

Augmenting Trading Card Game: Playing against Virtual Characters Used in Fictional Stories

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Abstract. We present Augmented Trading Card Game that enhances remote trading card game play with empathetic virtual characters used in fictional stories like popular animation and game stories.

1 Introduction

Augmented Trading Card Game (Augmented TCG) for playing the Yu-Gi-Oh! Trading Card Game (<http://www.yugioh-card.com/en/>) between two players who are located in different places is presented in this paper.

We use popular virtual characters that have been used in Japanese animations and games as opponent players in Augmented TCG. The virtual characters replace real players whose movements are synchronized with the virtual characters. Especially, the Yu-Gi-Oh! TCG has been originally introduced in the Yu-Gi-Oh! comic and animation. One of the reasons why Yu-Gi-Oh! TCG is popular in Japan is the fact that almost all young people have first enjoyed the animation and comic story and then learnt how to play the game from the story. Moreover, the story teaches some important ideological concepts such as the importance of justice, friendship, bravery, positivity, and thoughtfulness. That is why we believe that the characters of the animation story can be used to enhance the playing style of the game through the stories they carry and recall. We conducted a user study in which we observed the participants' behavior during the play, and interviewed them after that.

In the current study, we adopted virtual characters used in game and animation stories in three ways. The first way is to use a favorite character unrelated to trading card game. The second way is to use a character appeared on a trading card. Finally, the third way is to use the characters that are appeared in the *YuGiOh!* animation story. Especially, the third way is useful to increase human positive attitude and to enhance their self-efficacy to make a progress of their gaming skills.

There are several other systems that support remote TCG play. Duel Accelerator (<http://www.yugioh-online.net/v3/newvisitors/>) is an online-based Yu-Gi-Oh! TCG where each player chooses an avatar that identifies him/her from the other players. Also, *The Eye of Judgment* (http://en.wikipedia.org/wiki/The_Eye_of_Judgment) uses augmented reality technologies to show special effects on real trading cards.

2 Augmenting Trading Card Game

Augmented TCG enhances the remote trading card play performed by two persons. As shown in Figure 1, the two players are located in different places. Each player's cards in his/her battle field on the table in front of him/her are captured by a camera and projected on the opponent player's table. Also, each player is represented as the 3D model of a virtual character used in popular animations and games, and this character is shown to the opponent player. In the current implementation, MikuMikuDance (<http://www.geocities.jp/higuchuu4>) is used to show the 3D models of virtual characters. The virtual character is controlled using MS Kinect, its movement is synchronized with the movement and the behavior of the player. In the current Augmented TCG, a player can choose one of three virtual characters that are *Yugi* and *Kaiba* from the *Yu-Gi-Oh!* animation story, and *Link* from *The Legend of Zelda* (<http://zelda.com/>). In the *Yu-Gi-Oh!* animation story, *Yugi* is always surrounded by many friends and his winning success is a result of his strong bonds with his friends who love the trading card game. *Kaiba* is a lonely hero and he always seeks the strength in the game, but he does not accept other person's help even if he is in a critical situation. However, he also finally understands the importance of friendship. Most young boys want to follow either of these two characters because they have very typical ideal personalities that are very attractive to most boys. The reason to choose *Link* as the third character in our experiment is that we would like to investigate how a favorite character from another unrelated to TCG story affects the attitude of a player. Also, while playing the game, another virtual character depicted on one of the player's cards appears on a small display near the player once that card is drawn out of the deck, and supports and encourages him/her to win the game until the end of the game.

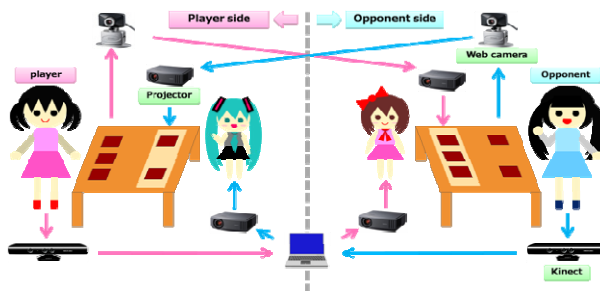


Fig. 1. Augmented TCG System

For the experiments presented in this paper, we have created a special deck as the participants have used the cards in a controlled manner and the rules have been simplified for making the duels shorter. We are also very familiar with the animation story, and know how each character structures the deck and uses the cards in the animation. So, the deck used in the experiment has been structured depending on the character that the player has chosen to play with. However, in the current experiment,

the virtual character's behavior does not reflect the real behavior of the opponent player exactly. Another person imitates the behavior of the opponent player and this behavior is sometimes over-reacted in order to be closer to the actual character's behavior in the animation.

