

# HOW TO PROFESSIONALISE A SERIOUS GAME? APPLICATION TO “LINO HAS AN IDEA!”

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## ABSTRACT

Serious games are soaring. Their objectives are to develop skills and teach concepts in a ludic way. They are more and more popular with companies, families, and schools. Few of them focus on innovation and creativity for children. To address this lack, a project was carried last year to design a new serious game called “Lino has an idea!”. It was tested with 2 groups of pupils (29 in third grade and 20 in fifth grade) and feedback shows great results. However, this game is still a prototype and needs to be enhanced. The purpose of this article is to present the method we use to get a professional version of the game that could be sold in a game shop. The different steps of the game process are modified to make it clearer for children and teachers according to feedbacks. A new corporate identity and style guide are issued to foster the immersion of the children to enhance their investment.

*Keywords: Innovation, creativity, serious game, children, immersive universe*

## 1 INTRODUCTION

Creativity and innovation are key factors that companies want to develop for their employees. However, as educational games are emerging, very few are focusing on children to give them an experience on creativity and innovation skills [1]. Furthermore, among these few games created [2, 3], some struggle to pass the prototype stage. The main purpose of this paper is to present a method to professionalise serious games and apply it over an example [2, 3]. Section 2 will remind the status of educational games. Section 3 will describe the methodology we develop to professionalise serious games. The application of the methodology on the case study “Lino has an idea!” will be found in Section 4. Finally, the concluding Sections 5 and 6 will discuss the perspective and recommendation.

## 2 STATE OF THE ART

Educational games aim to enhance the players with educational purposes. We can find them with multiple forms and concepts (card games, board games, video games...) but they contribute to acquire skills and knowledges [4]. Moreover, every category of people can be targeted from children to elders [4]. These games are soaring because this activity brings a panel of emotions, interactions, and thoughts during learning sessions. While serious games are booming in companies and high level of education, there are used very little at an early stage in primary school or in middle school (Figure 1) while it would be the very best moment because child are very receptive to these activities because of their brain development.

		Purpose											
		Spread a message				Educate				Train			
Public	Children		1			1	1						
	Student		1			10	7		1	5	5		
	Professional				1	3	4		1	1	1		
		Conceive	Design	Implement	Operate	Conceive	Design	Implement	Operate	Conceive	Design	Implement	Operate

  

Skill	
0	None - Lack of games
1-4	Average - It is possible to find some games
>4	Good - Satisfactory quantity of games

Figure 1. Taxonomy of different serious games in the Design Society database from Cortes Sobrino et al (2017) [1]

To make the learning process the most effective, an interesting way is to make the game the more dynamic as possible [4-6]. As the children don't fit traditional teaching methods, the games must be adapted and imagined with new principles and methods.

With that statement, research has been made and prototypes of games directed to children have been designed and tested [2]. So, how to professionalise a serious game?

### 3 PROPOSITION OF A METHODOLOGY TO PROFESSIONALISE SERIOUS GAMES

Designing a game can be very difficult because of the whole process and the commitment to make it as clear as possible for players. This is even harder for serious game as amusement must match the learning process. That is the reason it can be hard to find great serious games. However, people have tried to make their own and prototypes have been made.



Figure 2. Five steps method to professionalise serious games

Nevertheless, prototypes of games are not complete games. They must achieve a higher level of design to be considered as games which could be sold in any game shop. From that point of view, we decided to think about a method to enhance concepts or prototypes of games to another level. Based on the work of Witton [7], Nicholson [5] and Djaouti [8], we developed a five steps methodology to follow to reach the highest level possible.

#### 3.1 Divergent phase: find a concept

As obvious it can be, the very first step to design the game is to have a concept or an idea of the game. As you want your game to be educative, you have to enlighten the problem or the skills you want to focus on. You must think about the public you want to address your game, the learning content you want to share with them and how you want it to be fun. It will be the foundation of all your work beside this point. To be as creative as possible, you can use creativity tools to find or fortify your concept (Association of ideas, Brainstorming, Analogies, Purge, etc).

#### 3.2 Convergent phase: define the rules, narrative and aesthetics

Once you managed to find your concept of the game, you have now to make it real. For that, you have to take your precedent assumption and to imagine how you want it to exist. It can be a card game with

descriptions, a board game with an adventure you follow, an interactive video games or a combination of several mediums. There is no limit to your imagination about your game.

Now you have the idea of the support of your game, you have to make the rules of your game to describe a game. Your game must be structured to ensure the players will focus their attention on the aspect you want them to learn. To help you, you can imagine new items that will bring help or will be used to follow the process of your game.

Once both the supports and the rules are defined, the next step is a new phase of creation: narrative and aesthetics. To make a game fun, you have to make sure the players are fully receptive to the gameplay so you can design a story or a guideline to help players to immerge themselves in the process and be more receptive to learning. You can add drawing, photos or any visual supports to help you tell your story during the game.

