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Fictional Emotions within Emotion Driven Design

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Abstract. The aim of this paper is to address imaginative experiences of emotions by drawing Kendall Walton's theory of make-believe. Moreover, we use a design case as means for investigating how a child's felt emotions towards a hospital situation relates to his or her imaginative experiences of emotions towards a fictive character in a computer game simulating the real-world situation. In so doing, we contribute with new insights to existing theories of emotions in design, which tend to focus narrowly on felt and measurable emotions.

Keywords: Fictional Emotion, Emotion Driven Design, Interaction design

1 Introduction

Theories of emotion's role in design have been successful in explaining many new levels of product meaning and product experience that until a few years ago were hardly understood [1], [2], [3]. However, a number of knowledge gaps inherent in these theories become evident when working with new modes of interaction and time-based experiences in game design.

While theories of emotions offer exhaustive frameworks for describing how emotion driven design is able to elicit emotions, the questions as to how such emotions may change and evolve over time has only received little attention. Secondly, theories of emotions in design have a tendency to focus too narrowly on the user's felt and sensed emotions, while the question of how imaginative experiences of emotion relates to an emotional state is left largely unaddressed.

The aim of this paper is to address imaginative experiences of emotions by drawing upon Kendall Walton's theory of make-believe [4]. More specifically, we will use a design case to investigate how a child's felt emotion (towards a hospital situation) relates to a child's imaginative experiences of emotion towards a fictive character in a computer game.

In this paper we will first introduce the notion of 'fictional emotions' as a new key concept in design research that accounts for how a persons felt emotions relate to a persons response to a fictional world.

Secondly we will introduce our design case, which is using the design of an experimental computer game (called the Child Patient Game) designed especially for hospitalized children as research artefact. The purpose of the Child Patient game is to design a computer game environment that can map the subjective feelings felt by

children being in hospital. Here we will look especially into the relation between Character Experience (that of the fictive character in the game) and Player experience (that of a Patient).

Thirdly we will explain the method of inquiry; the overall method of this project, which is built up from a research through design method [5], [6] as well as the specific method of testing the Child Patient Game in a hospital environment. A part of this method has been to organize the data by using "visual mapping". Visual mapping is a way of structuring and organizing information to see patterns and relationships.

Fourthly, we will take a deep look into the data that this inquiry has produced; how does a child's felt emotion (towards a real hospital situation) relate to persons imaginary experiences with a fictive character? How are these make-believe states of mind charged with emotions? Which ones are not charged with emotions? Can we get a more fine-grained understanding of how mental states of fictional emotions, imaginary experiences and make-believe states are expressed?

Kendall Walton's make-believe theory will be used as a framework for analyzing the relation between an actual, felt emotion (referred to as "Real Emotion") and the emotions we have towards fictional characters (referred to as "Fictional Emotion").

Finally we will discuss the outcome of our findings and where this outcome will lead us. Here a position will be taken in the favour of narratives and gaming to be used as a communicative practice that might give us valuable knowledge and new insight about the emotional lives of paediatric patients. In doing so we will widen the perspective on emotion elicitation by adding fictional emotions to the prevailing emotion measurement paradigm.

2 Key Concept: Fictional Emotion

Within emotion research (theories on emotion) there is general agreement on that emotion implicates Feelings, Actions and Thought [7]. This means that emotions are body related (somatic) as well as rational, meaningful and logic (involves cognition). Fictional emotion also implicates Feelings, Actions and Thought - but the stimuli is to be found within the fictional world: we can cry when we experience a sad movie wherein the character we sympathize with will die. Such an experiences belong to the game of make-believe according to Kendall Walton [4] and must be distinguished from emotions exposed during a real situation that we actually cannot escape, for instance a situation that involves the death of a real friend.

Walton's make-believe theory is interesting because it deals with the question how "remote" are fictional worlds are from the real world? What is the role of imagination?

Kendall Walton presents the following well-known experiment in his article Fearing Fictions from 1978 [8, p.1]:

Charles is watching a horror movie about a terrible green slime. He cringes in his seat as the slime oozes slowly but relentlessly over the earth destroying everything in its path.

Soon a greasy head emerges from the undulating mass, and two beady eyes roll around, finally fixing on the camera. The slime, picking up speed, oozes on a new course straight toward the viewers. Charles emits a shriek and clutches desperately at his chair. Afterwards, still shaken, Charles confesses that he was "terrified" of the slime. Was he?

According to Walton the answer is "No". To Walton, it is only "make-believe-kind-of" true - that we have feelings for certain characters in films, books or games. He agrees on that these characters can have a great affect upon us - and that fictional worlds and fictional characters move us both physically and psychologically and that the similarities to real fear, real sadness or real happiness are close—but regardless of what our body responses are or what we might say, think, or believe we are feeling towards a fictional character it is not a real emotion. It is a fictional emotion we are experiencing - also referred to as "quasi-emotions" [9].

Quasi-emotions are very similar to real emotions but still different because they are generated by "second-order" beliefs about what is fictionally true. Walton explains: "Charles believes (he knows) that make-believably the green slime is bearing down on him and he is in danger of being destroyed by it. His quasi-fear results from this belief" [8, p.14].

