

DESIGNING NARRATIVE GAMES FOR A SERIOUS CONTEXT

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ABSTRACT

In this paper, we introduce a new approach to designing games for serious contexts. In contrast to Serious Games we argue that learning is a too narrow focus for serious contexts and that simulation of real world problems ought to be supplemented with other design strategies that place greater emphasis on fiction and narratives. The approach is exemplified through three game prototypes designed to be played by an inmate and his child in a prison during visiting hours. By analyzing these game prototypes we demonstrate how a game can be structured around a narrative plot in three different ways. Moreover, we discuss how narrative plots in a game may open up for developing player's emotional experiences over time and grow social relationships between inmate and child. On the basis of our case analysis we discuss, in more detail, how our approach differs from Serious Games and we single out some key implications for emotion-driven design.

INTRODUCTION

Over the last decade or so, there has been an increasing interest among design researchers in 'Serious Games'. While games used to be associated with play and entertainment in the sports arena or people's home (video games, computer games, board games, etc.), Serious Games is about designing games as means, for instance, for increasing children's learning in schools (edutainment), for training medical staff in performing brain surgery or pilot's capability of navigating an airplane in stressful situations.

Serious Games within hospitals (SnowWorld, 2004), within the army, simulating battles of war (Americas Army: Rise of a soldier, Playstation 2, 2003) or educational settings (Pixeline, www.kreagames.dk) have clearly shown us that through serious gaming it is possible to ease pain, learn to think more strategically, to solve problems, or expand our knowledge. What these types of games offer are game worlds, which enable people to cope with difficult matters, to simulate real-world situations, to excise within a 'protective frame' (Apter, 1991) and to learn from that. Indeed, the "seriousness" of serious games is most often being identified with learning and educational purposes (David & Sande, 2006) However, even though serious games no doubt represent a valuable approach, in this paper we argue that it is too limited for designing games in serious contexts. More specifically, we wish to address two such limitations. First of all, many serious contexts revolve around rich experiences, mixed emotions and complex social forms of interaction that fall outside the scope of a learning perspective. In designing games for these contexts the designer needs to pay attention to how the game can be designed so as, for instance, to grow social relationships or change people's emotional reaction toward a situation rather than to what the players learn from playing it. Secondly, a majority of serious games tend to be built up from virtual worlds simulating that of a real world dilemma or problem to be solved. However, as we shall demonstrate simulation of the real world ought to be supplemented with other design strategies that place greater emphasis on fiction and narratives. Contrary to simulations, fictional worlds may not be similar at all to the real world, but this may in fact be

the very reason why they offer the players richer possibilities for exploring their own emotions and experiences, for laying a new perspective on social issues or for taking a refreshing and perhaps even humorous look on personal problems. Admittedly, narratives are an essential element in other games genres such as Alternate Reality Games, but the role of fiction and narrative in the design of games for serious contexts remains relatively unexplored. In this paper we introduce a new approach to designing games for serious contexts that is emotion-driven and at the same time place fiction and narratives at its centre stage. To set the scene, we will exemplify our approach by presenting three game prototypes, designed to be played in a prison by an inmate and his or her child during visiting hours. None of these game prototypes had learning as their objective. Rather they were designed to tackle negative emotions and awkward feelings related to visiting situations, motivate children to build a relationship with their absent parent and to include the time between visit and separation as part of the game play.

By analysing these game prototypes we demonstrate how a game can be structured around a narrative plot in three different ways. Moreover, we discuss how these narrative plots in a game may open up for developing player's emotional experiences over time and grow social relationships between inmate and child. On the basis of our case analysis we discuss, in more detail, how our approach differs from Serious Games and we single out some key implications for emotion-driven design.

NARRATIVES AND PLOTS AS MATERIAL FOR GAME DESIGN

In order to see how narrative plots can be a material for game design, a few words of clarification might be required. In the vast literature on narrative theory, one can find various accounts of how to understand what narrative and plot are. Yet, there seem to exist general agreement that narrative and plot can be used interchangeably to designate the same kind of process: An ordered sequence of actions as they take place through time (see e.g. Brooks, 1984; Barthes, 1975; Forster, 2000, among others). However, we can be more precise than that by drawing upon one of the

first treatments on the subject, namely Aristotle's *Poetics* (Aristotle, 1996)

In this book Aristotle claims that all tragedy has a *beginning, middle and an end*. Even though it doesn't count for all sorts of narratives, communicated through all sorts of media, it implies that actions in the form of a plot are organized into a basic temporal structure; it implies a unique process or progress in time: begin, proceed, end.

