Speculative Design for Development of Serious Games: A Case Study in the Context of Anorexia Nervosa

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Abstract. This article presents preliminary findings on the application of both Speculative Design and Game Design towards the conception of two prototypes of serious games with focus on anorexia. The first prototype focuses on psychoeducation of school-age youth, and the second aims to support research and sharing of knowledge about the disease, able to be used in focus groups and interviews. Anorexia is a complex and often fatal disease that has no cure, and by conceiving and playing these first prototypes we were able get a glimpse of the its context, making us more ready for this research's next stages.

Keywords: Speculative Design · Serious games · Psychoeducation
Anorexia

1 Introduction

Anorexia affects teenagers and young people around the world, something that has increasingly called the attention of health authorities. People that suffer from this disease behave with excessive concern towards their own weight and body shape [1–3]. This disease is more common in adolescents and young women, being nine times more common in females than males [4, 5], despite the increasing prevalence in males and at progressively younger ages. The beginning of treatment is hard because patients do not assume their own pathology [6, 7].

In Psychology, educational interventions on the knowledge of pathologies are called psychoeducation,[1] which often does not materialize into artefacts, remaining at a level of immaterial clinical strategies or verbalized during sessions with therapists. With that in mind, this short paper aims at exploring, in an initial stage, an alliance between Speculative Design and Game Design for the conception of these serious games as psychoeducational and speculative ludic tools to elevate awareness and to

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[1] Structured, didactic and systematic intervention in Psychology: Educational, Social and Health. In this type of intervention characteristics about the functioning of diseases people suffer from are explained to them. The point is that if patients have a deeper knowledge about their own illness, they may feel safer in monitoring themselves with increased awareness and conscious, therefore easing their own reflection on their harmful behaviours [9, 10].

take predictive and preventive action regarding the recognition of symptoms of anorexia nervosa. Speculative Design uses objects and prototyping as ways and means to observe and to question the interaction between people and things. Through speculative thinking we can find new answers about behaviours, life models, interactions, needs and knowledge [11].

Since anorexia nervosa is a complex disease, interaction with patients and their families must be thoroughly thought out in order to not adversely affect treatment. Therefore, these preliminary findings are about building knowledge about the disease, behaviours, procedures, and eventual constraints that will shape the social network in which a person that suffers from this disease in enveloped in.

In the next two sections, we present two prototypes that emerged with very different contexts in mind, taking into consideration the fact that their conception and play/testing called our attention to a series of situations we, up until then, had not considered.

2   Prototype 1: ANgame Competitive

This prototype is focused on informing school-aged youth about anorexia. This tool aims to introduce primal concepts about the disease through competitive activities. We believe this mechanism may aid in learning about the disease and in the identification of dangerous recurrent behaviours and initial symptoms. We thought of this game to be useful due to the fact that this disease may or may not be perceived in initial stages, which favors its chronicity and makes treatment more difficult. With this in mind, we conceived this game with the goal to raise awareness about such harmful behaviours (Fig. 1).

Fig. 1. ANgame COMPETITIVE – On the left there is the Package, Question Card (black) and Answer Card (white), and on the right, there the cards are scattered around the table, ready for play.

The package contains: 20 Question Cards,[2] 20 Answer Cards and 1 Instruction Card. Table 1 presents the operation of the game represented by its components and rules.

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[2] The content of the cards was created from theoretical research [12].

Table 1. ANgame COMPETITIVE – Components and Rules of the game.

Components	Rules
- Restricted time - Punctuation - Cards with questions - Cards with answers	1. Shuffle the Question Cards and set them in a pile with their dark side up at the center of the table, and spread around the Answer Cards with the white side up 2. Turn over the Question Card on top of the pile Players have 1 min to find the corresponding Answer Card and place their choice on the side of the Question Card 3. Players should read aloud the question and their chosen answers 4. Turn over the Question Card to verify the correct answer Who answers correctly gets the Question Card, and players return the Answer Cards to the table to continue playing 5. If no one answers correctly, that Question Card must be removed from the game 6. Wins who gets more Question Cards

The game intent is to articulate healthy behaviours and attitudes like learning about anorexia, perceiving risky situations and understanding the severity of such disease that may manifest itself in adolescence. As for desirable goals, this game may opportune prevention of anorexia nervosa, raise awareness of the topic and break down possible taboos.

