NEW PARADIGMS AND NEW INTERACTIVE TEACHING/LEARNING TOOLS IN DISTANCE EDUCATION. THE CASE OF ECONOMIC COURSES AT GUGLIELMO MARCONI UNIVERSITY

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ABSTRACT

Learning is change. Especially in a context where student face with a changing world, full of connections and proactive and virtual situations. The need of use new tools in teaching is evident, and literature is facing the phenomenon with a constant rise up of researches and experiments. It is a new unknown field, an undiscovered path that we have no clue where it can lead. Nevertheless, it is a wonderful challenge.

We can really use many tools, especially in eLearning classes. Such as Massive Open Online Courses, dynamic video-lessons, blogs, virtual communities, virtual laboratories, social media and information sharing, in a constructivist pedagogy. The most powerful objects we can use are serious games and simulations that can deliver knowledge by entertaining and understanding complex systems.

However, near these new opportunities, we have to rethink also courses, curricula and contents that cannot be static and should evolve. Along self-creating knowledge systems, we must build new paradigms, new theories, able to change with the world they try to describe. That can be very expensive in an eLearning University, but there is the way to create a dynamic learning system.

At Guglielmo Marconi University, we are trying to make a little revolution, starting in economic courses, because we are living time full of changes and transitions referring to the economic and financial context. Consequently, we need new points of view and new models in theories and new tools for students. In this sense, inside our courses we extended contents of the courses also changing the point of view traditionally used and introduced simulations and serious games. The goal was to make students think in a strategic way, facing complex systems, where operators act in a non-linear way. Teaching them to build their own paradigm to explain real world.

KEYWORDS: Credit, Economics, Finance, Gamification, Interactive teaching/learning, Monetary Economy, Serious games, Simulations, Strategic behaviors, Trust

INTRODUCTION: NEW WAYS IN TEACHING AND LEARNING

The world changes, connections rise up, mobile device and information are filling our life in a complex net of stimuli, provocations and defiance.

We need to teach inside the world that students are living, using all the tools they know and they fell near in their life. We must making learning a real, complete, personal proactive experience that can give to students the motivation to learn. Traditional education is based on stable paradigms, marks, discipline. So they study for grades, something that they think has no common points...
with real world and their life. Homework are seen as a boring, ponderous, trying necessary duty and self-punishment, ad not as an exciting experience to grown in knowledge and passion.

In their life, in fact, students usually research on the internet data and information, going through personalized paths finding what they are looking for. Their way to learn and understand real world is free, various, based on passion and curiosity. Education system should speak their language, integrate with their learning strategies; fill up their existence.

Learning is a complex process that need motivation and participation. It means that students should be involved in knowledge delivery, and to do that, it has to be part of their life, in line with the way the can observe the world around them. Knowledge delivery should be considered an information processing system that includes the learners.

We are experimenting the existence of only a vague border between our physical and virtual life. Everything around us becomes connected.

In this context, Massive Open Online Courses (the so-called MOOCs) are rising up faster and faster. Big amounts of data can be shared at very low cost. Lessons and quizzes can be streamed free over media delivery services. New paradigms can be compared continuously. Social networks provide models for digital campuses where students can help each other in a world-wide study groups.

Now it is possible to delivery a dynamically updated knowledge base, with flexible tools, tuned to an individual's capabilities, interests, expectations and learning strategies. In fact students adopt different personal information strategies in practice (naming, grouping, categorizing and classifying facts), in this way they integrate new information items into an existing archive. This process has, of course, implications for learning (Hardof-Jaffe et al., 2009).

On the other side, Information technology can overload people's brains, making difficult to understand because too many information pass through their eyes, and their ability to learn, filter information, and extract knowledge can be compromised. A better organized way to learn can be obtained by the harmonization of knowledge delivery, by using all possible channels (textual, audio, visual, feelings, virtual experiences). In this way we can obtain the best outcomes in teaching (Carr, 2012; Schagaev et al., 2014).

Classroom, social media, online course, tutors’ support, simulations, virtual experiences and laboratories are all a set of stimuli that can delivery concepts and, better, can make student build their knowledge along their skills and capabilities. Mobile more than computers, simulations more than texts, video lessons less boring and with puzzles inside, this is the new environment of learning in real life experience.