Apart from time, Aristotle says that a plot is equally defined by a significant change in action (to better or worse) that happens because of a certain necessity. One of his favourite examples is the tragedy Oedipus the King where a dramatic change results when Oedipus discovers that the woman he has married - Jocaste – is his own mother. This discovery has fatal consequences as it drives Jocaste to commit suicide and Oedipus to blind himself in despair.

Aristotle even went as far as to speculate on how the plot of a Greek tragedy was able to modulate emotional reactions such as fear and pity in the audience towards the situations experienced by the actors on the stage.

We understand narrative plot in this Aristotelian sense: it is a temporal sequence of actions that has this unique structure of beginning, middle and end, where the course of actions is driven by a certain kind of narrative cause-and-effect logic, and which may promote changes in the emotional reactions of the person experiencing the plot.

These definitions are useful for understanding how narrative plots may figure in the design of games for serious contexts. A game can be structured around a narrative plot in several respects. For instance, the narrative plot may be embedded in the game play itself in the sense that its beginning-middle-end structure is narrowly confined to the interaction between two players while playing the game. Or, the narrative plot may extend beyond the game play to include a longer-lasting game experience.

While game play thus refers to the interaction that occurs between the dice, pieces, board and the rules in a game, the game experience is not restricted to the actual play of the game, but refer to how the game might have an effect on the players in the real world. Perhaps by altering their way of thinking or motivating them to change their behaviour or attitude.

The notion of plot may in this way be applied from theory of literature and drama to understand game design, but there are also some crucial differences. Gaming is not about experiencing a plot as it is enacted in a novel or on stage by characters - it's about playing the plot. Compared to drama or the world of film, one can say that in film one "lives with the hero" whereas as in gaming "you are the hero". And the player always plays the leading role: He or she takes a privileged and unique position, from which she creates her own game experience. The player is not any longer an observer (or reader) of a dramatic story - she gets a role assigned in it. And in that way the player transmits her intentions into the game world. The dramatic sequence of action that unfolds in a game occurs as a result of the player's interaction with the game (Juul, 1999, 2005)

LEARNING FROM PRISON GAMES

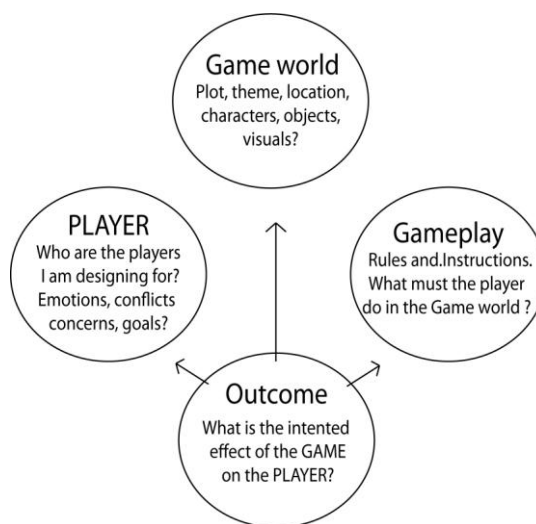
To investigate how game design can be approached differently and to challenge serious gaming with a new approach to game design, a series of game-workshops have been set up at Kolding School of Design. This article is using game prototypes developed during a specific research seminar and game workshop that took place in January 2012, entitled "Designing emotions for games and narratives", and which included participants from Delft Technical University, University of Southern Denmark and the Danish Prison and Probation Service. The aim of this workshop was to use the process of making and designing a game as a vehicle for generating new insights into a set of research questions: In what ways can games in serious contexts exploit fiction and narratives? What new potential for working with emotions in game design do narrative plots offer the designer? How can narrative plots act as a frame for growing emotional relationships over time? For this specific purpose, a group of design students were instructed to work on a design case:

Design a "prison" game, to be played by a prisoner and his/her son or daughter during visiting hours"

The reason for choosing this particular design case was to make a playful experience out of a serious context (being in prison) forcing the design students to

work with mixed emotions and dilemmas related to the player's everyday situation, e.g. deprivation of freedom, obeying the rules/breaking the rules, role models, upbringing, and the challenge of maintaining an intimate relationship with family-members on the other side of the prison walls.

In order to facilitate concept development the workshop participants were presented with the following model representing four elements essential



for designing games for serious contexts:

Fig. 1: Model for working with gaming from an emotion-driven and narrative perspective © Knutz 2011.

