Video Game Literacy Exploring new paradigms and new educational activities

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Literacy is a complex concept of relevance for both traditional and most recent educational theories. Today, concepts of media literacy are being discussed widely. In this article a simple theoretical model and an action-research project are presented. The research project focuses on a training course aiming at the development and strengthening of critical thinking and communicative skills of young people by way of making use of video games. Practical aspects of how to produce a video game with teens and conceptual aspects towards a "video game literacy" are discussed.

The English word *literacy* means the ability to read and write, and corresponds to the Italian word *alfabetizzazione*, the French *alphabétisation*, the Spanish *alfabetización*, the German *Alphabetisierung*, and so on. Literacy, above all universal or mass literacy, had a very eventful and variegated history, with Comenius's theoretical elaborations

and experiences, Condorcet's and the Enlightenment thinkers', the suggestions of the 19th and 20 [th] century utopian socialists, by Grundtvig's in Denmark, the Faure Report, Freire in Brazil and others more.

In very short terms, it is possible to point out that the recent reflections about literacy have fostered an expansion of the concept itself, that took into account: a) how human communication is an organic and diversified phenomenon at the same time, because on the one hand it respects constant and transferable laws and, on the other hand, it takes place through a multiplicity of forms and instruments; b) how it is possible to blend the rich literary tradition and Western culture into the symbolic and emotional nature of the new media forms, even in order to overcome the separation between school and life that today leads lots of students to the scholastic failure (Buckingham 1993; Hobbs 1997; Tyner 1998; Watts Pailliotet-Mosenthal 2000; Felini 2008).

According to such a widely shared position, the aim of this contribution is to present an experience of "video game education", carried out at the college level with undergraduate students, and to reflect about: 1) the possibility to introduce VGs in school curricula; 2) the significance and usefulness of a concept such as "video game literacy".

1. Video games and education

We don't need to stress here the relevance of video games in children's and youth's life at the present time; we have many statistic data about this (e.g. Mediappro 2006; ISFE 2010). The most relevant point – I think – is

that education (and, most of all, media education) cannot ignore this phenomenon.

Just like all other media, the link between education and gaming is not unique. There are different ways in which games enter the educational field, both from the practitioners and the scholars point of view: in media pedagogy, we could think of "educational video games" or "serious games" (Gee 2003; Cangià 2003; Dipietro, Ferdig, Boyer & Black 2007; Amory 2007), of what role the VGs hold in children's and adolescents' lives and which impact they produce in the peer relation practices (Johnson 2005; Mediappro 2006), of the protection of children's rights, for instance because of the violent or vulgar content that VGs sometimes have (Gentile, Humphrey & Walsh 2005). A fourth and final way is the media education approach about VGs. It considers them as an object of study, in which children and teenagers should improve their communication and critical thinking skills.

The application of media education principles and goals to VGs is very recent, because these electronic media are relatively young, and because of some deeper pedagogical and organizational reasons. In fact, media literacy has to deal with the cultural prejudice that VGs, considered just like toys, don't deserve to become the subject of a discipline and to be present in school curricula. Media education always faced the relationship with popular culture, and it might be argued that toys are culture (Sutton-Smith 1986). Nevertheless, educators are in trouble when they look for a rationale for this kind of teaching activities. Furthermore, media literacy activities about VGs require technological facilities, which are not necessarily expensive, but which are not generally available in schools and educational centers; last, these activities require staff with specific video game skills, a background that teachers and educators usually lack. Therefore, for these reasons, the arrival of VGs in media education is still in its early stages, and there are many more open questions – Ferdig (2007, 218-220) lists 16 issues – than settled practices.

By applying to VGs the theoretical framework I presented in a previous work (Felini 2004, 38-46), we can identify three possibilities to practice media education about VGs:

1. media education as *comprehension* of games: through iconological, semiotic, and narrative analysis of one or more games, this kind of media literacy leads to the acquisition of the language, technology, genres, values, stereotypes, and production processes of this medium. A teachers' guide by the British Film Institute, for instance, provides suggestions for this kind of educational activities, focusing on female characters in VGs and on the representation of conflict and competition (Newman & Oram 2006);

2. media education as *critical consumption* of VGs: children are lead to reflect on their own behavior as video games consumers, in order to improve their habits in spending leisure time. The typical issues presented in this discussion are the amount of time spent using VGs, related tastes and preferences, the habit of playing alone or with someone else, the kind of pleasure they supply, and so on. An example of a documented teaching activity that fully fits in this model is contained in the MED's media literacy curriculum for primary school (MED is the Italian Association for Media Literacy Education: www.medmediaeducation.it), where a part of the course for children aged 11-12 years suggests observation and self-observation activities of game sessions, discussion activities on favorite genres and the review of the most beloved games (Andreoletti & Vonghia 2006);

3. media education as video games *production:* teenagers become VG authors by creating plots, characters, and rules, drawing its graphic elements and programming the software. It is clear that to achieve the end of such a complex production activity, children have to assimilate in advance some notions of media analysis and consumption. Examples of such activities were recently documented in related literature (Robertson & Good 2005; Buckingham & Burn 2007).