Proponents of the Theory of Make-believe suggest that our (quasi) emotional attitude towards the fictional are strongly related to our real (genuine) emotional states, except that the make-belief overrides the role that would otherwise be occupied by belief. So Charles doesn't believe that the green slime is dangerous: He imagines or makes-believe that it is.

It is not our aim to establish whether fictional emotions (and imaginary experiences) are equal to real emotions (and real experiences) since this depends on how we understand emotions. The aim of this paper is to investigate - through game design - how persons' felt emotion (towards a specific situation) relates to the persons' imaginary experiences with a fictive character (going through a similar situation).

2.1 Player Experience and Character Experience

When children involve themselves in a game like for instance playing "mum and dad" they involve themselves in a game of make-believe (using Walton's expression). They decide the rules for their game; who is playing who, what kind of "mum" is in their game and what objects must act as props. They are pretending that a cartoon-box is their "house", that stones are "food" and they act as players in a fictional world, playing out "mum" and "dad" in various imaginary scenarios - imitating the real world, seen from their perspective. It's "just" a game. We think.

In the design case presented in this paper, we also deal with children's responses to fiction and how they interact with that. It's both similar and very different from the example presented above. It's similar because we are inviting children to take part (as players) in a game of make-believe. And it's similar because it's a game that includes

a fictional world and has certain rules. Its different because in our case they cannot make their own rules, the story is narrated in a way that the main character (an animated character) must undergo a fixed number of experiences. Its different because the children must play the game under certain circumstances, when they are not well at all; when they have just been undergoing and uncomfortable (emotional) medical examination. So we are asking them to take part in a game of make believe that involves a situation that they have just experienced them selves. That's why it makes sense to talk about what the character (a fictive child patient) is experiencing in the fictive world - and what the player (who's a patient in the real world) is experiencing while playing the game.

3 Design Case: The Child Patient Game (CPgame)

The Child Patient Game (CPgame) is an experimental computer game for hospitalized children (age 4 to 6). The purpose of the game is to design a computer game environment for young patients that can map emotional experiences - and hereby allow hospitalized children to inform staff and researchers about their emotional lives.

The concept of the game is developed by designer / researcher Eva Knutz in cooperation with the children ward and research unit at Kolding Hospital. The design of the CPgame is strongly shaped by emotion theory, as described in an earlier paper [10].

3.1 The Design of the CPgame

The CPgame is about a young child's journey through a healthcare system. This child figure is the main character that the player (the patient) will follow and must control in the game. The player can attach certain Emotions to the child figure (fig.1) or give the child figure certain Secret Powers (fig.2) that can help him through unpleasant things, such as the blood test.

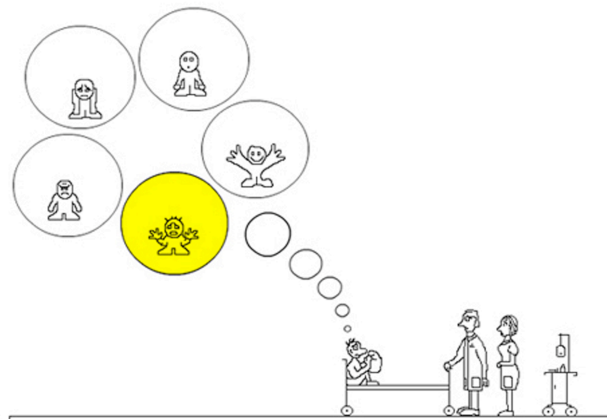


Fig.1. Screenshot from the CPgame: the player is applying the emotion "afraid" to the main figure. © Knutz 2010.

The player must attach one out of five emotions: three negative, one positive and one less articulated (Angry, Afraid, Happy, Sad or Uncertain) that the player thinks fits to the child figure in the game. The emotions are visualized as five animated characters, with five different colours (fig. 1). This action of game play results in the continuation of the story. For instance, if the player attaches the emotion "anger" to the child figure in a particular situation, the child figure will act angry. If the player thinks that "sadness" is more appropriate, the player can change emotion. When the player has arrived at the "right" emotion, the game can continue.

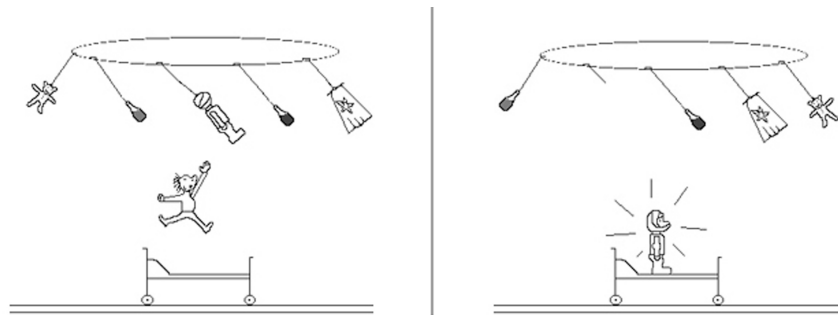


Fig. 2. Screenshot from the CPgame: Catching a "Secret Power" © Knutz 2010.