In this context, another very powerful (unexpressed) learning tool should be the blog. Blogs facilitate information organization, inside a constructive cognitive process that can make learning more effective by a personal external representation of information (managing information the writer relates them to the context of its future research and use), facilitating new knowledge creation and, therefore, autonomous learning.

2 In an international research (Hardof-Jaffe et al., 2009), authors found four major types of personal information strategies: 1) Piling - keeping most of the files in the root directory. 2) One folder filing - filing most of the items in one folder. 3) Small folders filing - organizing items in many small folders. 4) Big folder filing - a mixture of filing most of the documents in different folders, but still maintaining one sub-folder containing many files.

3 In addition, when learners reflect and monitor their own learning in public (as using a blog), the level of self-regulation increases, rising self-efficacy. Working independently in a positive environment should increase self-efficacy for that task in the future. Blogs are not only tools for self-expression or social interaction, but they also have the potential to influence the cognitive
In particular, in the next pages we are going to focus on simulations, that are, in my opinion, the most powerful tool to make student understand and learn in a complex and variable environment.

**Some Considerations from Literature About Learning Games and Simulations**

There are two concepts, not so far from each other, very common when we talk about new technics in e learning, and they are *game-based learning* and *gamification*.

The notion of *game based learning* refers to the use of a game-based approach to deliver and increase teaching/learning and also assessment and evaluation. Talking about games we talk generally about interactive tools delivered by computer or mobile technology in a role-playing context. Therefore, when we consider the game-based learning we intend serious games, but also case histories and, above all, simulations that are, according to me, the most important tool in higher education. With this kind of tools we can maintain a high level of motivation in learning, and students can acquire knowledge by solving real-life problems or real situation (Chen, Wang, 2009). The learners research contents (inside and outside the digital tool) to solve puzzles and situations in the game in a problem solving dynamic.

Here it is very important to stress the pedagogical and educational value of these tools that can make people learn by entertainment, enjoyment, participation using an instructional approach (Connolly, Stansfield, 2007). In this case, educational contents are integrated into digital simulations leading to the achievement of better result than the traditional way of teaching.

*Gamification*, according to Gabe Zichermann and Christopher Cunningham, is “the process of game-thinking and game mechanics to engage users and solve problems” (Zichermann, Cunningham, 2011). In other words, we use the technique of game designing (gamification), to achieve our goals in terms of *game-based learning*. With gamification approach, we think game elements in a different non-game context (Deterding et al., 2011). That is why I prefer to talk about simulations, because the main aim of a video game is to entertain, instead serious-games and game-based learning refer to education by enjoying, where the role-playing is a way to deliver contents and knowledge and not to make people spend their time.

The difference between *gamification* and game-based learning is in purpose and instructional goals: *gamification* wants to motivate and change learner behaviors, by adding gaming elements (competition, rewards, mastery, and productivity) into educational tools; game-based learning aims to promote learning by using the games for teaching knowledge and skills also by games and simulations. Designing the education game/simulation (and before to decide if to undertake it) means to analyze purpose (also in terms of motivation and students' behaviors), expected outcomes and results of the teaching path, and, finally, find the way to get there (Yang, 2014).

In this concept the integration is a key concept, so that, inside a well-designed interactive course, also commercial games (not necessary education game) could be used to achieve high results, as observed by Panoutsopoulos and Sampson:
“By designing and implementing meaningful activities with the support of the selected game we offered opportunities for engaging students in problem-solving actions. Students were able to formulate and test their own hypotheses, observe the outcomes of their actions, compare and contrast data available from the game, justify and evaluate outcomes of performed actions. Feedback provided from the game as well as its potential to simulate unexpected events were specific features that informed students’ actions within the game world. Supporting game-based activities with appropriately designed worksheets provided the necessary structure and allowed for reflection. As evidenced by the results of our research, students of the experimental group outperformed their control group counterparts with regard to achieving general educational objectives. Thus, commercial simulation games, as opposed to educational games, can be considered as highly interactive environments providing learners with structure and authentic learning contexts. With the support of our findings we can confirm statements highlighting the contribution of commercial off-the-shelf digital games to the achievement of educational objectives aligned with the upper levels of standard taxonomies”. (Panoutsopoulos, Sampson, 2012).

