TRAINING NEW DESIGNERS FOR INTERACTION: GINA, A GAME DESIGN WORKSHOP FOR IMPROVING SENSITIVITY TOWARD INTERACTIVE DYNAMICS AND SYNAESTHETIC PERCEPTION

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ABSTRACT

In this paper we present GINA, a game design workshop at the Industrial Design Faculty of the Politecnico di Milano, performed during the last two academic years with the students of the first year of the master course (Laurea Magistrale). GINA stands for Gioco (game) – Interazione (interaction) - Narrazione (storytelling) – Animazione (animation).

In these workshops Game Design is not seen as a fixed procedure such as standard methods from the field of software developing, but as a strategy to practice designing for unusual contexts, considering narrative, aesthetic and technical issues, as well a means to introduce several aspects of interactive multimedia product design.

During the workshop we have imposed some formal constraints to the game development, in order to sustain a creative approach to Game Design and to lead students toward a conversation between the operative image creation and the design situation understanding. The constraints referred to the narrative environment (chosen from the classical roman literature and the popular wisdom), to the design of visual virtual contexts (that were inspired to specific arts movements), and to the game and interactive schemes (taken from the world of the digital interactive art). This approach describes how gameplay design could evolve beyond "classical" interactive schemas that are currently available. Finally the game design activity is discussed as learning process where specifications, information visualizations and interactive art can be used to consolidate industrial design methods and techniques.

Keywords: Interaction design, game design, design process, computer graphics, digital animation

1 GINA. AN EXPERIMENTAL WORKSHOP FOR INTERACTION DESIGN EDUCATION

Interaction Design was born as a trans-disciplinary knowledge; during the last few years great efforts have been dedicated to the definition of robust design methodologies aimed to project interactive products and systems. These methodologies are accurately described in scientific and educational literature [see references]. Nevertheless, in our opinion, still a great effort should be devoted to the development of teaching methodologies that may stimulate in young designers a deeper understanding of the finest aspects affecting the quality of the digital interaction.

The interactive application development requires a coherent system design of causes and effects and the definition of interactive dynamics and event architectures; these tasks are not always simple to accomplish for visual design students and require specific training.

In this paper we present GINA, a game design workshop at the Industrial Design Faculty of the Politecnico di Milano, performed during the last two academic years for the students of the first year of the Industrial Design master course (Laurea Magistrale) at the Politecnico di Milano. GINA stands for Gioco (Game) - Interazione (interaction) - Narrazione (storytelling) - Animazione (animation).

In the workshops, game design is not seen as a goal but as a strategy to improve students self-awareness of manage design solutions about the interactive dynamics (that in games are strongly structured), including feedbacks, rewards, emotional and logic stimulations to action.

In game and interaction design, the creative processes present an amount of interdisciplinary connections, even in the case of low complexity projects such as those produced in GINA workshops. This means that students work with the creation of visual aspects (imaginary environments, human and non human animated characters, interactive objects), and non visual aspects, such a narrative structure and action/reaction system.

In our experience, game design suggest a new approach of communication design that can be used to train the designer's ability of dynamic composition and to augment their awareness of making decisions whit respect to the human interaction logic.

2 DESIGN CONSTRAINTS AND GUIDELINE

The complexity of design and creative thinking make the specifications a fundamental part of the process. In this way the dilemma situation can be lead by clear limitations used to well focus the possibilities of the project. So, we have imposed some constraints in order to sustain the creative approach to the game design. In addition, these rule countering students' temptation of reproduce trited game schemes. These constraints mainly referred to narrative environments, visual contexts and to technical requirements. In addition, where also given significant experimental game examples and interactive schemes from the world of the digital interactive art as a reference for the design of interactive plots.