The "Secret Powers" consist of five different objects that the player can catch (fig.2) before going into the fictitious blood test. If an object is caught, the "Power" becomes visible: A teddy bear that the child figure can hug; an iron armour that the child figure can wear; a magic cape that makes the child figure invisible; a bottle of light liquid that makes the child figure shrink when he drinks it; and a bottle of dark liquid that makes the child figure grow up when he drinks it.

When the player has caught the Secret Power, that he or she think will help the child figure the best, the game can continue with that particular power attached to the game story. So the child figure keeps the secret power in the narrative sequence that follows. All choices of the player are stored in a database, fixing the players pattern of choices (of emotions and secret powers) throughout the game.

3.2 Game World, Game Story, Rules and Players

Fictional Worlds (in books, films or games) are by definition incomplete because it is not possible to specify all the details about any world [11]. This is where the player comes in; the player transmits his or her intentions into the game world. The sequence of action that unfolds in a game occurs as a result of the player's interaction with the game. Since it is a game - and not just a story - the fictional world represented in a game cannot function without the rules [11].

The way the player transmits her intentions into the game world is through gameplay. The gameplay lays down the rules for the player's interaction with the game world and the game story. Understanding the gameplay, is understanding the pattern you need to play with in order to perceive the fictional world of the game as a whole. A fictional world that can be described through the concepts of:

- Game World: An imagined world, inhabited with fictive characters (objects, sound);
- Game Story: A sequence of events within the game world containing beginning, middle, end;
- Rules: What the player "must do" in the Game world, constituted through gameplay;
- Players: Who are imagining the fictional world, interacts with game, make choices.

If we drop these concepts upon our case - the CPgame - we have a fictional world that (schematic) can be described as:

- Game World: The universe of a hospital, experienced by the main character: a child patient;
- Game Story: The journey of a child patient (a fictive costumer) going through a fictive healthcare system, with several events taking place over time: the child is sick (begin of game) → the child (now a patient) gets treatment (middle) → the child becomes well again (end of game);
- Rules: The player must control the child character, lead him through the hospital and must attach "emotions" and "secret powers" to the child patient (during his journey) that the player feels must be the right ones;
- Players: Hospitalized children who are in the middle of a similar "journey".

3.3 Player Experience and Character Experience in relation to CPgame

The game is build up that way that the main character (the child figure) must go through certain experiences; he will become sick, he must overnight at the hospital, he will be treated and he will become well again (Character Experience). But it is also a game that allows the player to interact with the game world, through gameplay (Player Experience). Table 3 explains the Character Experience and the Player Experience in relation to the CPgame.

Table 1. Character Experience and Player Experience in relation to the CPgame.

Character Experience	The main character (a child figure) is at home; he becomes ill and is brought to the hospital by his parents. Here different things are happening to him; he is being treated (examined, measured, having a blood test) and he has to spend the night in the hospital (where he falls into a strange dream). When he wakes up, he feels well again and can be brought back home. It's like a 24-hour circle story, where the end is connected to the beginning.
Player Experience	During this journey (the stay at the hospital) the player must attach "emotions" and "secret powers" to the child figure, that the player feels must be the right ones (the emotions) or the ones that can help the child figure the best way (the secret powers). The game is build up so that that it increasingly becomes more difficult and

	challenging and that the player slowly gets more control over the main character. What the player does in the game and the way he interacts with the game (the choices he makes in the game, the movement of his play pattern) will form his Player Experience.
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In the next section of this paper, we will take a closer look at how the players (children patients) interact with the Child Patient game. We are investigating how persons felt emotion (towards a real hospital situation) relates to the persons imaginary experiences with a fictive character (experiencing a fictive hospital situation). For the sake of clarity, let us define all experiences, before we move on:

- Character Experience: What the character (a fictive child patient) is experiencing in the fictional world (of the CPgame)
- Player Experience: What the player (a child patient) is experiencing while playing (the CPgame)
- Real Emotion: Emotional Experience towards a real situation.
- Fictional Emotion: Emotional Experience towards a fictional situation.

4 The Method: Using Game Design as a Method for Exploring the Relation between Real Emotion and Fictional Emotion

In this section we will explain the method of inquiry; how the CPgame has been tested and how real emotion and fictional emotions are mapped into so-called "CPcards". But since the argument of the paper is built up from a research through design method [5], [6], [12] this need to be explained briefly.

4.1 Overall method: Research Through Design

This research project has been undergoing two Experiments: First of all a computer game has been designed that allow hospitalized children to inform staff and researchers about their emotional experience (Experiment 1) as explained in the previous chapter. Secondly, the computer game has been tested upon a group of patients and non-patients, using the game as an alternative method of inquiry (Experiment 2). In the next section we will focus on the second experiment.