In the current prototype configuration, on a large display, a virtual character which behavior is synchronized with the behavior of the person who imitates the opponent player is shown. A camera is setup behind a small display near the participant, and captures the image of the cards. The opponent player's cards are projected by a projector that is installed on the table. A small display shows the other virtual character depicted on one of the player's cards, which in this case is the one of most powerful cards in the participant's deck.

Most of the five Japanese participants in our experiments have more than three years' experience in Yu-Gi-Oh! TCG and they know the characters that appear in the animation stories very well. During the experiments, we observed each participant's play and conducted interviews with them after their plays. Before the experiments, none of the participants knew about Augmented TCG, and they were told how the rules were simplified right before the experiment.

We did two experiments for playing Augmented TCG with a virtual character representing the opponent player. In the first experiment, participants could choose either *Yugi* or *Kaiba* according to their preferences.

After the play, we interviewed the participants. One of them said: *"I could feel I am playing against Yugi, but Yugi used in the experiment does not offer enough reality"*. Especially, the movement of the character was sometimes not like the real movement of *Yugi*. He said: *"I will definitely enjoy more the game against Yugi, and would like to win the game if the movement is more realistic"*. However, another participant said: *"The face expression of the character is poor and it is a very important issue while playing a game against a real person"*. Also, one of the players told us: *"The voice should be the same as the actor's voice of the character in the animation story"*. Especially, if the opponent player was a female, some participants felt strange since both *Yugi* and *Kaiba* were male characters.

In the animation story, players usually play TCG while standing, that is why we choose that the characters are always standing during the play, but in the real situation, a player usually sits down on a chair. Some participants feel the unreality on the behavior of the characters, but if the characters just sit down all the time, the participants also feel the inconsistency with the *Yugi* and *Kaiba*'s personality.

In the second experiment, *Link from The Legend of Zelda* was used as a character representing the opponent player. The results in this case were completely different depending on whether the participants liked this character or not. If the participants were not interested in *Link*, they usually did not care about the presence of *Link*, but if *Link* was their favorite character, then they found playing the game with *Link* more enjoyable. One of the male participants also told us: *"If the character is a pretty girl, I may be more excited to play the game"*. Also, a female participant told us: *I feel that Link is my boy friend, so playing with him increases my pleasure and positivity"*.

In the next experiment, a small display on the table shows the virtual character depicted on one of the cards used by the participant. We have selected *Dead Master*

from *Black★Rock Shooter* (<http://blackrockshooter.wikia.com/>) as a character to be depicted on the card because we feel that the character does not contradict with or violate the atmosphere of Yu-Gi-Oh!.

In this experiment, we structured a special deck in advance, and all participants used the same deck. Then, in the duel, the participant always drew the card depicting *Dead Master* at the beginning of the game. Once that card has been drawn out of the deck a small display next to the player showed *Dead Master* that remained present until the end of the duel. *Dead Master* supported and encouraged the player during the game by using a body gesture for encouraging people and its behavior was controlled by a person who operated MS Kinect.

After the experiment one of the participants said: *“It is desirable that the card depicting Dead Master does not lose from the attack of the opponent player”*. However, another player who was not interested in the character told us: *“It is more enjoyable if the participant’s favorite character encourages him”*. One of the other participants said: *“I feel that the character does not encourage me enough using only gesture. It is better that the character talks or advises me.* He also told us: *“It is desirable that the character behaves like a cheerleader”*. *Dead Master* is a serious character, so if that character just behaves as a cheerleader, some players may feel the unreality due to the loss of the consistency with its animation story. Also, another participant told us: *“The encouragement should be like the one in the animation story”*. Most participants said: *“The presence of the character increases the pleasure, but it is hard to consider winning the game just from that encouragement”*. The participants’ comments showed that they were aware that exactly the character depicted on one of their cards appeared on the small display without them being informed in advance about this feature of the system.

3 Future Direction

If people are familiar with the story of an animation or a game, virtual characters in the story recall the leitmotif of the story with a little information by performing some action/interaction with the character. We believe that this observation is important when using virtual characters in various future information services in the real world. The proposed approach will be integrated to other design approaches [1, 2] to design attractive information services that regulate human attitude and behavior.

References

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