2.1 Narrative environment

The role of storytelling in digital games can be approached from a variety of perspectives, and several authors have defined it in different ways. In our laboratory experience we leave out to literature the theoretical aspects and we concentrated only on the notion of storytelling. In the workshops students were encouraged to use this GINA component (N as narration) to define a conceptual framework for game design. In the two workshops we have subsequently experimented two approaches: one based on a number of short popular proverbs, and the second inspired by a paragraph of roman literature.
In the first workshop, students treated proverbs as game rules. They investigated various interpretations of the selected proverb, singled out the key words and planned the game logic to express the proverb message. The results of this process generated interesting translations from the linear sentence to the dynamic game mechanics, sometimes underlining the limits of this approach. Students alternated animated non-interactive sequences to enforce the meaning of the projected games; as a consequence, game rhythm switches from addictive interactions to static cut-scenes, sometimes producing non exiting effects. In the second workshop a short paragraph chosen from the Ovidio's Metamorphosis was taken as reference. Specifically, we selected the allegoric episode of Echo and Narcissus. This constraint was freely interpreted by students in order to produce a game context. Ovidio was chosen since his works are suggestive, rich of visual details but the narrative structure was revealed quite complex.
Storytelling constraints have stimulated creativity in several ways: a narrative framework offers the opportunity of defining a metaphor driving the game. Furthermore, a narrative scheme supports the creation of main theme where the player imagination can be strongly involved and interaction made more explicit. These two aspects are crucial in the design of interactive worlds.

2.2 Visual contexts

We asked the students to be coherent with the graphical style, chosen in a list including some of the most significant artistic movements of the 20th Century, from Art Nouveau to Cyberpunk, including Neo-Plasticism, Letterism, Futurism and more. The visual styles have been proposed to renew the videogame expressive language, that risked falling in the stereotype and they have well defined visual features and cultural background offering wide sources of inspiration.
In the first phase of both workshops, students made a graphic collage delivery, which we also refer to as conceptual landscape. A delivery aimed to identify the main elements characterizing the chosen artistic movement: authors, artworks, visual elements, audio atmospheres and other suggestions. As an instance, a game project was based on the search for the ingredients required in a futurist gastronomic recipe conceived by Paul Alcide Saladin (Figure 1a).
The sound aspects could be chosen coherently with the artistic selected style; in this case students were also free to propose alternative approaches, provided that the choices were adequately motivated. An interesting case proposed the Art Nouveau visual style accompanied by hardcore and almost cacophonic music of John Zorn and Diamanda Galas; this assembling has generated a functional dissonance between visual elements and audio effects.
This stylistic constraint conveyed the demand to plan the convergence of all the game aspects including: environment, characters and game mechanics driven by cues suggested by the selected style. For instance, the main character in a letterist style game is a little man composed by alphabetical types (Figure 1b).
In some case, the afterthought of a game mechanics produced interesting results. As an example, the letterist style, whose poetic is tied up to the text in every graphic forms, that has inspired a puzzle tests

game. In another work, the sinuous volutes of a Liberty ribbon drives the player through various enigmas and, at the end of the game, he realizes that was moving inside the Dorian Gray's portrait (Figure 1c). The regular structures and the colours of Mondrian's works gave the hint for the creation of a labyrinth game with movements bound to the orthogonality (Figure 1d).