By resorting to speculative design methods in conceiving this game, we understood that it may facilitate learning about the disease and be able to create a moment for talking about the disease in the classroom, since it is known that the target audience of this game has predisposition to play, and that motivation through play is a good strategy for effective learning [8].

3   Prototype 2: ANgame COLLAB

This game-instrument focuses on supporting research, since it becomes a conversation tool, while providing visual evidences regarding the knowledge of the themes and the decision-making of the interviewees in focus group[3] sessions and in research interviews (Fig. 2).

ANgame Collab intends to assist in the mapping, management and flow of dialogue through a collaborative process. This is a formative tool for the researcher as it helps him to perceive what the interviewees know about the subject in question, providing a visual data and decision-making resources that can contribute to increments of knowledge about the patient and to the production of resources to aid in patient treatment. Its target audiences are adults, who may be knowledgeable health experts in anorexia nervosa (psychologists, nutritionists, psychiatrists, etc.) and relatives of people with the disease.

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[3] This research technique guarantees a deep and collaborative discussion of groups from a semi-structured script created by the researcher [13].

Fig. 2. ANgame COLLAB - left is the playset of the game. In the middle is the interviewee writing on the keyword card. On the right is the decision-making moment to put the answer in the right position regarding the question.

To facilitate handling the game, it assumes the format of paper cards,[4] containing the following items: 20 Question Cards, 42 Keyword Chips (30 with printed keywords and 12 blank), 10 Trump Cards, orange and yellow Post-it blocks, and 1 card with instructions. Table 2 shows the functioning of the game through the components and rules.

Table 2. ANgame COLLAB - game operation

Components	Rules
- Restricted time - Question Cards - Trump Cards - Answer Chips: with written keywords and blank	1. Players must shuffle the Question Cards and place them in a pile at the center of the table with the dark side up, and spread across the table the Answer Chips 2. Players have 2 min to answer the question presented in the Question Card that is on top of the pile To answer they need to pick an Answer Chip and write (on the post-it) something (a sentence, keywords, etc.) about the topic present in the Question Card 3. Place the answer at will, but next to the Question Card 4. Players can also use a Trump Card to go back to a previous question or choose a new Question Card 5. Read the Question and the Answers aloud when the time is over 6. At this point and in turns, players must explain the reasons that drove them to such answers and why they placed their Answer Chip where they did 7. There are no winners The goal is to discuss the subject at hand, while creating a conceptual map of discussion/conversation

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[4] All content of cards was created from theoretical research [12].

This game proposes to build knowledge about anorexia nervosa, by promoting experiences such as collaboration, altruism and self-expression. The ways to achieve these experiences are the creation of dynamics that allow sharing of knowledge and information, qualifying information gathering, mapping the conversation and knowledge, distributing the opportunity for expression, minimizing parallel conversations and/or word monopoly to promote effective collective learning.

For future versions we need develop the content of questions card with more open questions to facilitate the speech of the players, and further research the role of the researcher/interviewer as s/he is the mediator of game and that manages the conversation flow.

By creating an environment that promotes sharing and learning in a ludic fashion, this game has the potential to facilitate the exchange of knowledge as it provides the researcher with another way of understanding the content generated during a given session – the positioning of the cards on the table by the players creates a mental map[5] (or a conversational map).

4   Considerations and Future Studies

We proposed an alliance between Speculative Design and Game Design towards the design of prototypes for psychoeducational and research tools for mental health. These speculative game-instruments act as triggers to capture data, to help us understand what exists and what can exist in the context of anorexia nervosa – Speculative Design is (and was) useful in anticipating behaviours through imagination, creativity, and heavy questioning.

This first exercise is an initial understanding of the theme and context of the research in question, being part of a larger project. It is intended for us to soon to look at these game-instruments in a way to take advantage of their emergence related traits, as that will provide us with new insights and alternative perspectives, in the same way that in the past – when conceiving these first versions of these prototypes – we were able to envision the context of our research through perspectives we were not able to otherwise contemplate so early in this project.

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[5] A mind map is a diagram that is drawn to represent ideas, tasks or other concepts that are related to a keyword or central idea [14].

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