4.2 Specific method: Using the CPgame as an alternative method of inquiry

The CPgame was tested at the children's ward of Kolding Hospital from February 2011 until October 2011. The overall scope of Experiment 2 was to account for relation between Real Emotions (expressed by the child during hospitalization) and

Fictional Emotion (expressed by the child during gaming). This is done by letting a group of 12 patients (aged four to six) play the CPgame, right after having had a blood test. During the blood test, the emotional states of the patients were observed by staff, parents and researcher. The staff were asked to observe the bodily states of the patients, the parents were asked to judge the emotional state (of their own children) and the researcher observed more general issues, such as moods and attitudes. Immediately after the blood test the game session took place. During the game session the patients had a "game-dialog" with the researcher while playing the CPgame. In these dialogs the researcher would ask about the choices that the patients made in the game. For instance if a child attached "sadness" to the child-figure in the game, the researcher would ask "Why is the child figure sad?". In the game dialogs, child and researcher stayed within imaginary world of the game and the researcher was observing as well as asking questions.

During the game session, the play pattern of the players were obtained within the database of the CPgame. The table below shows how the different sources of data, collected during the experiment, addresses particular aspects of emotion - or aspects of the imaginative experiences of emotions.

Table 2. Shows how different sources of data address particular aspects of emotion

Data collection through	Knowledge about	Concerns
Observations forms, filled in by staff	Emotional state / body evoked feelings. The staff's observation of body states and behaviour during blood test. How do the children feel during blood test? Which emotions are involved?	Real Emotions
Ratings systems, filled in by parents	Emotional state / appraisals. The parent's judgement of their children's emotional state during blood test. How do the children feel during blood test? Which emotions are involved?	Real Emotions
Database of CPgame	Play pattern. Which secret powers do they choose in the CPgame? Do they choose emotions and secret powers directly or play around for long?	Fictional emotion or Imaginative Experiences expressed through play
Game-Dialogs, between researcher and child	Motivation and play behaviour How do the children play? What do they say about their choices in the CPgame.	Fictional emotion or Imaginative Experiences expressed through verbal or non-verbal accounts.

4.3 Control Group of Non-patients

The experiment involved a control group of non-patients. Here a group of children (aged four to six) were chosen from a kindergarten, matching age and gender. These children all played the CPgame in a separate office of a kindergarten. Obviously, the control group did not undergo any medical procedures they simply just played the CPgame and were involved in a game-dialog under same conditions as the patients.

4.4 Discussion of Inquiry (Experiment 2)

Experiment 2 was aiming at collecting knowledge from different sources at the same time; sources that supported the emotional aspects as well as the narrative and imaginary aspects of a hospital experience. This is not an easy task. An hospital experience involves many sorts of experiences; the children must be away from home, they must sleep in strange place, eat at certain hours, they are being examined and tested and must undergo treatment in various forms (medicine, scanning, operations etc.). In consultation with the research group at Kolding Hospital, we chose from the beginning to deal with a specific experience that all children patients must go through; the blood test. So we chose to put emphasis on the blood test in the CPgame - and let the blood test play a particular role in the testing of the CPgame.



Fig. 5. The Child Patient during testing © Knutz 2011

4.5 Organizing the Data through Visual Mapping.

After the testing of the CPgame all information, from rating system (made by parents), from observation (made by staff), from game dialogs (between researcher and children), and from the database (of CPgame) - were organized into a large visual map. Visual mapping is a way of structuring, organizing, arranging information. It is a non-linear method that makes it easier to see patterns, relationships, hierarchies and dependencies that might otherwise remain hidden.

The data was filtered before it was mapped: the ratings from the parents and the observations from the staff was colour-coded to show if there was a relation between the real (actual, felt) emotion and play-pattern (the children's choices of emotion obtained in the game database). Furthermore the recordings and notations from the game-dialogs were transcribed to include only verbal expressions and catch words, representing each respondent's imaginative experiences or play behaviour. After organizing all data from both groups the data was mapped into so called CPcards, representing each player of the CPgame.

Figure 9 represents the visual mapping of information of a patient into a CPcard:

