Applications

Learning to play: games and web technologies in university didactics

Veronica Mobilio

Sapienza, University of Rome

veronica.mobilio@uniroma1.it

Abstract

The paper aims at presenting an experiment carried out by the chair of new media theories and techniques in the faculty of Communication Sciences at the Sapienza. Thanks to the brilliance of a final-year university student, a game platform has been developed capable of promoting new learning modalities characterized by video-game actions and interactions. Using the potential of strategic browser games, Learning To Play - this is the name of the platform and of the game we are going to present - shows how it is possible to create new and innovative ways of teaching, placing attention on game dynamics, which by using web 2.0 tools can be developed without having to possess particular technical competences. This way it is possible to improve student learning, increasing at the same time their level of satisfaction. The integration of the game platform with the teaching in the classroom of new media theories and techniques shows how learning and play, can merge thanks to the use of web technologies and create a virtuous circle where you can enjoy yourself learning and you can learn enjoying yourself.

1 What is LTP?

Learning To Play (LTP) is a game platform developed following the principles and the philosophy of web 2.0, of social networking and of collaborative learning. Created as a dissertation project of a student taking a three year course degree in Communication Sciences and Technologies at the Sapienza, it combines the game modalities typical of strategic browser games with the interaction procedures typical of graphic forums, producing learning dynamics which are the result of group interactions.

Thanks to the insight of Alberto Marinelli, instructor of the chair of new media theories and techniques in the faculty of Communication Sciences at the Sapienza, the platform and the game from a simple dissertation project have become an experiment carried out by a work group with variegated competences and sensitivity[1] which has studied how to integrate the game with the learning activities, how to improve the rules of action and interaction and how to refine and render more appealing the platform which is being developed.

The project from individual has become collective and LTP has been tested during two semesters, obtaining a more than satisfactory response from the students in terms of participation and progress in their studies.

In the planning of the experiment, which so far has been mainly exploratory, the aim has been to promote game modalities capable of favouring the learning process through social relationships of peer collaboration and/or peer competition. This in accordance with the most recent learning theories. LTP places at the centre of the process the learner favouring the creation of a network inside which to develop and share knowledge and guaranteeing at the same time a continuity in one's learning beyond every single structured event – in this case, the academic lesson (CNIPA, 2007). The particular approach at the basis of the experiment has made it possible to create a game modality which enriches and strengthens the didactic activities of the classroom instructor and which offers a system where the learning is placed in the hands of the learner, now an active subject and no longer a passive one tied to pre-established formative paths (Marzano, 1992; Downes, 2005). What here declared is confirmed not only by how the game has been inserted into the didactics, but also by two fundamental aspects which have accompanied and strongly conditioned the experimentation. First of all the role assumed by the instructor towards the activities of the group which have planned the experimentation. As prof. Marinelli declared

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1 The work-group consists of Marco Casini, creator of the project and student of the degree course in multimedia editing and communication; Simone Mulargia, Ph.D in Communication Sciences; Rossella Lehnus, Veronica Mobilio and Lorenza Parisi, Ph.D students of the Department of Sociology and Communication (DISC) at the Sapienza.

in an interview, used as an introduction to the game manual distributed to the students, «when you work on a project which explicitly recalls a game dimension, the role of the instructor drifts towards a different position: no longer that of a power monopolizer, but that of a controller called to readdress the project cycle». Secondly, strategic has been the role of the students: they have been the real protagonists of the experiment, called to test themselves and to point out the opportunities and the limits of technology as a didactic support.

The experimentation has had a double objective: 1) to improve the game from a technological and methodological point of view; 2) to investigate on the role and the function of the web as a learning tool both in formal and informal contexts. LTP's special structure determines, in fact, particular dynamics: the game is an integral part of the activities carried out during the course lessons (formal context) but, at the same time, it is played by the students – autonomously and with low control - online, on a web platform with password access, in both different times and places, using action modalities which recall the cognitive functions of a game, learning modality typical of children in their first years of life but certainly innovative in university didactics. At the same time, these dynamics make it possible to create a "net of relations" (Marinelli, 2004) as well as synergic and parallel learning modalities different from those which normally are developed in classrooms all over the world.

2 The structure and the rules of the game

In order to understand the experiment carried out, it is necessary to stop and look, even if only for moment, at the structure and the rules of the game. It is based on a set of questions-stimuli which aim at stimulating and favouring the emergence of personal opinions on the course topics, facilitating the development first of individual thoughts and then of group ones. In the specific, the player, during the game, connecting him/herself to the platform, finds a series of questions he/she has to answer expressing a personal opinion: the answer will be visualize as a post-it in an electronic bulletin board. Only after he/she has inserted his/her own thoughts, a player can visualize the answers given to the same question by the other players. At this stage he/she can vote each opinion motivating with a comment the vote assigned. After voting and commenting on the thoughts of others, the player can finally visualize all the votes and the comments published on the platform.