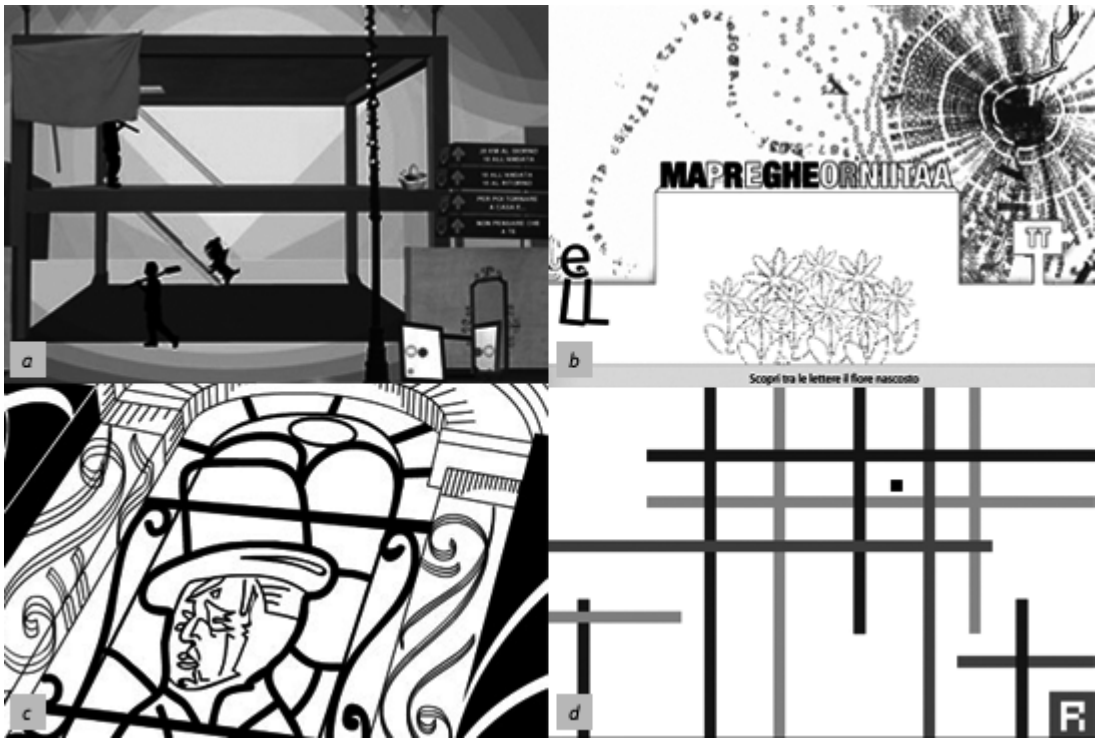

Figure 1 Screencaptures from GINAs: (a) Man-woman-midnight – Futurism (b) SAVe – Letterism (c) One thing leads to another – Art Nouveau (d) Mazel-tov – De Stijl

2.3 Technical constraints

GINA games where submitted to technical requirements. We needed portable and easy-to-store works, to be played in different computer environments. Each workshop lasted four months, with only one dedicated day at a week: a very limited time to allow a deep understanding of both theoretical and practical aspects. So we tried to keep under control the technical complexity and restricted ourselves to computer playability, neglecting other media, such as portable devices or dedicated play-stations.
We limited the interaction methods only to mouse and keyboard, in order to guarantee the access to the game with standard pc interface equipment.
The development tool was Adobe Flash, that was chosen as relatively easy to learn and because it is widely employed by visual design students. Besides, Flash has a good and simple integrated programming language, ActionScript, easy to use also for non-programmer students. We had to train them with basics of computer programming, and provide a set of helpful ActionScripts codes, to be assembled, modified and used as a starting point for more complex and on purpose codes.

3 METHODS AND TECHNIQUES FOR GAME DESIGN

In GINA, we explored an experimental approach to game design, including not only strategic and tactical point of view, but also formal design methods, theoretically motivated design, and artistic perspectives on design. We focused on the role that methods and techniques play in the design process. As a consequence our students merged play, technology, interaction and aesthetic culture by creating game projects.
The learning process moved through steps along a flexible line, from the concept design to the physical and detailed project.
Figure 2 shows a schematic representation of the learning process. Looking at this model, the set-up was conceived with the intention of generating a solid design method in action.
By designing game prototypes, students learnt interactive artefact conventions including: hypertext diagrams, the importance of feedbacks, logic of the player involvement, game mechanics. By iterative re-

design and progressive improvements of the game representation, students developed formal design capabilities.