2. Video Game Education: an action-research project

Within this outline, a group of Italian media educators characterized by various levels of training and experience (in schools, out-of-school educational services, universities, video game industry, adult training) pondered the conviction that it was now time to study educational

courses of media education about VGs targeted to adolescents. In early 2007, this group began to meet regularly under the aegis of MED.

The field experiment, to be carried out in some Youth Education Centers (YEC), is currently in progress. At the moment, we designed a curriculum activity about VGs, and experienced it with a group of undergraduate students in the University of Parma. In the next future, we are going to re-propose the course in some Italian YEC.

For this activity, we made use of a game-authoring software, *Inventagiochi* (www.inventagiochi.it), developed by Koala Games Ltd. with the help of our research group, who provided guidance and suggestions to the developers especially in order to make the software fully congruent with the media education activities. Inventagiochi is specifically designed to allow the creation of "action games", i.e. those games where the main character, controlled by the player, moves in a set performing actions of various kinds (killing enemies, collecting objects, gaining stamina or ammunition supplements etc.) as far as a target is gained, that is the conclusion of a specific level. These games are essentially based on rapid actions and possess simple narrative structures; their environments, however, are very rich in objects and characters, whose features the player discovers as he/she meets them.

The main characteristic of *Inventagiochi* is its user-friendly quality: the software does not require programming skills and all the procedures are the most intuitive as possible, so that a teenager can use it without any specific training. The creation of a VG with *Inventagiochi* starts with the choice of the game name and the protagonist. Thereafter, all the necessary operations are guided by an interface organized in five menus: main character, map, logical objects and game rules, enemies/helpers, and music (see figure 1).

Figure 1 - Outlook of the Inventagiochi interface

3. How could we produce a video game with teens and youngsters?

The educational activities with the teenagers or young people were designed jointly by all the members of the research group. We planned four phases.

Step 1 – Introduction and Video Game Analysis (2-3 lessons)

The first phase is to share, among youths and educators, a series of experiences related to their life as gamers. The starting point is a discussion on what kind of players they are, which titles they like most, how and with whom they usually play.

Then, it is necessary to start a game analysis activity that lets the teenagers understand what are the typical linguistic, technical, and ergonomic characteristics of this media. Therefore, we decided to show and play an action-game, chosen among the most popular titles: *Rayman 3*, available for the PlayStation 2. This analysis, carried on in a discussion group led by the educator, should focus on eight points:

1. Skills required by the game (strategy, memory, observation, speedy reflexes...);
2. The kind of entertainment the game offers (filling time, relieving, developing mental skills, challenging oneself or an opponent...) (Andreoletti 2010);
3. The characteristics of the protagonist and of the other characters;
4. The characteristics of the environment;
5. The time factor (total time of the game, time of each session...);
6. Interface that allows the gamer to play with the machine;
7. Audio (music, noise, sound effects...);
8. "Mechanics of the game" (goals to be achieved and how to reach them).

The research team created a demonstration game with *Inventagiochi*, entitled *"I want a scooter!"*. The adolescents were invited to play and analyze it following the above listed points, in order to strengthen their analysis skills and also to understand which kind of product can be created with this software.

Step 2 – "Paper & Pencil" Creation and Design (3-4 lessons)

While the teenagers get to analyze *"I want a scooter!"*, they begin to try *Inventagiochi*: the aim is to make them aware of the characteristics and possibilities of the software, so that they can address their inspiration, in the next phase of design, towards creative forms that are coherent with the ICT tool. The implementation work should be done in small groups.