On the basis of this model, the students were asked to deal with the following questions and aspects of gaming:

- Who are the two players you are designing for? (age, gender, sort of crime, time in prison, family relation, etc.)
- What is the intended effect of the game design on the two players? (What does the game-designer want the players to feel, go through, and experience?)
- What kind of Game Play must be applied in order to achieve the intended effect?
- What kind of Game World should the game consist of in order to achieve the intended effect? (theme, plot, fictitious characters involved)

The game prototypes chosen for this article are chosen because they all deal with:

- Changing the awkwardness of the situation (having to see your father in a specific hour, at a specific day, in a specific room)
- Facilitating a dialogue between parent and child; and
- Using gaming as a "motivator" for the children, so that the children will keep on visiting their parent in prison.

In the following we are using the three game prototypes to explain three ways in which a game can be designed around a narrative plot so as to frame the emotional and temporal space between the visit (when the game is being played), the time in between (when parent and child are separated) and the revisit (when the game is being played again).

The sequence "Visit - Separation - Revisit" is our emotional and temporal space, in which the game experience is taking place. It is also within this space that the "Game World" and the Plot is being created. In that way, the three game prototypes we have chosen for this article exemplify the potential that narrative plots has to offer game design.

GAME PROTOTYPE 1: "DAD'S ESCAPE"

"Dad's Escape" is a game that has two characters: a prisoner and a prison guard, moving around, inside and out side a fictitious cell (lego blocks) on a pad made out of black and grey circles (fig. 3a, 3d). The prisoner (large ball) tries to "escape" by landing on a grey circle whereas the guard (little ball) is setting up traps. The two players are free to choose who must acts as whom.

The game starts out with that the two players (here: father and daughter) must discuss the events of the past week. From these daily-life experiences, "elements cards" (fig. 3b) are being created, with objects that symbolize things that have been happening at home (child) or in the prison (father). The father might draw a mobile telephone, a book or a his lunch box because these objects were part of his week - where as the daughter might draw a doll, or a kitchen knife, because of they were part of her week (e.g. the experience of playing with her girlfriend at home or cooking with her mother).

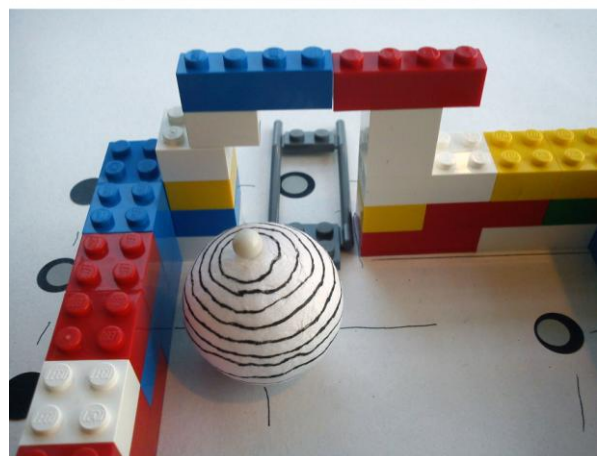
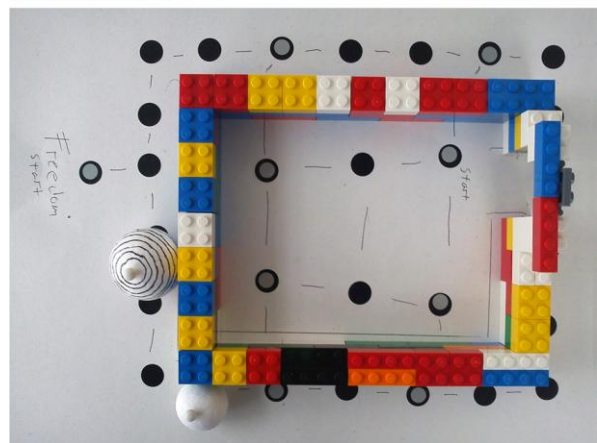
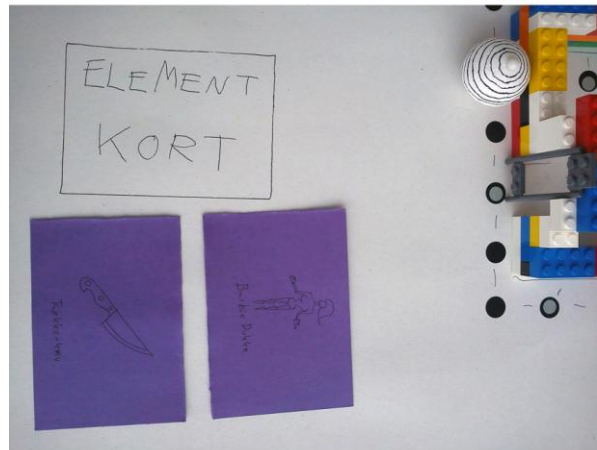
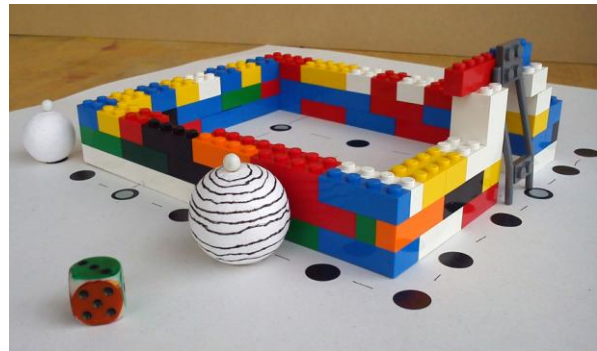


