearning activities designed to be developed in group (such as the glossary or the wikis), as well as the contents provided on PSP. To foster the arising of a collaborative attitude, trainees were directly involved in the design of eLearning activities for Moodle and for the PSP, and the mobile device was used to prepare and support in class lectures.
b) It became clear, then, that in order to effectively exploit a mobile device for formal learning interventions, it should be kept its nature, that is the main function it was designed for. Thus, in the case of PSP, since it was conceived as a game console, using it as a complement for individual study was not a successful idea. In a second phase, different typologies of game-style quizzes were developed, inspired by famous games or TV quiz-shows, in order to maintain and exploit its “playful nature”.

When eLearning is able to effectively meet the target needs and the institution requirements, it may lead to a cultural change in the way training is conceived and designed. At the end of the project with the stagiaires group, in fact, BPS (Suisse) asked eLab to design a new intervention, to train a wider and in some ways more problematic group of employees. This time the bank itself was able to assign precise design tasks, and became, step by step, always more autonomous in the process of developing and managing eLearning.

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