

My Dream Theatre (Demonstration)

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ABSTRACT

Being able to resolve conflicts effectively is a skill of primary importance in our society. In this paper, we describe a serious game that aims to teach 9- to 11-year-old children conflict resolution by making them aware of the deep elements of conflict. The player is invited to manage a theatre club and mediate the conflicts that may suddenly arise between the synthetic characters as autonomous agents.

Categories and Subject Descriptors

I.2.11 [Artificial Intelligence]: Distributed Artificial Intelligence—*Intelligent agents*

Keywords

Serious game; Conflict Resolution; Emotional Agents

1. INTRODUCTION

Conflict is part of the human nature and is present in every stage of one's life. To be able to cope with such situations and knowing how to handle different kind of conflict related events is a skill that one should learn how to master from early stages in life. To improve conflict resolution skills among the population at large is of paramount importance for a healthier, more peaceful and productive society.

The work described in this paper is integrated into a project, which aims at exploring serious games as a tool to teach conflict resolution skills to children aged 9 to 11. The serious game – *My Dream Theatre* (MDT) – presents a theatre company where the user/child is challenged to manage a cast during a full season. One of the main ideas of the concept is the existence of Non-Player Characters (NPCs), with their own set of characteristics that will influence the conflict situations. It is up to the player to find the best way to mediate those conflicts. Although other researchers have explored games as a vehicle for teaching conflict resolution, as is the case with *Choices and Voices* [3] or *FearNot!* [1], those games tackle specific characteristics of the phenomenon (e.g. bullying and one's internal dilemmas), whereas, in MDT, we intend to address deep elements of conflict.

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2. LEARNING SCENARIO

In MDT the player is challenged to mediate conflicts in a theatre company. The success of the player is based on his/her ability to help the actors overcome conflict situations and bring out great live performances. The virtual actors have a set of characteristics, such as: preferences for roles (for example, some may prefer to be a “Hero”, whereas others may prefer to be a “Villain”); different “conflict resolution styles” regarding their cooperativeness and assertiveness; resilience to conflict; experience in acting; and a conflict level, which affects negatively the cast member's acting during the performance. If the player handles the conflict situations effectively, virtual actors may gain experience on conflict resolution. With that, they become more resilient to conflict and able to resolve such situations by themselves. Further, if the user is able to maintain the conflict levels low, actors will perform better at the play.

3. DEMONSTRATION CONTENT

The demonstration¹ presents a complete playthrough of the game, which consists of three rounds, and each round is formed by three rehearsals followed by a performance.

Before each rehearsal, the player is informed that an event external to the theatre occurred (e.g., two characters got upset with each other on a soccer match). The actors involved bring the negative effects of this external event to the theatre company, thus, their conflict levels increase. However, characters that are resilient to conflict may protect themselves from being negatively affected by this situation.

In the rehearsal, the player has to assign roles to the cast. As a result of that assignment, conflict situations may occur due to the virtual actors' preferences on certain roles, conflict levels and personalities. Figure 1 illustrates those steps. In the figure, the actress (“Diana”) received an undesired role and, due to her conflict resolution style (high assertiveness and low cooperativeness), she started a discussion with two other actresses that received her desired roles (“Carolina” and “Marta”). Two red lines that connect the involved actors portray this discussion.

After that, the child player is able to help actors by using conflict resolution actions (e.g., talking to one actor, talking to a group), which may reduce conflict levels and improve actors' skill on resolving conflicts by themselves. Moreover, actors may improve their acting skills, if they are happy with the role they got and their conflict levels are surpassed

¹Video in <http://web.ist.utl.pt/ist158591/aamas2013>

by their resilience in conflict. Moreover, if conflict is not handled carefully, during the rehearsals, actors may reach their “boiling point” and perform extreme actions, such as, leaving the theatre company and skip the following phase.