In other words, the challenge is not (only) how to create a good simulation, but how to design a good interactive course, and a good curriculum, for and with our students. There is a growing attention about the role of serious games (and generally games) into new teaching/learning methods. Lots of recent researches can explain why games can be useful inside a learning path. In fact, digital game/simulation-based learning is a research field within the context of technology-enhanced learning that has attracted significant research interest. In particular, according to these researches, using experience tools, games or simulations, we can consider different effects.

First, we can ask ourselves how to create the game context, designing the way students can obtain learning materials we want to give them, and that they can use inside games and simulations. Designing our learning tool, so, we should consider that the interaction with the context could make the experience stronger and the learning process more effective. Games and simulations have the potential to provide concrete learning experiences and allow for drawing links between abstract concepts and real-world situations. That can be possible also when we are teaching abstract matters and concepts (Panoutsopoulos, Sampson, 2012). It also strongly increase motivation, making the students understand they are learning in their world and for themselves, something that involves themselves, and not subjects that refers only to school or educational system.

Another interesting question is: do we always need tutorial and traditional organized lessons to make students learn by using simulations or games? It is possible to put inside the game or simulation some contents, available for students that they can use and read whenever they want.

4 In a study about the influences of Game Quests on Pupils’ Enjoyment and Goal-Pursuing in Math Learning, researchers wanted to analyze whether using the quest in the game would help learning outcomes. They compared a game where learning materials, useful to solve puzzles, are given by the interaction with Non Playing Characters (the so called NPCs) with a similar version in which they are available by a menu. Quests were found to exert significant influences on students’ perceptions, including enjoyment, goal orientation, and goal intensity. In addition, the findings revealed that quests encouraged active participation and increased the intensity of attempted learning behaviors (Chen et al., 2012)
Learners would use tutorials and go to contents, using them actively, if they are facing complex simulations. Otherwise, in case of easy to understand simulations and games, learners can discover the rules and the relations just through experimentation and by playing. It is immediate, and in this case, it is useless to create large and complex tutorials or reading contents. Therefore, the lesson here is that contents should be given usually by quest and non-playing characters or in the context of the simulation. If it is very complex and contents wide, we can provide them by the use of tutorial or dedicated menus.

An interesting aspect is also the relation between the nature of simulation and its social effects. It means that activities from the video game translates into activities outside of the game environment, in the social real life (Kapp, 2012).

Experiments demonstrated that prosocial activities within the game (for example games in which you have to save or help someone else) would encourage prosocial activities in the real world, making people more oriented to help the others in different contexts.

In particular, Greitemeyer and Osswald (Osswald and Greitemeyer, 2010) conducted four separate experiments to test the relationship between prosocial video games and helping behavior. After first and second experiments, a researcher make a cup of pencils fall off a table into the floor. Of those who played the prosocial game, 67% helped the researcher, while only 33% of those who had played to neutral game and 28% of those who played the no-social game helped. In the third experiment, the participants played a more complex prosocial game and a neutral one. It was a more stressing test. A man entered the room and pretended to be the ex-boyfriend of one of the female researchers, stressing the female researcher by shouting, kicking a trashcan, and attempting to pull her out of the room. Again, those who had played the prosocial video game were more likely to help than those who had not (56% of the prosocial game players versus 22% of the other game player).

In Experiment 4, the participants were asked to write down all the thoughts that they had while playing the game. It was found that who played the prosocial wrote down more prosocial thoughts compared to those who played the neutral game. About that, Greitemeyer and Osswald observed:

“Experiment 4 illuminated a mediating mechanism. [...] Revealing that the effects of violent media on aggressive behavior are mediated by differences in the accessibility of aggressive thoughts, Experiment 4 shows that the activation of prosocial thoughts elicits prosocial behavior. Thus, it appears that - as for the negative effects of violent video games on aggressive behavior - the effect of playing prosocial video games on prosocial behavior works primarily through the cognitive route of the GLM”.  