Through a brainstorming, the teenagers begin to conceive the general elements of the game: title, protagonist, environment, goals. At the end of this moment, the groups briefly describe the game they had in their mind in a short paragraph; moreover, they imagine and represent all the operations that the protagonist has to do in order to win. This can be done in a schematic form (see Figure 2 for an example).
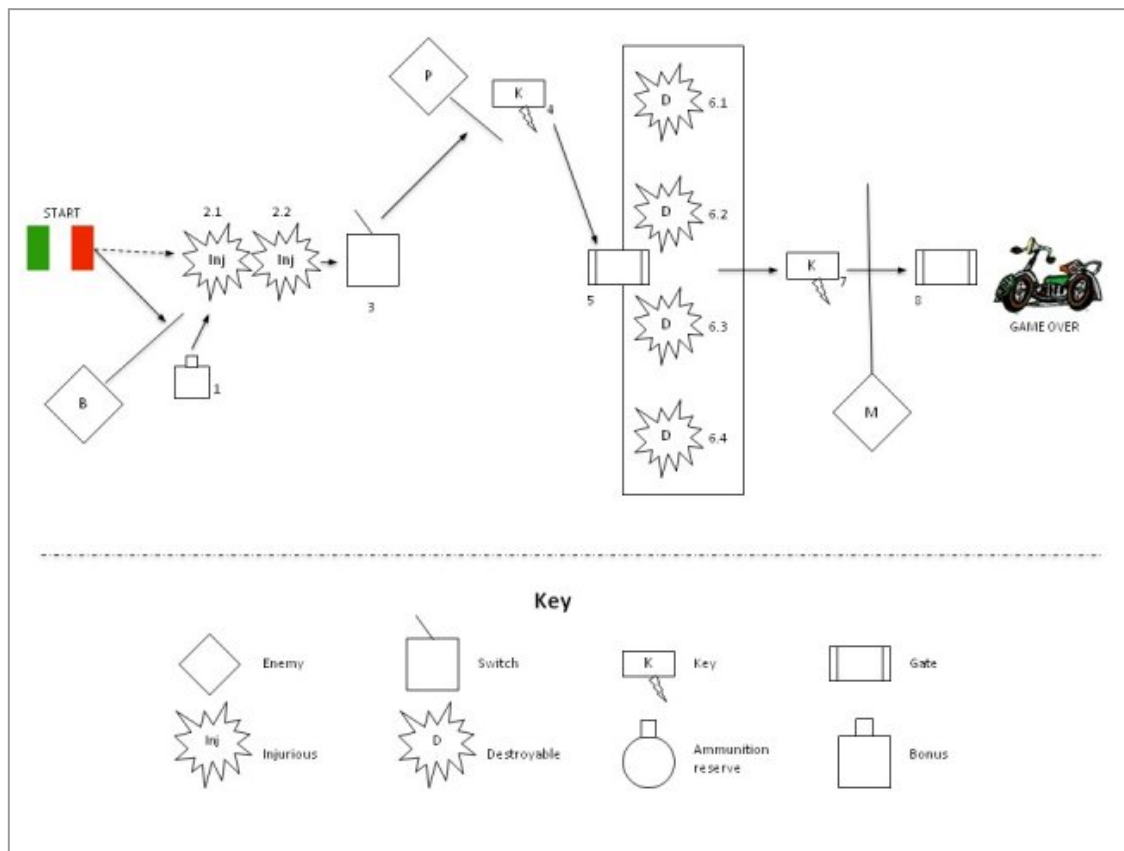

Figure 2 - Plot of "I want a scooter!": example of schematic representation

After this stage, they are going to produce:

- A list of elements (or storyboard), which contains all the necessary constituents for the game;
- A real map of the game plan, with a correct placement of all the previously identified items. Groups use large sheets, with a 32x32 grid that corresponds to the *Inventagiochi* work plan. On this poster, the different areas of the environment can be colored (e.g.: woods in the north, a pond at the center, roads, buildings...);

objects, helpers and enemies can be added using leaflets or post-its, so that they can lift or move at one's will.

At this point the teenagers can "play" the game on the paper: as the character goes on completing the simulated plot, they take notes of the collected items, of which doors have been opened, and so forth. The aim of this activity is primarily to verify that the plot works, and to check if there are points where the game can stop against the protagonist's will, or that all you need to conclude the game (switches, keys, bonuses…) is available at a certain point.

Step 3 – Video Game Production through Inventagiochi (3-4 lessons)

Following the storyboard, the two groups initially create all the necessary multimedia objects (sounds, texture, pictures…); if they use the *Inventagiochi* libraries, the complexity of this phase is considerably reduced. In addition, they must write captions containing useful or subtle suggestions to let the player understand the plot. When the items are all ready, the teenagers may really begin to use *Inventagiochi* to create their game.