Fig. 3a,3b,3c,3d: Prototyping "Dad's Escape"

In the beginning of the game the "prisoner" starts out with being inside the cell (Fig.3c). If the "prisoner" lands on a grey circle, he can make an "escape

attempt" by combining the element cards to an "imaginary escape attempt" that he must explain to the other player. A two-colour die (Fig.3a) decides if this attempt is successful (green= he is out of the cell) or not (red = he will stay in the cell).

In the same line of thoughts the "guard" must use the "element-cards" to make traps for the prisoner - and again the dice will decide if the trap-attempt is successful (sending him back into the cell) or not. If the prisoner lands on the spot "freedom" (fig.3d) he has escaped the prison for good, and the game is over.

The "element-cards" have a double function; they say something about the real world of the players (when they are separated from one another) but they also acts as props in a fictive game world (when they play the game during the visiting hours); here the "element cards" can be combined and turned into imaginary attempts, to either escape or prevent somebody from escaping.

The game has only one plot (the escape), but the experiences from the real world (e.g. certain telephone call, a certain smelly lunch box) feeds the plot-pattern by combining these and turning them into certain events, actions or sub-plots within the game world, that supports "the escape" (the goal of the "prisoner") - or prevent it from happening (the goal of the "guard").

Based on this, we can draw the following diagram, back tracking the role of the plot in a circular sequence called "Visit - Separation - Revisit"

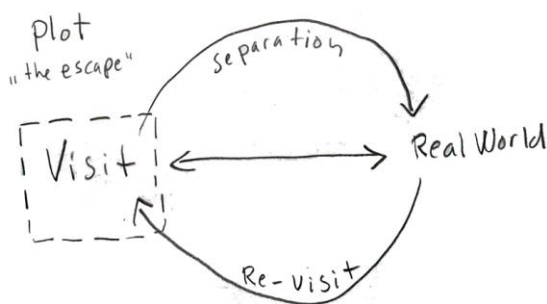


Fig.4: Plot (broken lines) in relation to the sequence "Visit - Separation - Revisit" in "Dad's Escape"

Figure 4 illustrates how the plot (broken lines) is activated in the sequence "Visit - Separation - Revisit", between the Game World (taking place during the visit) and the Real World of the two players; here the parent relates to Real World of the prison whereas and child relates to the Real World outside the prison walls.

From this sketch we can see that the plot in the game (being played during the visit) does not change in its basic form; it will always be focused on the "escape". But the plot can be combined in many ways, using elements cards that draw upon different experiences taken from the real world (when child and parents lives separately). The amount of "element cards" will slowly grow from every visit and parent and child will "grow" more experiences together; experiences that they can use to feed their plot with.

GAME PROTOTYPE 2: THE "MONSTER BOX"

"Monster box" is a game-engine, where all the tools needed to perform the game (story-book, game elements, drawing paper, rules etc.) is in a box called the "Monster Box". The drawing below (Fig. 5a) illustrates the process:

At their first meeting (visit in prison) dad reads up a story (about monsters) for the child. While dad reads the story, the child draws monsters. When the meeting is over dad will get the child's drawings (Fig. 5b). While they are apart, dad will prepare a game, based on the monster-drawings (using the Monster Box as a toolbox for assisting his game design) - and the child will draw more monsters at home (using the Monster Box as a toolbox for assisting his drawings). When they meet again, dad will have a new game ready and the child will have new drawings ready - and so the game continues with a new story, and new plot-pattern, from the monster box.