Also extending the research in a very wide international context, to people of different ages, a group of researchers from around the world found that video games in which characters help

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5 In a research about the Impact of tutorials on games of varying complexity, authors show that the usefulness of tutorials depends greatly on game complexity (Andersen et al., 2012).

6 GLM stands for General Learning Model which proposes that input variables (personal and situational) affect a person’s internal states (cognition, affect, and arousal) that guide the person’s responses. GLM proposes that the kind of associations that are activated by a video game depends on the content of the game played (Osswald, Greitemeyer, 2010).
and support each other in nonviolent ways increase both short-term and long-term prosocial behaviors (Gentile et al. 2009). This means several implications (Kapp, 2012). Games and simulations can convey more than simple knowledge. This kind of training tool can convey, with contents, also attitude and willingness to help, to cooperate and to have prosocial ideas and proactive projects. Research shows also that the prosocial effect is not exactly correlated to the activities within the prosocial game.

In the social dimension, furthermore, research demonstrates that using simulations and serious games, it is possible to reduce personal bias and prejudices, helping to understand relations and conflicts inside groups or classes changing their point of view, understanding the different position, playing again a so made simulation, learning to Stand in the Other's Shoes. Games and simulation can be also a good way to favorite the cooperation within a group, more than competition (Bozarth, 2013).

In addition, the kind of simulation has different effect in players and learners. For example, researches have also demonstrated that by using tools like video action games, people can increase cognitive abilities in particular to switch efficiently between tasks. It is a very important skill for students and workers, but also for managers. Those who play this kind of action games, demonstrate on average, switch cost advantages into manual and vocal responses, also wherein the switch required a goal shift or the ability to map and re-map decisions. Advantages are the same in case of predictable or unpredictable switches. Furthermore, switch-cost advantage was not different between tasks that was more perceptual in nature (color/shape) and others that are more cognitive in nature (odd/even, high/low, which requires access to, and to some extent, manipulation of, internal representations). Finally, we studies can note that there is a causal relationship between action game playing and the reduction in switch cost.

**The Use Of Simulations And Serious Games**

On my experience, a very useful tool in teaching complex matters (in educational and training) is the simulation that is something more than a simple (serious) game. It is the main instrument to reach knowledge by using an interactive tool. What are we talking about?

Like any role playing tool, a simulator on a multimedia platform is useful when you want to make people develop problem-solving strategies in a complex system. Here the key words are “complex systems”. In fact, the problem with complex systems is that they are counter-intuitive.

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7 Its can be very useful also inside corporations. For example it may be possible to have staff behaviors translate into prosocial interactions with customers and stakeholders.

8 It is the result of a very interesting research, where researcher examined the role of experience, religion, and political affiliation in learning to resolve a conflict through a video game called PeaceMaker, which simulates the Israeli-Palestinian conflict by modeling the factors contributing to it. Students played several rounds of PeaceMaker and responded to questions about their religious and political beliefs. According to the authors “Results revealed an improvement in students’ game scores and a reduction in the correlations between scores and religion, political affiliation, and game performance across games played. The understanding of the conflict that is provided by the game simulation combined with practice may make it possible to reduce personal bias and learn to stand in another’s shoes when engaging in conflict resolution exercises” (Gonzalez et al., 2012).

9 See Andrews and Murphy; 2006, Boot et al., 2008; Karle, Karle, Watter, Shedden, 2010; Colzato et al., 2010; Green et al., 2012.
Usually when you connect many variables, you link them referring to their dominant relations only. Going from one variable to the next, you continue to determinate a causal-effect correlation, based on the more relevant relations only by using linear thinking. Thus, by defining your strategy in this way, you ignore the weak links. However, these exist, and there are many in complex systems where there are many variables. The sum of many weak connections, which point towards the same direction, leads to great results in terms of effects. Ignoring them means missing your targets completely.

A simulator can correctly connect all the variables, considering all the strong and weak relations. Serious games allow for the consideration of secondary interactions, in particular if you are facing human or social strategic behaviors. One can start to think in a lateral way and not only in a linear one. In other words, you learn to consider the system both as the addition of its parts and as a whole.