Thanks to a credit-system, each player has some points (called LTPoints) which, following a social networking logic, can be gained or lost writing one's thoughts and voting other players[2].

2 In detail, the points are determined by the number of answers posted and by the votes received by the other players. In

During the game session all participants can instantly check their position in the points table and, at the end of the match, the player with the most points is the winner. The game goal is therefore to gain the highest number of points in the points table answering the questions-stimuli and voting the answers of the other players without behaving incorrectly. To avoid this, the game is checked by a number of tutors, who supervise, like a director working in the background, making sure that everything proceeds according to the rules: they are asked to intervene only in case of necessity giving yellow cards and punishments to those who have behaved incorrectly or in a not-allowed way towards the other players. For precise project reasons the tutors, and the instructor in particular, are called to supervise remaining in the background: they evaluate the answers inserted and make sure that votes and comments are fair. These evaluations, however, can be seen by the students only at the end of the match: this way the game can proceed naturally following dynamics established by the students themselves.

3 The integration with the didactics

LTP was born, in the mind of the student who developed the virtual environment and defined the basic rules of the game, to become a platform integrated in a university course. The hardest part of the work carried out by the team responsible of the experimentation was to establish how an online game could enrich and strengthen the teaching activities in class. In order to make fruitful intersections between the two moments, the team therefore planned a scheme of possible and continuous associations between the lessons, the game and the activities carried out on the platform.

As already mentioned, LTP is based on some questions-stimuli. The first decision made was to elaborate these questions with reference to the contents the instructor presents during the lessons and to do so in a particular way, applying theoretical concepts to concrete examples. The particular course subject on which the game was tried out certainly favoured the formulation of questions connected to a theoretical ambit with technological tools and functions used daily by young people to carry out activities of every kind (Prensky, 2001). Great attention was given to the formulation of the questions, both from the content and order of presentation point of view. Exactly for this reason, the students who participate to the game have the opportunity to study in depth the topics discussed in class, not only reflecting on the concrete applications of theoretical concepts, but also measuring themselves

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particular, each student can give to the answers of the other players one of the following marks: + + (fully agree) operation by which he/she gives + 1% of his/her points; + (partially agree) operation by which he/she gives + 0,5% of his/her points; − (partially disagree) operation by which he/she gives − 0,5 % of his/her points; − − (totally disagree) operation by which he/she gives − 1% of his/her points.

with the other students, the tutors and the instructor. The discussion about the questions and the topics must occur online using the platform, but it also takes place in class during the LTP spot times which last about 15 minutes. In these moments the instructor and the tutors introduce the questions, make comments on the answers given by the players and show the game's points table and statistics.

In the two experiments carried out these LTP spot times were held regularly and they represented an excellent occasion to show and discuss doubts and thoughts, anchoring the lessons to the needs of the learners and encouraging the development of an individual and collective meta-cognition of the topics studied. The game in its various functions, in its variety and in its dichotomies is a highly motivating activity to live as a concrete reality in which one can learn how to learn.

The work group decided that participation to the game was free, but it was tightly connected to lesson attendance and to the investment the learner wanted to make on the course. The idea was to leave free choice to the student who must decide whether to play or not the game: to choose to sign up for LTP means, in other words, to follow the lessons, to answer the questions and to vote the thoughts of the other students.

To make the most of the game as a didactic tool, two other decisions were made. The results of the experimentation have proven that they were sound:

• At the end of the game, during the last lesson, the instructor and the tutors describe the final classification and the game dynamics, commenting the questions-stimuli and therefore revising the course topics. This revision is made preparing a presentation in which for each question the best and worst answers are selected. The comment of the positive and negative aspects of the reflections made by the students is an excellent occasion to reflect together on the questions, verifying at the same time the knowledge obtained.

• To the students who intend to tale the exam in the first session available after the end of course is given the possibility to start the interview commenting the most important issues which emerged during the game. This occasion makes it possible to gather impressions on the activities, on the liking/utility of the game and on the role of the web as a tool capable of integrating and supporting the traditional methods of teaching and learning.

For a precise methodological choice no quantitative incentives are given. To join the game is an opportunity to reflect and to extend one's knowledge of the topics discussed: this is the message which was launched and accepted by the students during the two semesters in which they participated to the experiment.

4 The results of the experimentation

For over a year, LTP was tested inside the course new media theories and techniques during two semesters.