The aim of Monster Box is to make a game-engine that entangles child and parent in a fictional world that can motivate them to meet again - under such uncomfortable circumstances as a prison visit

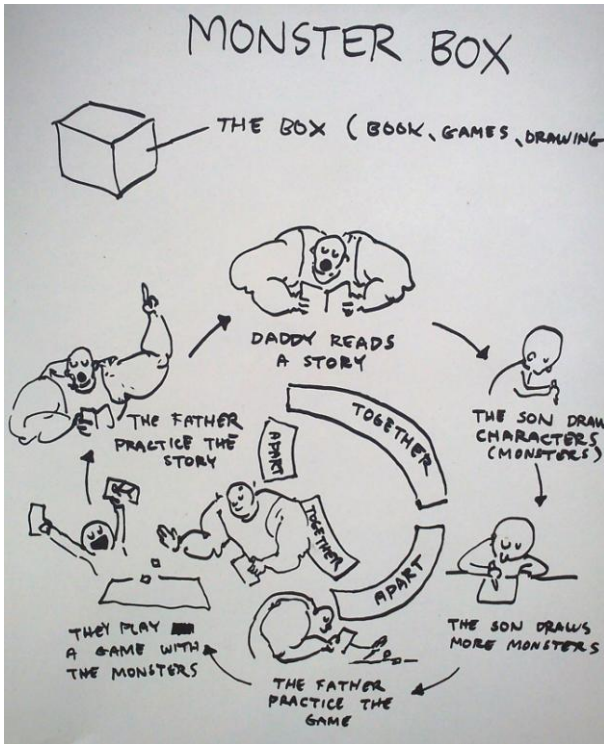


Fig. 5a: Illustrates the process of the game "Monster box"



Fig. 5b: Illustrates a drawing from "Monster box".

"Monster Box" differs from "Dad's Escape" in having not only one plot, but several ones. In fact, Monster Box is a plot machine more than anything else. The plots that the Monster Box is producing, consist of many different plots and subplots (e.g "Revenge",

"Revolt" or "Enigma") and can be incorporated in many types of story genres (Fairytales, Science Fiction, Horror, Romantic Knight Tales, etc) - which again can be merged into different types of games (board games, card games, puzzles ect.) depending on the visualizations produced by the child - and the game plays made up by the parent (using the Monster Box as a toolbox).

Parent and child can chose an entirely new approach (plot and genre) after every story/game round (of visit and revisit) - or they can choose to stay in the same plot (e.g. "Revenge") and simply just add more characters and more sub-plots

The role of the plot in the sequence "Visit - Separation - Revisit" in relation to the Monster Box will look like this:

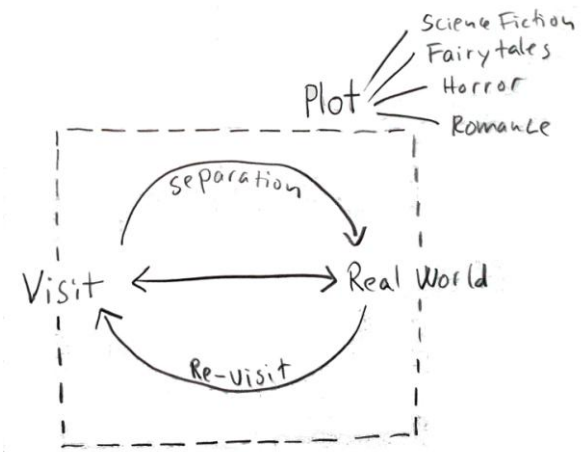


Fig. 6: Plot in relation to the sequence "Visit - Separation - Revisit" in Monster Box

Figure 6 illustrates, that in Monster Box the plot in the game will always change form and adapt to the story, drawings and the game play, that the two players involves themselves in; during the visit as well as in the period of separation. In that way the plot is activated in the Real World as well as in the Fictional World.

The Monster Box functions as an explanatory steering tool for incorporating a plot, and constructing a narrative, useful for gaming. In doing so, the Monster Box enables the two players to be in a constant visual, playful dialogue with one another; a dialogue that prepares them - and motivates them to meet again.

GAME PROTOTYPE 3: "SHOW YOUR DAY"

"Show your day" is similar to the previous two games in seeking to facilitate a dialogue between parent and child.

The game consist of a set of instructions in how to build the bricks (fig.7a), a game board (fig.7b), activity cards (fig.7b), 2 stacks of photos (fig.7c, 7d) and a timer (fig. 7b)



Fig. 7a: Prototyping "Show your day"

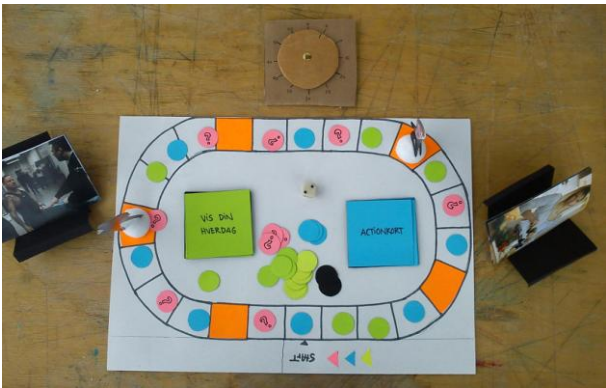


Fig. 7b: Prototyping "Show your day"