Usually simulators that are also used in business courses are useful in two cases. Firstly, when you want to increase someone’s performance inside complex social systems and secondly when your aim is to increase the speed of his own response in case of unexpected crises. The simulator we are talking about is the first kind. When you are facing social systems, with different players, you can be sure that you are facing a set of strategic behaviors, which are complex and hard to foresee.

The second type of simulator is used to manage risk and anticipate the elaboration of strategies in case of crises or disasters. This as a type of simulation is used, in particular, for the managerial training.

**The Case Of The Course In Economics At Guglielmo Marconi University: Designing A New Type Of Course. New Contents And Simulations.**

Currently, we are living in a period full of changes and transitions especially within the economic and financial context. Consequently, we need new points of view and, perhaps, new models to make people completely understand (or try to understand) what is going on. That is why how we have been redesigning the courses in Economics and Monetary Economics held at Guglielmo Marconi University by taking action in two areas:

- extending contents of the course (by changing the point of view often used)
- introducing new interactive teaching/learning tools, allowing students to deal with complex changing systems, such as simulations and serious games

In fact, new frameworks need new paradigms. In addition to the traditional paradigms, new visions are given to the student by taking systemic approaches, the role of trust, strategic behaviors of financial operators in the arena and causes of credit rationing phenomena into account.

Just as important is the change in the way of teaching and learning as well as improving students’ participation in an e-learning class. Therefore, we decided to introduce new interactive teaching/learning tools as simulations and serious games alongside video-lessons, virtual classes and
other learning tools already used.
We designed and implemented several simulations (in economics, logistics, marketing). In this paper, in particular, we will talk about two of them.
The first one is a “Macroeconomics” simulation, strictly linked to parts of the course in economy policy. In this simulation, students find the economic context as it is presented in the lessons. But here they have to learn how to use variables and understand links between them in detail as well as having a very amusing and formative experience.
The second serious game refers to the “Management of corporate financial system”, in which the same world is viewed from a different point of view that is the exact opposite of the one presented in the lessons. In the simulation, the student is asked to face the financial market as the CEO of an indebted company. During the lessons, the financial system is analyzed by looking at banks and the decisions of the monetary authorities. By using a simulation, it is possible to make the student think in a strategic way and face a complex variable system where operators act in a non-linear way.
Our goal was to redesign a course allowing students to orientate themselves in the business and financial market context. As mentioned, we would like to get a new vision so that students can understand what is going on in the business and financial markets, and therefore have a clear vision of the current state of affairs (as it could be possible).
In order to design a course, different steps are generally used, such as:

- Definition of outcomes: first of all, we had to find the goals of our project, in terms of skills, competency and capabilities for our class
- Outline of course contents
- Identification of Learning objects and other useful resources
- Assessment system design

It is important to find those activities that can lead students towards their goals, helping them to acquire and retain skills and capabilities as long as possible, in order for it to stick in their mind. Some skills could be developed through listening and watching video-lessons or reading texts. Others may require some kind of experiment or practice. A combination of activities were considered when designing the contents.
Therefore, the process started by understanding who the class students would be together with their starting skills and expectations. In this way, we were able to focus on concrete learning outcomes and the learning/teaching tools to use.
We were dealing with students who were workers (of different ages), coming from different classes, with basic skills in mathematics, very practical and with the abilities of using the PC and mobiles. The average level of interest in the subject is high, largely thanks to the media attention which has made it very significant. They continuously hear the news on TV about the financial crisis, and read in the newspapers and on the internet that, for example, Central Banks are giving liquidity to the financial market while banks are hesitant to provide loans to families and enterprises. Thus, credit is not growing proportionally and is limiting the capacity of the economy to recover from the crisis. Traditional classes, which teach traditional paradigms, are not able to clarify what is going on and does not give them immediate answers.
On the other hand, it was important to use basic mathematical formulae only, for the specific starting skills of the students when introducing new paradigms. Thus, instead of introducing complex mathematical theories, it would be useful to allow students to solve problems and understand complex systems.

Our idea involved a new course which would develop both technical and problem solving skills, allowing for a creation of a sort of laboratory where students could deal with new paradigms and new ideas.