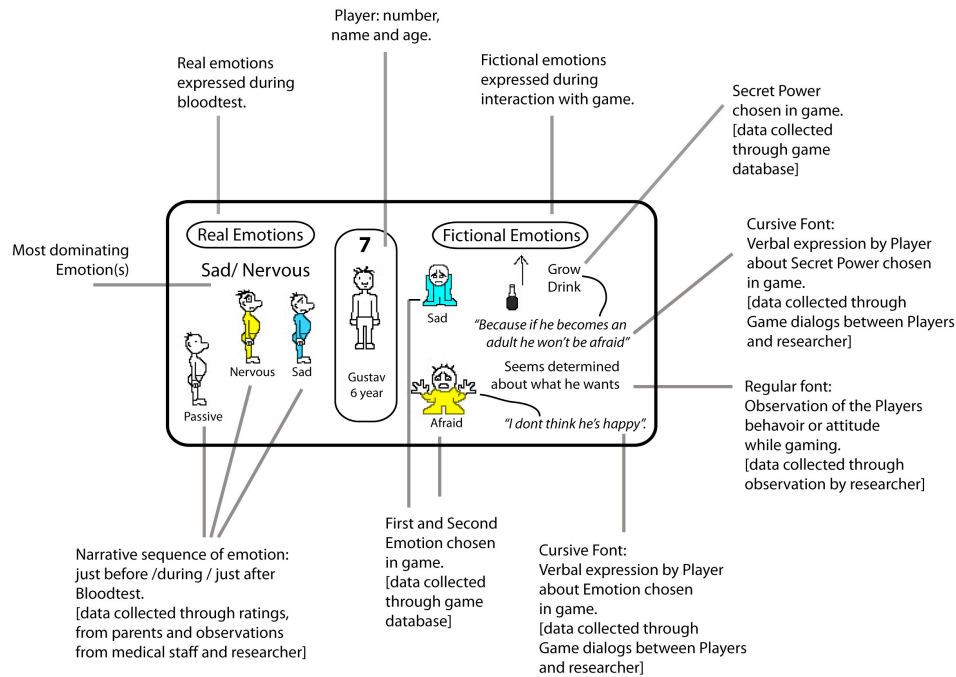


Fig. 9. Visual mapping of information into CP card. © Knutz 2011.

The cards are divided into a left side, representing the real emotions - and a right side representing the fictional emotions. In the middle of the card we have the player of the CPgame. The colour indicates if there is a link between the emotions observed and rated by staff/parents (left side) and the emotions chosen by the player in the game (right side).

The CPcard above gives us information about the patient "Gustav". The card tells us that Gustav's emotional state during the blood test (left side of card) evolved in sequence that can be described as Passive (just before blood test) to Nervous (during blood test) and to Sad (right after blood test). The right side of the card tells us that Gustav first gave the child figure the emotion "Sad" when the child figure (in the game) was hospitalized. Later in the game (when the child figure, had to have a blood test) Gustav attached the emotion "Afraid". In order to give the child figure a "secret power" before the blood test, Gustav gave the figure a "grow-drink" and Gustav explained that the reason for giving the figure such a power was: "because if he becomes an adult he wont be afraid" (quote Gustav, CPcard right side, fig. 9).

Gustav also verbally expressed the reason for choosing "afraid" as fitting for the child figure in the CPgame: "I don't think he is happy" (quote Gustav, CPcard right corner below, fig.9).

For every player a CPcard has been made. This gives us a visual framework of how persons felt emotion (towards a real hospital situation) relates to the persons imaginary experiences with a fictive character (experiencing a fictive hospital situation). The CPcards also gives us information about how emotions may change and evolve over time.

5 Outcome and Discussion: Exploring the Relation between Real Emotion and Fictional Emotion

Figures 10 and 11 gives us a picture of how patients and non-patients (the control group) chose emotions and secret powers within the CPgame.

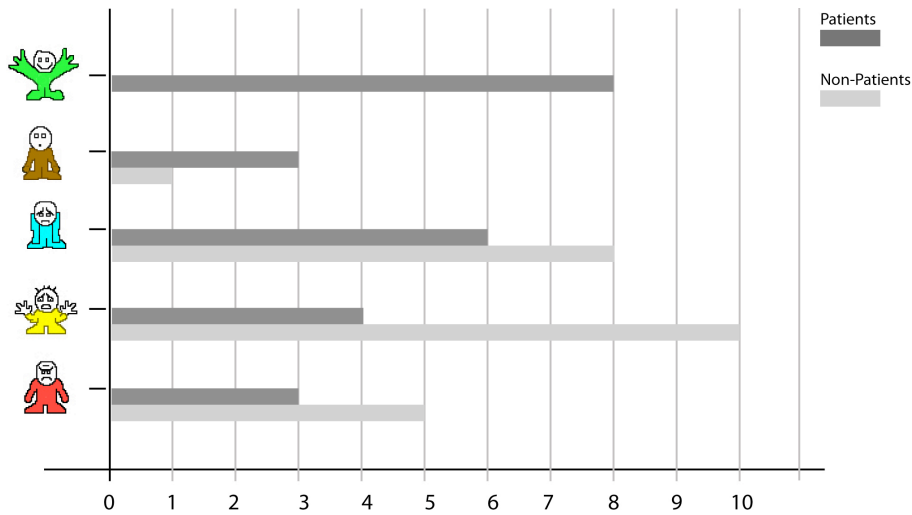


Fig. 10. Relation between choice of "Emotion" (Angry, Afraid, Sad, Uncertain and Happy) chosen by Patients and Non-Patients in the CPgame. © Knutz 2011