Fig. 7c: Prototyping "Show your day"

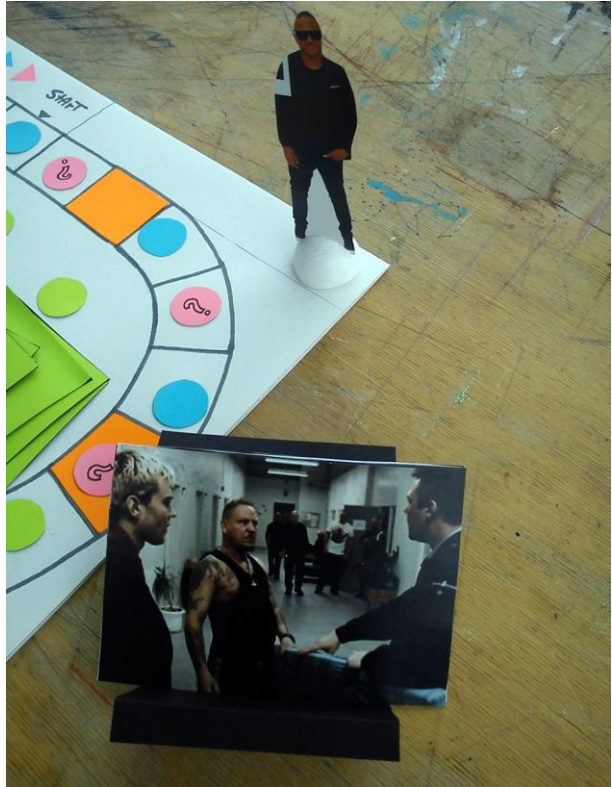


Fig. 7d: Prototyping "Show your day"

"Show your day" is a game that the two players must build them selves by making their own bricks (fig. 8) and by taking photos of their daily environment. The two players, (in this case father and son) must take at east 5 photos between every game session (when separated from one another). These photos form the core of "Show your day" and can be seen as "windows" that give the child a view into the inside of the prison world (snapshots taken trough the fathers eyes) - or give the father a view into the world of his son (seen trough the child's eyes).

These photos are interesting in several ways. First of all in relation to the game play itself, which is basically about guessing "the story behind each-others pictures", combined with certain tasks (from the self-made activity cards).

Guessing "the story behind the pictures" deals with the fictional world as well as the real world. For instance, the father might be guessing that the reason the child brought the classroom-picture (Fig. 7d) into the game, is because one of the girls in his class is acting as teacher and that was a funny situation. The child might react to that by telling that the real reason for taking the picture is that he and the girl (acting as teacher) is in love.

Seen from the child's perspective, the child might guess that the father took the photo of the angry-looking prisoner (fig. 7b) because he had an argument with the guard. The father might agree on that, and they will have a dialog about these events, as they go along in the game. Whether these stories are true or not, is not important. What is important is that the two players bring in real-life pictures into the game world - and talk about these from a fictional or none-fictional point of view.

These photos might or might not activate a plot: The player could choose to explain the picture (tell the story) as any series of events happening to one person. That means it's a story without a plot. Or, the player could tell a story shaped and arranged to show connections, relations, cause and effects. This to communicate that there are emotions at play in a specific form. That means there is a plot connected to the photo. A sketch illustrating this must look like this:

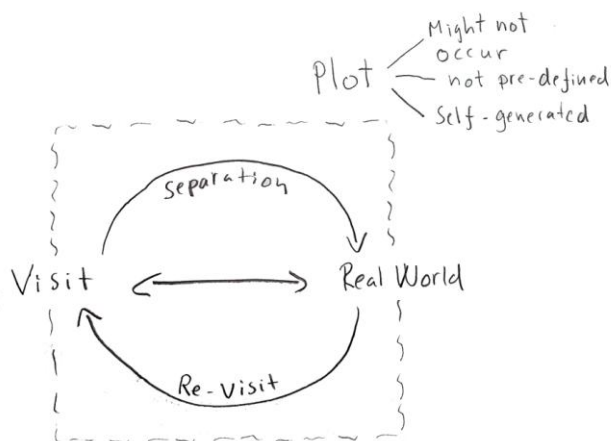


Fig.8: Plot in relation to the sequence "Visit - Separation - Revisit" in "Show your day"

Figure 8 indicates that the role of the plot in "Show your day" is not fixed (as in "Dad's Escape") or multi-combinable (as in "Monster Box"); it is simply there or it is not there. It depends on what pictures are being brought into the game - and how the players choose to "tell about the picture" they took. In doing so, the plot becomes self-generated by the players and is not pre-defined by the game. So it is a fragile plot - and if it takes place, it is rooted directly in the everyday experiences of the two players.