Finally, in the performance turn, the cast performs a live for an audience. The quality of this live performance is reflected in the audience’s applause, which is affected by the acting skill levels and conflict levels of the actors that attended the performance (the more upset they are, the poorer their acting will be).



Figure 1: Conflict situation between three actors.

Regarding the technology, the game is being developed in Unity3D², in which the game assets are provided by *Serious Games Interactive*³. Moreover, the virtual actors minds’ are implemented in FATiMA [2], and a world simulation framework, ION [5], support their integration into the game.

4. AGENTS IN CONFLICT

Conflict in real life has a strong emotional component reflected in one’s actions. The intense emotions associated with conflict episodes are the factors that make them feel so overwhelming to children. It is important that they recognize and be sensitive to emotional changes associated with conflict dynamics so they are able to manage conflict more effectively. In this setting, we explored emotional aspects of conflict and emotional reactions to conflict situations to create more believable behaviour in the virtual characters.

The integrated model of emotions in the game’s agents stems from the OCC cognitive theory of emotions, which defines emotions as valenced (good or bad) reactions to events. The conflicts will emerge due to the actors’ perception of opposite goals and their choice of actions to handle the situation. Hence, the agents’ appraisal of the situation will make their responses vary and create different scenarios, in which the player has to learn how to manage.

Further, the agents’ actions towards conflict also vary according to their conflict approach style in line with Thomas’ taxonomy [4]. The taxonomy defines four conflict approaches in terms of assertiveness and cooperativeness. Assertiveness refers to the extent to which protagonists try to achieve their

own goals and cooperativeness refers to the extent protagonists try to satisfy the concerns of others.

Moreover, one important phenomenon that we aim to represent by taking this approach is the escalation and de-escalation of conflict. A conflict escalates as it gets worse and de-escalates when the magnitude of the situation decreases. In the game, the deterioration of the agents’ emotional states drive their actions to be more extreme.

5. ADAPTATION SYSTEM

One of the main purposes of MDT is to be a support tool for education, as children should use it in classrooms. With such, we developed an Adaptation system that allows educators to define educational goals, which will change the game conditions of MDT, personalise the game experience and guide players, according to each child’s learning needs. This system intends to optimise children’s learning gain by promoting the use of a specific conflict resolution strategy that they might not know how to apply properly, or by presenting a new conflict situation that they might not know how to handle.

This adaptation is done by manipulating both the external events at the beginning of each rehearsal as well as the set of roles that the player will have to assign to the virtual cast. This allow us to control and create specific conflict situations that will “force” children play in certain ways to smooth the situation.

6. FUTURE WORK

Beyond the work described here, it is currently being investigated the integration of a profiling system, which would keep track of the players’ individual statistics, such as, playing styles and learning achievements. For one, the Adaptation system could use this information to predict the player’s reactions to specific situations and better manipulate the game, in order to reinforce the learning aspects. Furthermore, the profiling system would allow the virtual agents’ cast to add some continuity to their behaviours, as they could adapt their behaviour to the user’s playing style.

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8. REFERENCES

- [1] R. Aylett, M. Vala, P. Sequeira, and A. Paiva. Fearnot!: an emergent narrative approach to virtual dramas for anti-bullying education. In *Proceedings of the 4th ICVS: using virtual reality technologies for storytelling*, 2007.
- [2] J. Dias and A. Paiva. Feeling and reasoning: A computational model for emotional characters. In *Progress in AI*. Springer Berlin / Heidelberg, 2005.
- [3] PLAYGEN. Choices and voices – <http://playgen.com/choicesandvoices/>.
- [4] K. W. Thomas. Conflict and conflict management: Reflections and update. *Journal of Organizational Behavior*, 13:265–274, 1992.
- [5] M. Vala, G. Raimundo, P. Sequeira, P. Cuba, R. Prada, C. Martinho, and A. Paiva. ION framework – a simulation environment for worlds with virtual agents. In *9th International Conference on IVA*, 2009.

²<http://unity3d.com>

³<http://seriousgames.dk>