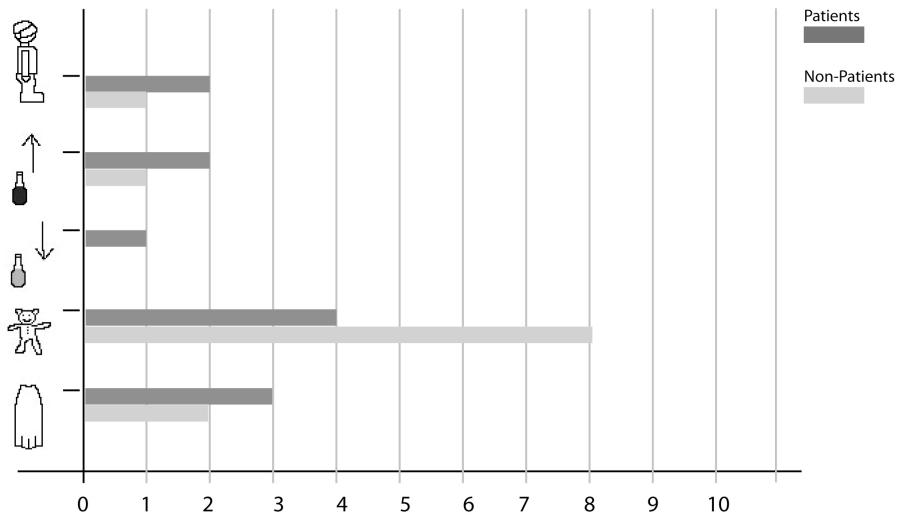


Fig. 11. Relation between choice of “Secret Power” (Cape, Bear, Shrink-Drink, Grow-Drink, and Armour) chosen by Patients and Non-Patients in the CPgame. © Knutz 2011

5.1 Explaining Player Choices

Figure 10 tells us that not a single non-patient chose a positive emotion, whereas the positive emotions were chosen several times by the patients.

Figure 11 tells us that eight out of the twelve non-patients chose the teddy bear, whereas only four of the patients chose the bear. This is interesting since it is only the (teddy) bear that actually belongs to the real world (some of the patients do actually bring their teddies) whereas the other powers (becoming invisible, wearing an armour or growing big or small) truly belong to the world of fiction. We will speculate on that in the discussion section. For now we can just conclude that the 12 patients played the CPgame rather differently than the 12 non-patients, who functioned as a control group.

Figure 12 (next page) gives an overview of all the CPcards drawn from each patient playing the CPgame during the experimental game test. The 12 cards are organized in such way that the children who felt most anxious, insecure or uncomfortable during the blood test are placed at first (number 1) and the patients feeling at least anxious are placed at last (number 12).