### **3.3 Make it real: prototype**

This could be described as one of the most difficult steps of the creation process. To make a first version of your game, you should have strong bases. The convergent phase has to be finished in order to know the guidelines of the game. Now you can imagine what you want your game to look like for real.

What is really important is to take time to do this step carefully, so next steps would be easier to get in. All the point there is to make choices. You are going to choose items that will create your game identity. Once this is done, it will be really difficult to change this. You could for example focus on the public the game target to be the most effective possible.

The aim there is also to be able to imagine what the final version of the game would be. So, the idea is to create cards, board, pawn, etc. without thinking too much about convenient aspect, it would be the goal of the upgrade step. So, try all your ideas with the lowest cost possible and with simple processes to get fast and cheap preview of the final game.

This step is really powerful because you will be able to have something concrete in hands, but you would also be able to test your game in conditions. Despite the game is not perfect at this stage, it is possible to show it to people that would give you advices and feedback on what they like or not in the way you apply your learning process.

### **3.4 Test and upgrade**

This step is based on a critical aspect of the development of a game: details. The goal there is to analyse every part of the existing game and to find how to improve it. Most of the time, it will be possible thanks to details. From that point you already have all basis needed, so just little adjustments are required. When we say “little adjustments”, it is in comparison to all game aspects because, in fact, these could be really important and could be the source of a lot of work.

Feedbacks are one of the most effective tools to get successful at this stage. It gives you a fresh view of the work you have done. It could also help you find what should be improved as a priority, thanks to the number of criticisms per object or thanks to a system of marks.

Then, another genuine tool is consistency. To make something strong, powerful and easy to grasp, it is important to give it consistency by creating a real identity. It could be a graphic identity, a concept identity, or an innovative identity, but the best stays all of these.

### **3.5 Make it available**

Finally, when your game is completed, you can now make it available to reach its public. It could be in local game shops to a worldwide diffusion, depending on your target audience and your means. Look for your commercialization strategy and make everything to expand your game and enhance people’s creativity and innovation.

## **4 CASE STUDY: “LINO HAS AN IDEA!”**

To demonstrate our method, we applied it to a serious game made in our school last year: “Lino has an idea!” [2]. “Lino has an idea!” is a game for children to enhance their creativity and innovation with the story of Lino, a little fox who dreams about ideas and wants to build them with his friends.

### **4.1 Prototype**

The game is destined to be played by children in the age of 6 to 11 during classroom time. The teacher plays the Gamemaster role to help them to conduct the game. The children constitute groups (up to 7





Figure 5. New game step-up

Finally, we worked on the visual and graphic identity (Figure 6). This was the point on which there was the most work. It was good news because we could create almost everything we wanted. The first thing that we changed was the graphic chart. In fact, to make a game more professional we needed to respect some rules such as the use of royalty-free visuals. That is why we changed the fonts used in all the game and we changed the drawing of animals used previously. For these animals we drew some animals previously chosen in the step of improvement of rules. Thanks to this work we were able to create brand new visuals royalty-free and that fitted perfectly with the idea we had for this game.



Figure 6. New animals visual (a), front box visual (b) and back box photo (c)

We just had then to create as many visuals as we needed with keeping in mind that the graphic chart we established must be followed. Moreover, we printed in 3D an all-new pawn with the new look for Linno. We also created a real box to host every piece of the game and all the cards that we had. It was designed with the aim to make the game look the more professional possible. That is why we used a laser cut foam inside that fit perfectly with each part. We also created a complete cover for this box that brings the customer all the information he needs if he wants to buy the game. In addition, cards have been made in big scale to help children to read easily and have been plasticized to be more durable. All our serious game was then complete and as professional as we wanted it to be, with a strong identity and a coherent whole.

## 5 DISCUSSION AND PERSPECTIVES

Thanks to our method (Figure 2), creators can now try to apply it to their own ideas and prototypes. If the first parts are classical to an innovation process, they still need to happen to reach the maximum capability of creativeness. Furthermore, we add a complete upgrading part based on our experience with “Linno” to point out the lack of coherence and identity, to focus on details and be aware of the use of copyrighted content. The addition of new point of views could contribute to enhance the method. For “Linno”, we went as far as we could with handcrafted methods and the use of few machines through methodical processes. The game has yet to be tested to gather new feedbacks and upgrade it until completion. Then, another step of industrialization with the normalization of the process could help create more copies with clean aesthetics in shorter time. It would also be a key step to make the game available to the market and allows schools to use it for their classes.

## 6 CONCLUSIONS

In this article, we present a method to answer the lack of development of serious games to enhance creativity and innovation, especially for children. We organized it with five points, with usual creativity tools and critical aspects to make clean and complete serious games.

We applied it on a prototype game previously made which had feedback thanks to tests in primary school. We managed to improve the game focusing on three key points that lack development or which was reported by the classes. With our upgrade, it showed great improvements to the quality and the professionalism perceived by a future player. Yet, the game would need more time to reach completion and be available to its public with an official release.

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