The first experiment required a big effort from the work group that had to decide how to integrate the game in the didactic activities, but also evaluate the performance and the hidden and open behaviours of the players, working on the imperfections of the game dynamics and intervening to solve the platform's technical problems and bugs. Notwithstanding this, already the first experiment gave positive results: the game dynamics, the particular nature of the questions-stimuli and their integration with the topics discussed, pushed the students to make an effort when looking for the right answer, the most original example or the most appealing formula. With great surprise of the work group, the quality of the answers given on the platform was high. And also the social behaviours which emerged from the game dynamics showed the good quality of the answers given: the questions with a positive vote were the best, while those with a negative vote were based on examples correct only in part or were not written in an appropriate way for a university student. This first experience gave us the proof that web technologies (as a learning tool) and games (as a learning method) can be integrated and used to innovate the university didactics, obtaining a good response from the students. In addition, the first experiment was necessary to try out the rules of the game, making it possible to identify some corrections to be made in order to improve its performance[3].

The second experiment was carried out on the basis of what was decided at the end of the first test with the difference that there were less questions, longer deadline and more characters to answer each one of them. The corrections made were right at least in part: for example, the increase of the number of *characters* a player could use when answering a question did not have as a consequence more in depth answers, but it sometimes brought to long introductions which had little or nothing to do with the question. The reading of such answers made the evaluation more difficult for the tutors. Vice versa, the conditions to be respected before a student could see the votes (See, note 3) made it possible to obtain original comments, informed from a scientific point of view and very different one from another. In addition, this aspect allowed us to understand the processes of social choice and self-organization (Barabàsi, 2002) typical of web 2.0. Also in this second case, the work group was able to explore the didactic value of the game and of web technology, as well as the

3 For example, in the first experiment the player, after answering the question, could read the answers of the other players and also the votes given and the comments made. This influenced the votes and especially the contents of the comments. For this reason, during the second experiment, the work-group decided to make the comments and the votes on the platform visible only to the player who had already voted and commented on that particular answer. This new rule made it possible to obtain during the second experiment new and original comments which reflected to a greater extent the players' opinions.

strong relationship which these two elements had with the learning standards of the students.

The study and the investigation carried out so far have been exploratory. According to the students, however, who answered a question about LTP during the second experiment, LTP is a «brilliant» and «innovative» idea to which they give «without doubt the vote ++». Numerous are its points of strength. The game is «a concrete way of bringing to life the theories learnt», «it makes you study from the very beginning of the lessons» and «it favours the full participation of the student who is involved not only from the cognitive point of view, but also because he/she likes the game». «The personalized way in which the questions are written (which always ask for an example capable of explaining the theoretical formulations) is an excellent stimulus to obtain a subjective elaboration of the concepts». The possibility to «compare one's opinion with those of the other players» helps individual learning and it is useful for the preparation of the final test. The game, all in all, «offers information on the key concepts which will be asked by the instructor during the exam». And this occurs by using original and entertaining modalities of interaction. Exactly for this reason, according to some students, LTP «is not a game, but a real study in depth of the course program» which allows you to learn comparing your opinions with those of others. Among its points of strength we find the «strong integration with the course», the «possibility to revise the key topics of the program» and finally «the strange sensation of being both a pupil and a teacher at the same time writing opinions and voting those of other people». The weak points, instead, refer to small improvements to be made to the platform and to the mechanism of the game: first of all the fact that the final classification, according to the students, does not suit those who worked the most on the platform[4].

5 Conclusions

The debate on the potential of web technologies and on the relationship they have with didactic methodologies is wide and lively. Recently the neologism «e-learning 2.0» (Jennings, 2005) has been coined. This word, in the passage from the first to the second phase of e-learning, indicates a renewed attention to informal and collaborative learning thanks to the use of the new social networking tools typical of web 2.0. The word, according to many, is a simple gimmick and a way of doing business; according to others, instead, it was coined to distance itself from the previous formative model and its numerous failures (Bang, 2006). In this vision, the second phase of e-learning is

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4 After more than a year of work and two experiments the work-group is working on the definition and implementation of the last corrections to be made to the game before it is comes out and is spread.

characterized by the need to rethink education and learning on the web recovering the nature of the web itself, that is its open and fertile spirit which pushed some to talk about «collective» (Levy, 1994) and «connective intelligence» (De Kerckhove, 1997).

In this perspective, LTP presents itself as an excellent experiment where all the above mentioned concepts are put to test: social networking, the web and e-learning 2.0. The activities carried out represented an occasion to reflect on the role of the web in university didactics and to propose an original and innovative use of technology in academic activities. The objective aimed at and in part reached was to address and readdress what normally is done by the student in his/her own room with the support of sites and technologies free of any relationship with the university. All this in a project which has explicitly nothing to do with traditional e-learning. LTP does not replace the lesson, it is not based on the simple transmission of contents, but on the activities of the learner which are tightly anchored to the contents given by the instructor (Koper, 2001): it is something that should be *played* together with the lesson.

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