In order to do that, we looked at transforming the traditional courses of economics and monetary economics in a laboratory of ideas. Innovations have been driven forward by new ideas, visions and paradigms. Innovation means changes. How can we teach something that is changing continuously? There could be two possible ways:

- Giving different prospective and paradigms, asking students to find their way to define the state of things
- Create a changing laboratory where students can develop a new systemic and holistic way of thinking

The underlying vision of our project is to develop a knowledge creating class. Is it possible to transform our courses in Economics and Monetary Economics into real knowledge creating laboratories? Furthermore, how can we do this using distance learning? That was the challenge.

To sum up, we redesigned contents, introduced new theoretical paradigms next to the traditional ones (trying to explain them in a simple way), developed students’ problem solving skills and gave them a systemic vision.

We did this by using all the capabilities and potential of our Virtual Campus (video-lessons, special learning pathways, assistance of Tutors, virtual classrooms and so on), and introduced simulations and serious games. This allowed students to understand by using concepts and variable linkages that they studied in books, classrooms, computers or mobile devices.

In regards to the contents of the lessons, both Economics and Monetary Economics classes presented new modules where new paradigms were introduced alongside those used in teaching. By doing this, students found different real-time scenarios where some paradigms seemed to work and others seemed to fail.

In particular, for instance, in the Economics course, traditional microeconomic and macroeconomic issues as well as the systemic view of the economy were introduced (in Sraffa and Pasinetti’s style). In addition, Akerlof and Shiller’s vision of *animal spirits* in the economy was included which tried to make students understand the importance of social systems during a country’s economic development and depression. Furthermore, in one module of the lecture, corruption, nepotism and *clientelism* (market of favors) were shown which can make competitiveness decline.
in a productive system where different social roles could be more relevant, referring in particular to Italian case (Ackerlof, Shiller, 2009; Petrocelli, 2008).

In Monetary Economics, as well as the well-known theories and concepts about the role of money, we introduced paradigms based on trust, credit crunch and strategic behavior of banks and financial operators. We presented Stiglitz and Greenwald’s new paradigm, trying to demonstrate when monetary policy is unable to achieve results. In this lecture, the role of social systems and how social behavior make speculative bubbles occur is also presented, even if they are not rational behaviors (Stiglitz, Greenwald, 2003; Petrocelli, 2011).

**THE SIMULATION INSIDE THE ECONOMICS CLASSES**

In this course, we introduced a macroeconomic simulation. It is a real role-play where students are asked to be the Prime Minister of a country. They have to make economic choices to ensure the balance among family interests, companies, employers as well as respecting the expectation of the international financial system in terms of debt and deficit sustainability.

The student can choose between a set of prepared scenarios (with different levels) and a casual one, which is the result of a random system generation. In his four-year mandate, the student/Prime Minister can make decisions in terms of public expenditure, general and labor taxation, social transfers and monetary politics. The student has the “Cabinet” at his disposal where each minister can give him suggestions, information, data and some theoretical contents that will be useful to understand how variables work together.

At the end of the five-year term, the student is evaluated on the general level of effectiveness of his actions and on the results achieved in terms of satisfaction of the different stakeholders. He also can see the results of his year-by-year trend.
In this way, students can test directly if they have rightly considered all the relevant variables, obtaining the expected outcomes. If they have understood how relations work, they can get a high score. It means to ensure the households’ satisfaction (high GDP level, that means high outcomes, saves and consumption), gain the firms’ approval (maintaining a good rate of interest level and low taxation), achieve workforce’s confidence (ensure high wages and employment), without creating concern in the international financial system (taking under control public expenditure, debt and deficit levels).

In the serious game proposed in financial and monetary economics, the student takes on the role of a CEO of a heavily indebted company with the objective of salvaging it, using the various financial tools available and considering the different opportunities and strategies in the financial markets all around the world.

In the lessons, the financial market is presented looking at the bank’s behaviors and the effects of the different choices of monetary policymakers. In this simulation, the scenario is the same but the point of view changes completely. The student has to think about how to face the financial system from the outside.