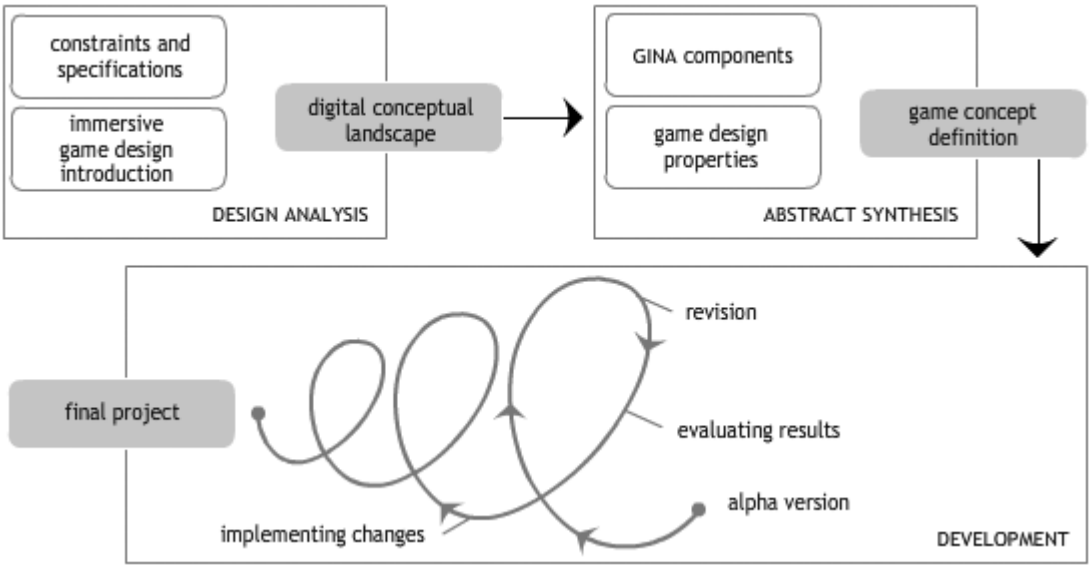

Figure 2 Gina learning process: the first phase include the graphic collage delivery for the visual style understanding; in the second phase, students started framing game definition through a poster; the last phase is characterized by the iterative process of game production, here seen as a coil.

Students were introduced to feel and observe the experience of play in a designer perspective. They were invited to play with some selected experimental games in order to recognize the main emergent rules and analyze their own behaviours as players. Students were asked to work in groups of three. Each group presented its interpretation of the selected visual style and narrative line as "digital conceptual landscape". Students presented images, pictures, photos, game schemes in a structured digital presentation.

In the followings, students were required to elaborate a design synthesis. They were free to choose the suitable design instruments for exploring, manipulating and describing the game concept such as poster, collage, storyboard or narrative sketches. Using drawing methods to communicate the concept provided students to visualize their mental image of the project as pre-production step.

In the last workshop phase, students were involved in the GINA prototype development. This means to evaluate the quality of the idea and to be able to coordinate every aspects of the design project: interface, player instructions, programming, flow charts of game levels, visual and audio feedback, interaction progression and global coherence of player experience. The final works were presented by students as project communication skills. Therefore we have evaluated the final GINA in regard to the execution design skills and overall to the capability of managing the design evolution: how they were able to consolidate the design idea, how they have used visualization tools and how they externalized the game and interaction concept.

4 RESULT DISCUSSION AND COCLUSIONS

Interaction Design is a very wide field of knowledge, ranging from the design of interactive ICT based products and environments, to multimedia documents. As a consequence, different approaches can be adopted to introduce students to the basic skills related to interaction and to stimulate learning motivation about this subject. Following our experience, Game Design based teaching experiences provide a challenging approach to the design of interactive systems and products, also allowing quite an ample introduction to all the main aspects of interface design and interaction dynamics.

Following GINA approach, focused on the development of interactive storytelling projects employing game paradigms, we could effectively introduce interaction topics in courses addressed to students with visual design background. Content and format constraints, artistic suggestions and requirements about visual styles were essential to stimulate innovative proposal and to avoid the reproduction of consolidated game schemes and contexts; from the didactical point of view, the redesign of common place digital games would have consistently reduced both motivation in young visual designers and the quality of the

learning experience. The use of Adobe Flash as development tool allowed the investigation of the complex relationship between interactive dynamics and synaesthetic effects. The effectiveness of GINA approach is mainly demonstrated by the quality of the projects produced by most students but unfortunately that cannot be shown in a written paper. It is important to point out that most visual design students at the Politecnico own limited programming capabilities; as the duration of both workshops was relatively short (thirteen lessons), in our opinion the effectiveness of our approach with respect to the increase of learning motivation in students is demonstrated by the quality of the interactivity experience of most GINA projects.

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