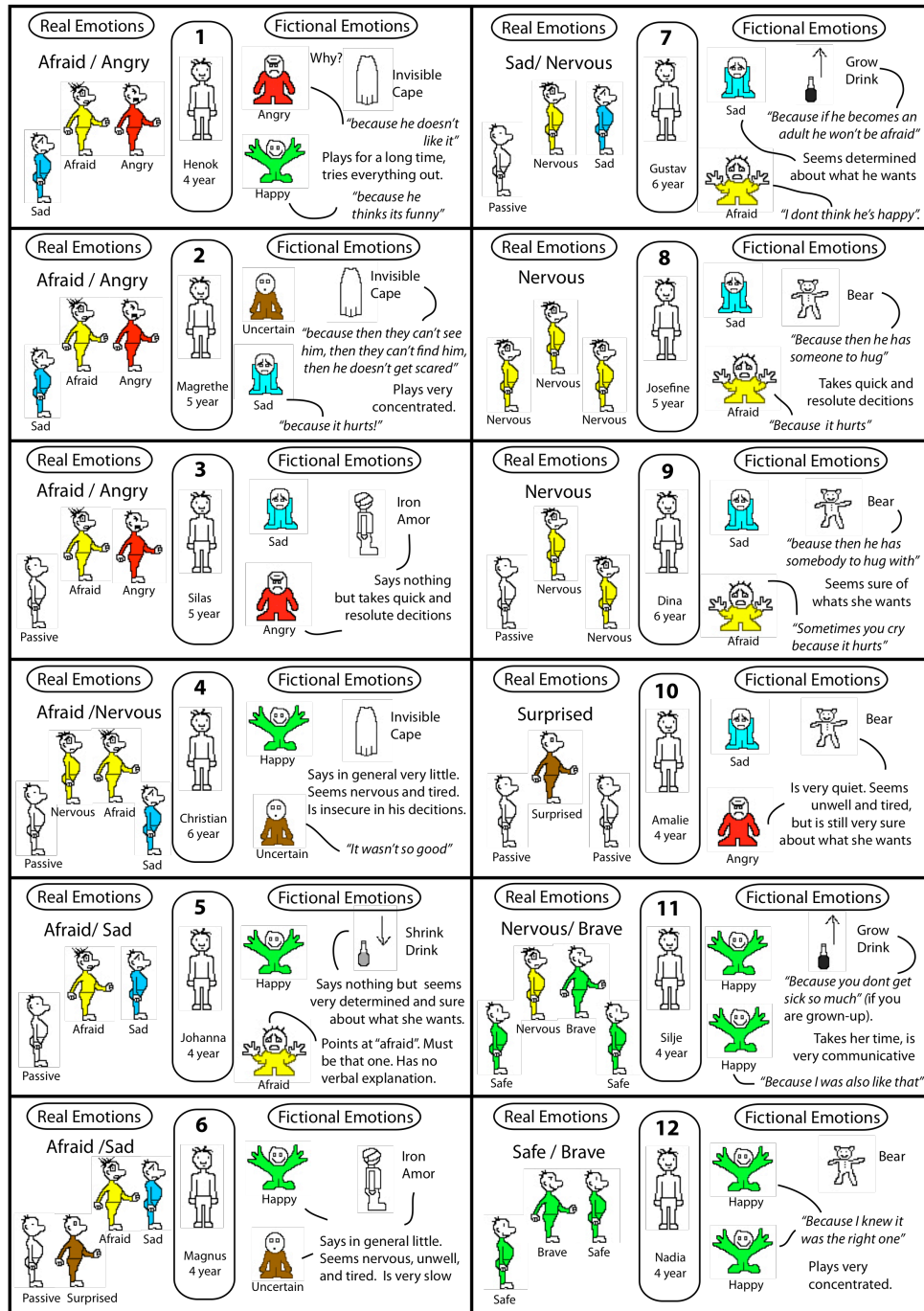


Fig. 12. CPcards of all patients (seven girls, five boys) playing the CPgame. © Knutz 2011.

The CPcards (Fig. 12) reveals several insights in relation to the "the real" and "the fictional" world making.

First of all, if we look at the second emotion (below, at the right side of the card) which is the emotion that the player attach to the fictitious child patient during the fictitious blood test - we can see that 7 of the 12 players (player no. 2, 3, 7, 8, 9, 11, 12) chose an emotion very similar to the real emotion (left side of the card). That will say, in most cases the children's own (real) emotion is close to the emotion the children think the fictional child patient "must feel". This is particularly the case when we look at the two (only) players, Player 11 and 12, who exposed a mainly positive sequence of real emotions during the blood test session; they expressed both positive emotions within the real world and choose only positive emotions as fitting to the fictional character in the game world.

What is significant, is that 6 of these 7 players (player: 2, 7, 8, 9, 11 and 12) were able to verbalize and motivate their imaginative experiences of why the child figure in the game needed a specific Secret Power; Like player 8 and 9 (who both seemed very self assured about their choices) - both chose the bear "because then he has someone to hug". Player 2 (who choose Invisible Cape) motivates her choice with saying; "because then they can't see him, then they can't find him, then he doesn't get scared". Player 7 chose Grow-Drink "because if he becomes an adult he won't be afraid". Player 11 also chose the Grow-Drink, but here the imaginative experience is different. Player 11 chose the Grow-drink because "then you don't get sick so much" (if you are an adult). These experiences says clearly something about the children's emotions on a narrative and imaginative level; thinking that in the future, when you grow up, you won't be afraid anymore, or get sick.

If we look at the remaining five players that chose fictional emotions, a bit more remote to their real emotions (player: 1, 4, 5, 6, and 10) then it is as if we have a different set of players: These Players have in general very little to say. They were very willing to play the game, but were difficult to get in contact with during the game dialogs. Player 4, 5 and 6 had a similar pattern - both in having the same narrative sequence of real emotions (Passive-Afraid-Sad), and they all choose the positive emotion as the first emotion: so they believed that fictional child patient felt happy in the beginning of the game (arriving at the hospital and being hospitalized)

When it comes to the second emotion (the emotion related to the fictional blood test), this group of children all chose an emotion in the game, close to their real emotion: Player 5 choose (in a self assured manner) the emotion "afraid"; an emotion identical to the real emotion he felt during the blood test. Player 4 and 6 chose "uncertain"; an emotion a bit remote from their real emotion during the blood test but similar to their play behaviour (being uncertain and insecure about playing the game).

Player 1 and 10 both chose fictional emotions, very remote to their real emotions. Player 1 expressed a high degree of anger and fear during the real blood test, but still chose "happy" as the emotion fitting best to the character in the game, when he had to go through the fictitious blood test. When I asked him why, he said, "Because he thinks its funny". Player 1 played the CPgame for the longest time of all. He tried all emotions and secret powers out many times - and kept on choosing the positive emotion in relation to the fictional blood test. Did he want the animation figure to be happy? We will discuss that in the next section.

Player 10 seemed calm about the blood test and had no objection towards medical procedures. Player 10's narrative sequence of real emotions is described as: Passive in the beginning then surprised during the blood test, and hereafter passive again. But the play-pattern at the left side of the card reveals some quite different emotions towards the fictional situation of the hospitalization and the blood test: Sadness, Anger and a Secret Power in the form of a teddy bear. Also this we will discuss in the next section

We can - on the basis of the CPcards - sketch out a more detailed picture of how a young person's felt emotion (towards a real hospital situation) relates to the persons imaginary experiences with a fictive character (experiencing a fictive hospital situation).

Player type A:

Fictional emotion relates to Real emotion (player no. 2, 3, 7, 8, 9, 11 and 12)

Characteristics: Fictional emotion relates strongly to Real emotion. The players can express their imaginative experiences verbally.