DISCUSSION

How is our approach different from serious gaming? As mentioned in the introduction, serious games are often dealing with learning and with training through (computer based) simulation.

What all three games have in common is that they are not dealing with learning, but rather with growing social relationship over time; either by depending on players input into the game, like for instance photos ("Show your day"), drawings ("Monster box") or self made cards ("Dad's Escape"), or by changing the other players emotional reaction towards a serious situation. This is done in "Dad's Escape" when negative emotions (connected to deprivation of freedom) is the theme of the game; here imprisonment becomes the subject of the game, but it is turned into a humorous situation, where one of the players prevent the other player from escaping from prison.

Through such a game play the player can put new perspectives on identity: "Dad's escape" thus allows the child player to step into the state of a prisoner - or to play the role of the father's antagonist (the prison guard). The father on the other hand can step out of his role as "inmate" by taking the role as prison guard. Clearly, the intention of the game designer is not that escaping from prison is something that the father should attempt to do or the child should praise. The two players of "Dad's Escape" know the father cannot escape, but they imagine he could - and they are having fun in trying! While creating the element card they get an opportunity to talk about experiences related to their separate worlds. In so doing, they grow social relationship and mutual understanding while playing. And this is the underlying intention of the game designer.

Another aspect that separates the three game prototypes from traditional serious games is that they are not dealing with simulation. Rather they deal with the real world on a fictive level. This is especially the case in "show your day". Here the pictures taken by the two players do not simulate the world of a prisoner or that of a child. It merely offers a new perspective on social issues (with being in prison - or living without a dad) by letting the two players guess each others worlds and allow a fictive look on personal problems or concerns. Fiction (rather than simulation) in these

three projects becomes a frame for integrating everyday experiences into the game play.

The notion of time is of great importance in all three games. The game-experience is not limited to the time of playing, like many screen-based computer games are. These new games extend beyond the game itself, to include the whole experience of playing the game: during the visit, when being separated and when returning to play the game again. This is especially present in *Monster Box* that enables the two players to be in a constant visual, playful, experimental dialogue with one another, even though they are absent from each other.

Besides indicating the way for a new approach to designing games in serious contexts, the game prototypes we have been delving into also point towards some implications for an emotion-driven approach to design. First, while theories of emotions offer exhaustive frameworks for describing how products are able to elicit emotions (Desmet 2002; McDonagh, 2004; Norman, 2004) the questions as to how such emotions and experiences may change and evolve over time has only received little attention. By examining the game prototypes, we have indicated how narrative plots in a game offer opportunities for people to evolve emotional relationship over time through gaming. In the same register, models for understanding emotion's evolution over time are developed in another paper by Knutz (2012) focusing on game experience and by Markussen, Ozcan and Cila (2012) focusing on product experience.

Secondly, emotion driven approaches to design have a tendency to focus too narrowly on the user's felt and sensed emotions, while the question of what people may get out of experimenting with imaginative experiences of emotion through game and fiction is left largely unaddressed. Our approach is premised on the assumption that design strategies ought to place greater emphasis on fictional emotions and their value for product use even in serious contexts. Thus, in another work we have demonstrated that children can communicate valuable information about their felt emotions through how they play out fictional emotions in a game (Knutz & Markussen, 2010; Knutz, 2012). Thirdly, knowledge of **subjective well-being can be in hand in order to explore strategies for future applications** of narrative games in serious contexts.

Subjective well-being differs from traditional emotion-driven approaches because it calls for broadening the focus to include long-lasting existential and emotional states.

The games presented in this paper focus on the social relationships between players. By stimulating players to invest in their meaningful relationships, these games can potentially contribute to the subjective well-being (or happiness) of the people playing the game. Positive psychologists like Seligman (2011) have shown that investing in meaningful relationships is a key strategy to becoming a happier person. This illustrates an interesting aspect of the approach: by extending the possibilities from learning or training to other types of interactions and behavior, it opens new possibilities to design for subjective well-being. Designing activities that are meaningful has been shown fruitful for happiness-driven design intentions (Desmet, 2011). This opportunity comes with the challenge of identifying or selecting fruitful purposes given a particular serious context. Here knowledge of conditions for happiness that has been published in the Positive Psychology domain can be of use. For example, Lyubomirsky (2007) formulated 12 strategies to change behavior in order to increase happiness. We believe it to be interesting to explore how these and other kinds of strategies can inspire future applications of narrative games in serious contexts.

