FantasyA and SenToy

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ABSTRACT

FantasyA is a role-playing game where emotions are part of the game logic. SenToy is a tangible interface device [2], used to influence emotional behaviour in FantasyA. Players in the game FantasyA have to master SenToy and exhibit a particular set of emotions and perform a set of actions in order to evolve in the game [3]. A study was undertaken to gauge the success of the overall gaming experience, as well as the individual components, the FantasyA game with its emotional content and the SenToy control device with its gestural input.

Keywords
Affective tangible interaction, computer gaming.

INTRODUCTION
Gaming is a highly relevant application area for Intelligent Agents and Human Computer Interaction (HCI). Computer games bring us a full set of new gaming experiences where synthetic characters take on the main role. Using affective input in the interaction with a game and in particular with a character is a recent and fairly unexplored dimension, and to our knowledge, there is no other system like the one we are developing and describing here. In evaluating FantasyA we look to answer the following questions:

- Do users have fun?
- Is there a sense of presence in the game?
- Can users understand the emotional state of the other characters in the game?
- What is the role of the emotions in capturing users' involvement?
- Do users grasp the game logic? Do they understand the role played by emotions in the game logic?

FANTASYA GAMEPLAY
For the evaluation study described here, the FantasyA demonstrator supported a duel between mages in different clans. The duel takes place in an arena and it is possible to assume the role of a mage from one of four clans; *Air, Fire,*

Earth and *Water*. After choosing a clan and naming the mage, the players enter the arena and take part in their first duel. An opponent is selected from the other clans, and the two mages fight it out, taking turns to either attack their opponent or to defend themselves. The subjects interact with the game through the SenToy doll, expressing one of six emotions through gestures using the doll [1] when it is their turn (see Figure 1). The emotion expressed through the doll indirectly controls the action performed by the avatar in the game.

Figure 1: SenToy & playing the FantasyA game

THE STUDY
In total 30 subjects participated in the main study in 15 sessions, a pair at a time, using the co-discovery usability method [4]. As well as encouraging discussion between the players, it was hypothesised that this would mimic game-playing situations better since players often sit together. Our subjects ranged in age from $9 =< 20.6 =< 38$ years and can be divided into three main categories: Children, High School students and Adults (see Table 1).

Category	# Subjects	Av. age	Male/Female
Children	8	11.6	6/2
Students	12	18.6	11/1
Adults	10	30.1	7/3
Totals	**30**	**20.6**	**24/6**

Table 1: Background information on subjects

Three types of data were captured during the study; (1) video recordings of the entire session, (2) questionnaires filled in before and after the session, and (3) an open interview at the end of the session (captured onto videotape).

Players were provided training on how gestures were performed using SenToy and how this in turn made their avatar behave emotionally. Thus they could see the relationship between their movements with the SenToy and

their avatar's affective expressions. This meant that they learnt their own characters emotional behaviours, but not the other clan expressions. Most of the game rules were explained to the players, but the rules concerning the role of emotions in the game logic were withheld. A complex set of relationships governed what took place in the game. Each time an avatar acted, the action was chosen based on the emotional state of both avatars. For example, an angry water character would blast a frightened opponent but shield himself if the opponent was surprised. Other rules governed the avatars' automatic reactions to actions and their resulting changes in emotional state (e.g. if your attack was successful you gloat your opponent). Our idea was to see if users picked up on the interplay between their avatar's emotional state and their opponent's emotional state, and acted accordingly.

RESULTS

Players could identify with the doll, but sometimes the avatar reacted in strange ways, due to the inbuilt indirect control mechanism between doll and avatar. This was probably a bad design choice for this particular game. However, after the game about 80% seemed to like SenToy, with the children in general more enthusiastic about it than the adults. One adult commented:

"A few days after having played, I still like the doll very much. I really appreciated his direct contact to give commands, even if in that case, the commands were not that obvious and their result a bit fuzzy." (adult player)

In general, avatars had understandable, interesting emotional expressions, even though each clan expressed the emotions slightly differently, with players really enjoying the more over-exaggerated expressions of the avatars. The clan *Water* had very good Gloat and Fear expressions that were much liked (see Figure 2).

Figure 2: Fear and two versions of Gloat as expressed by the clan Water

The game logic did not always make sense to players, due to the complexity of the game. In general we found that players could not disentangle the rules and influences from one another. A more direct, understandable coupling between the input and resulting action is required.

Returning to our earlier questions, users said they had fun, and with the children especially we observed players being

drawn into the game. On the whole users did not understand the emotional state of their opponent, were involved more with the gameplay than emotion and had (understandable) difficulty grasping the game logic. However users did understand that different emotions had different effects and many came up with theories whilst playing the game.

DISCUSSION

FantasyA and SenToy clearly show that there is room for affective interaction in adventure games, but that game dynamics require several rounds of design and redesign. It has been proposed that careful involvement of users in the early iterative design phases of the game logic can achieve a better ground for game development and that it is important that the interaction device is properly integrated with the game strategy, graphics, and how the interaction evolves [5]. Our study confirms this.

Concerning SenToy the evaluation shows that it was a great success. Adding more actions, such as walking, picking up items, and possibly some more emotions would increase its appeal. SenToy can probably be used as an affective input toy for several other applications. The FantasyA game was much appreciated even if the game logic was too complex for users to grasp. Suggestions for improvement include speeding up turn taking, more possibilities to influence an avatar in a turn and the introduction of sound.

ACKNOWLEDGMENTS

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