Step 4 – Testing (1 lesson)

During the various stages of the VG designing and authoring, the groups let other people (student's friends were invited into the classroom) try their game, in order to have an immediate feedback on what they are doing (comprehensibility, pleasantness…). At the end of the process, when the VG is ready, the groups will look at what happens when a real public plays the game (does the game take more or less time to be completed? is the game too easy or too difficult? etc).

4. Towards a "video game literacy"

This curriculum of activities has been experienced with two groups of university students and has given us good results, according with the data we had from the teacher's diary, the testing and evaluation questionnaires and the final products of the project (two VGs, named "Beer" and "Il grosso colpo", both available at http://www.koalagames.eu/inventagiochi/educativo.html).

Particularly, the testing questionnaires (designed by the students themselves and shared between the two groups, so that Group A evaluated video game B, and vice versa) evidenced that:

- both groups appreciated the other's product (*Beer* had an average assessment of 7,29/10 points; *Il grosso colpo* of 6,25/10);
- about *Beer*: it seems very easy to complete; the plot is very intriguing (even if people needs for information about the American academic system); maybe some more enemies and combats are necessary to let the game more charming;
- about *Il grosso colpo*: the game plan is very detailed and there's a big number of characters; the game is too much difficult, most of all because of the amount of places to explore.

During the last lesson of the course, the students were required to fill in anonymously an evaluation questionnaire, focused on having feedbacks about: 1) the production process carried out in the class; 2) what they perceived to have learnt during the activity about VGs. About the first point, the student's answers gave us information as follows:

- the students stated interest, participation and liking;
- they appreciated all the material and resources prepared by the research group (tables, examples, graphs...);
- the use of *Inventagiochi* is more difficult than estimated before: it is necessary to know how it runs before designing and planning the VG, not only before developing it at the PC;

- they appreciated the paper-and-pencil step of designing the game;
- writing down the list of elements resulted as an unnecessary step;
- the students complained of many troubles with writing dialogues and captions, and inserting them into the software;
- they appreciated the testing phase very much.

About the second point:

- the students understood the reason why they were assigned specific roles in the groups, but many of them would have liked to experience those parts of the job they hadn't done;
- the students clearly understood the aims ad goals of the course;
- they stated to have better understood the production process of a VG, from the designing to the testing phase;
- they stated that they would feel comfortable if they would be requested to do the course again in the role of the teacher.

Finally, from the teacher's diary, we had evidence about some elements of our curriculum design. The followings are good points for a next implementation of the course in the Youth Education Centers:

- it is necessary to better explain the use of the software;
- the students partition in groups and sub-groups is a good choice, in order to give them different assignments (write down the dialogues, game-plan design, technical use of Inventagiochi…);
- each group needs not more than 2 PCs;
- a longer discussion is quite necessary at the end of the course, to strengthen ideas, reflections, and consciousness about what they have done (30 minutes is not enough).

To sum up, we verified:

- the effectiveness of the educational design we improved;
- the motivating power of the active and collaborative working;
- that, according to the final oral examinations, the course has given students knowledge and skills about:

1. *Media categories:* VG genres and characteristics of action games;
2. *Media technologies:* what is or isn't possible to do with the software, the roles and the steps of the production process (including audience and marketing analysis);
3. *Media languages:* characters, dialogs, plot, "mechanics" of the game, environment…;
4. *Media audiences:* the relation about target audience, message purpose, and media products; audience reactions, and how to measure them;

- about the training on a specific educational methodology, that the students understood that many are the areas of teaching the VG: not only the operational

skills about the software (as they thought at the beginning), but also designing, group-managing, and project-managing skills.

At the end of this action-research experience, we can state that media education can be applied even in the field of VGs; in some way, we are going towards a *video game literacy*, inspired by the same well-known and accomplished philosophy. As an example, we can indicate some of the principles that, in our experience, were so far confirmed:

- the possibility and usefulness of bringing popular culture into education, developing in the adults attitudes of understanding and mediation, not of censorship;
- the opportunity to develop critical thinking skills in youth, by increasing knowledge and competence about VGs;
- the benefits of a teaching approach that integrates video game analysis and production (i.e. "reading" and "writing" video games);
- the usefulness of the collaboration among media producers, educators, and researchers.

New action-research experiences will help us to better define what kind of activities are possible and effective with people of different age, and what kind of video game literacy we could reach.

In conclusion, this contribution has shown a possible application of the VGs in the media education field, even getting to a stage of production without any advanced technical equipment. In my opinion, the value of this kind of activities is the knowledge and literacy results they can give teens and youngsters, improving the "liberal education" (Smith 2002) that everybody deserves.

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