Player type B:

Fictional emotion partly relates to Real emotion (player no. 4, 5 and 6)

Characteristics: Fictional emotions are different from their real emotions, but not entirely remote. The players can't (or wont) express their imaginative experiences verbally. Only through gaming.

Player type C:

Fictional emotion is very remote to Real emotion (player no. 1 and 10).

Characteristics: Fictional emotions are completely different from their real emotions. The players cant (or wont) express their imaginative experiences verbally. Only through gaming.

5.2 Discussions of Findings

Why does only the patients (and not the control group) choose positive emotions in the game world?? Why does some patients, who are clearly very distressed about the blood test insist on giving the animation figure a positive emotion? Why do the CPcards sometimes reveals two different emotional worlds, as was the case with Player type C?

To understand this we have to return to the central idea of seeing "emotions" and "secret powers" in the game world, as a set of reactions that the player can apply to the animation figure "as if they where him". This might explain, why its only the patients who wants the little figure in the game "to be happy" - and not the children who are not hospitalized; the CPgame may offer the patient opportunities for communicating and modulating its emotions by playing with fictional characters, finding themselves in a "as-if scenario" similar to that of the patients own situation.

So even though a child, who feels insecure about the hospital treatment, chooses positive emotions in the CPgame, they are just as important because it indicates that the Player Experience may act as a (positive) modulation process to the actual (negative) situation.

This is where the CPgame distinguishes itself from other products or tools that seek to measure or communicate emotion, such as the Product Emotion Measurement Instrument "PrEmo" [1], the hospital game "SiSom" [13] or the Self-Assessment Manikin "SAM" [14]. This, because the CPgame contextualizes the emotional experience it is meant to measure and brings in the notion of Fictional Emotion.

Temporality and modulation play an important role at both sides of the CPcard; on the left side ("Real Emotion") integrated in the narrative sequence of emotion - and on the right side of the card ("Fictional Emotion") as an emotion-modulation process, taking place during the interaction with the fictional characters in the game ("in making the animation figures feel certain ways"). This narrative and visual form of sense-making is our main argument for developing a narrative framework for emotion driven design that is actually capable of providing us with valuable knowledge and new insights about the emotional lives of paediatric patients.

6 Conclusion

In this paper we have demonstrated that by drawing upon Walton's theories of make-believe it is possible to address two unexplored areas within emotion driven design; a possible framework for describing how emotions may change and evolve over time, as well as addressing imaginative experiences of emotion. In doing so we seek to merge existing emotion theories with a narrative approach that accepts imaginary experiences and fictional emotions, as meaningful activities (or perceptions) that contributes to our emotional experience of the real world.

Furthermore this paper will contribute to the field of interaction design and emotion driven design with a visual and playful method for communicating with paediatric patients that can increase the understanding of children's unique emotional experiences during hospitalization.

References

- [1] Desmet, P.M.A. (2002): *Designing emotion*, Delft University of Technology.
- [2] McDonagh, D. et al. (2004): *Design and Emotion: The experience of everyday things*, CRC.
- [3] Norman, D. A. (2004): *Emotional Design: Why We Love (or Hate) Everyday Things*, Basic Civitas Books.
- [4] Walton, Kendall (1990): *Mimesis as Make-Believe: On the Foundations of the Representational Arts* (pp. 209-289). Cambridge, Mass.: Harvard University Press.
- [5] Brandt, E. & Binder, T. (2007): Experimental design research: Genealogy intervention–argument. In the *Proceedings of the International Association of Societies of Design Research*, Hong Kong.
- [6] Redström, J. (2011): Some notes on program/experiment dialectics. The Nordic Design Research Conference, 2011.
- [7] Prinz, J. (2004): *Gut reactions: A perceptual theory of emotion*, Oxford University Press, USA.

- [8] Walton, Kendall, Fearing Fictions, *The Journal of Philosophy*, Vol.75, No. 1, Jan. 1978
- [9] Walton, Kendall (1990): *Mimesis as Make-Believe: On the Foundations of the Representational Arts* (pp. 195). Cambridge, Mass.: Harvard University Press.
- [10] Knutz, E and Markussen, T. (2010): Measuring and Communicating Emotions through Game Design. In proceedings of the 7th International Conference on Design & Emotion, Illinois Institute of Technology, Chicago.
- [11] Juul, J. (2005): *Half-Real. Video Games between Real Rules and Fictional Worlds*, London: The MIT Press.
- [12] Markussen, T., Knutz, E. and Rind, P. (2011): Making Theory Come Alive through Practice-based Design Research. Swissdesignnetwork design research symposium *Practicing Theory or: Did Practice Kill Theory?* Geneva University of Art and Design (HEAD), Geneva.
- [13] C.M. Ruland, J. Starren, and T.M. Vatne: Participatory design with children in the development of a support system for patient-centered care in pediatric oncology," *J. of Biomedical Informatics*, vol. 41, 2008, pp. 624-635.
- [14] Bradley and P.J. Lang: Measuring emotion: the self-assessment manikin and the semantic differential," *Journal of behavior therapy and experimental psychiatry*, vol. 25, 1994, pp. 49-59.