Fourthly, a designerly and artistic approach to game-prototyping enables the designer to explore new purposes for gaming **This is a possibility but also a challenge, because how to identify fruitful purposes given a particular serious context?** We believe that in terms of identifying fruitful purposes, game prototyping offers a rich number of unexplored methods and techniques (e.g. experimentation, game play prototyping or exploring the notion of fiction). With these methods, the designer starts exploring purposes before settling on medium and techniques.

CONCLUSION

In this paper we have been examining three ways in which a narrative plot can be designed to frame a game in a serious context. Moreover, we have looked into how items and experiences from real-world

settings can be brought into the fictional world of a game and be used as props for driving the action in the plot forward. In "Dad's Escape" the plot of escaping from prison set a well-structured frame for how to create escape attempts and traps during the game, but the plot itself remains unaltered by the game play. Monster Box, on the other hand, is made out of a game engine that structures the game play according to pre-defined plots and literary genres such as fairy tales, horror stories, or fantasy novels, but the drawings that the players bring into the game from their real world may eventually change the plot line or bring in characters from other universes than those found in the literary genres. Finally, "Show your Day" is only loosely structured by a narrative plot. Here, the plot emerges from guessing what is shown on photos taken from the everyday life of the players in the period between playing the game. It is an example of how a plot can be self-generated by the players. Whether or how the players actually grow emotional relationships from playing the game remains an open question. In their current state, the game prototypes are just prototypes. Our aim is not to validate these games by putting them in a real prison. Not yet at least. Our aim is to pursue developing and explore different forms of game-prototyping for serious context and gather knowledge from these; to explore fiction, to explore the methods for prototyping games and to **identify fruitful purposes for gaming, given a particular serious context.**

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REFERENCES

- Apter, M. J. (1991). A Structural-Phenomenology of Play. In Kerr, J.H. and Apter M.J. (eds.), *Adult Play: A Reversal Theory Approach*. Amsterdam: Swets & Zeitlinger.
- Aristotle, 1996. *Poetics*. Translated with an introduction and notes by Malcolm Heath: Penguin Books.
- Barthes, R. (1975). An Introduction to the Structural Analysis of Narrative, *New Literary History*, vol. 6, no. 2
- Brooks, P. 1984. *Reading for the Plot. Design and intention in narrative*, New York: Knopf.
- David, M & Sande, C. (2006) *Serious Games: Games That Educate, Train, and Inform*. Course technology, Cengage learning.
- David Herman, Manfred Jahn, Marie-Laure Ryan (2005) *Routledge encyclopedia of narrative theory*, p.574
- Desmet, P.M.A. (2002): *Designing emotion*, Delft University of Technology.
- Desmet, P.M.A. (2011). Design for Happiness; four ingredients for designing meaningful activities. In: N.F.M. Roozenburg & P.J. Stappers (Eds.), *Proceedings of the IASDR2011, the fourth world conference on design research*, Oct 31-Nov 4, 2011, Delft, The Netherlands.
- Forster, E.M. 2000. *Aspects of the Novel with introduction by Frank Kermode*, London: Penguin Books, pp 87.
- Juul, J. 1999. *Kampen mellem Spil og Fortælling*. Thesis: www.jesperjuul.dk/text/clash_between_game_and_narrative.html
- Juul, J. 2005. *Half-Real. Video Games between Real Rules and Fictional Worlds*, London: The MIT Press.
- Knutz, E. & Markussen, T. 2010. Measuring and Communicating Emotions Through Game Design. *Proceedings of the 7th International Conference on Design and Emotion*. Illinois Institute of Technology, Chicago.
- Knutz, E. Fictional Emotions within Emotion Driven Design. *DeSForM 2012: Meaning. Matter. Making. 7th International Workshop on the Design & Semantics of Form & Movement*. 2012.
- Lyubomirsky, S. (2007). *The how of happiness; a new approach to getting the life you want*. New York: Penguin books.
- Markussen, T., Ozcan, E., Cila, N. 2012. Beyond Metaphor in Product Use. *Proceedings of Desform 2012*
- McDonagh, D. et al. (2004): *Design and Emotion: The experience of everyday things*, CRC.
- Norman, D. A. (2004): *Emotional Design: Why We Love (or Hate) Everyday Things*, Basic Civitas Books.
- Seligman, M.E.P. (2011). *Flourish*. New York: Free Press.
- Games:**
- SnowWorld (2004), serious games developed by Hoffman & Patterson at the University of Washington Harborview Burn Centre in Seattle.
- Americas Army: *Rise of a soldier*, Playstation 2, 2003.
- Pixeline, see: www.kreagam