The player/learner finds himself in front of a scenario, personalized because of the difficulty level and individual aims, where different players and various parameters coexist and interact. In particular, there are:

- International financial systems, with its roles, difficulties in getting credit, costs
- Shareholders and their expectations in terms of incomes and profits; they must be taken into account if you don’t want to lose the control of the company and if you choose to
recapitalize
- New investment needs
- Public sector and other stakeholders (trade unions, workers, suppliers, etc.) interested in occupation

In the balance sheet of the company, there are also toxic assets that make yearly losses. The player must make decisions on how to find a solution, get credit, make investments, ask for help from countries and in return maintain employment levels. He has to take the financial sustainability of his decisions into consideration also. In fact, if the leverage ratio (debts/owned capital) becomes too high, the company will go bankrupt immediately.

In supporting the activity, the player/learner has a team made up of a financial manager, a marketing director, a product manager and professionals in accounting and public relations. A decisive multi-skilled team, capable of responding to many questions and issues. In this way, the player can access some useful basic theoretical contents to solve the game.

At the end of the five-year term, the player/learner is evaluated on the general level of effectiveness of his action and on the results achieved.

He can also get constant references and reinforcements, which allow for the verification, in real time, of the link between decisions taken and practical consequences.

In fact, at the end of any period, he can get pay-offs which highlight strengths and weaknesses of the implemented strategy.

The simulation can be played on PC’s, smartphones and tablets. It is easy to understand and helps develop problem solving skills also. It could be used (like the other simulation we designed) in managerial learning.

Simulations of Guglielmo Marconi University are the result of different minds and different techniques. Engineers, software developers, instructional and graphic designers, teachers and subject experts have to put their minds together and try to find out a way to make students understand concepts, variables and links among them, while enjoying themselves. In other words they have to find new but realizable ways of looking at the world outside, using different models and experimenting with them.
In conclusion, it is possible to outline the most important prospective of this challenge and summarize the first feedbacks. We will also add some other steps that could be possible to undertake.

Course redesigning is still in progress, but we can already try to sum up some evidence. Exam ratings are higher than before. Therefore, after the exams, we asked students about their scores in the game. At the present, there are not structured data yet, but, as a general impression, we can say that generally who have played several times with the simulation get increasing scores, and that the more they use the simulation, the more they can understand the theoretical part of the program. Even if it is not part of the final test, those who have used the simulation found easier to pass their exam. Students also confirmed that they enjoyed the courses, and they looked forward to playing the simulation again. They have continuously asked us to go ahead and design new simulations and new courses like these.

Furthermore, students usually propose some complex aspects of financial markets, or try to analyze very particular aspects they faced while watching television or reading newspapers or traveling abroad for their topics in their final thesis. They try to find out new ideas and solutions for new problems. Previously, students preferred to write the thesis on theoretical aspects or on popular models, trying, at least, to use them to represent some situations which happened in the distant past. What we are teaching them together with the world we live in, makes them more involved and allows them to understand better.

After the complete definition of the two courses and the final test of the simulations, it will be possible to conduct a global more structured interview among student. We would ask them if they have played the simulation, for how long, and if they have played before or after attending the video lessons or the other learning tools available on the eLearning platform. We can also gather their scores. It could be a new step of our research, aimed to find a correlation between playing simulation and learning by attending the course. We can also compare these results with the opinions and the marks gathered just after the exams.

In my opinion, this course has hit a new milestone. I am very satisfied of the daily results that we get as a group.

But the journey is not finished yet. There are many projects in progress. For example, we are working on new types of simulations based on a multiplayer platform where students can experiment the importance of cooperation in reaching results also. Gamification is becoming a first order tool in learning and teaching, but in our philosophy, games, which are “serious” for us, have to be developed within rigorous theoretical principles, respecting links and relations of variables as they appear in reality or in the models used in lessons. This is an occasion to learn by enjoying and not only entertainment.

Another good idea could be to try and create outreach programs which involve other key players (firms, institutions, media, think tanks), which can create knowledge and an innovation field, and give a common area to share knowledge, innovation, paradigms and so on.

Perhaps, this is the next chapter in our story.
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