FearNot! Demo - A Virtual Environment with Synthetic Characters to help Bullying

Marco Vala, Pedro Sequeira, Ana Paiva

INESC-ID and IST
Av. Prof. Cavaco Silva
2780-990 Porto Salvo
Portugal

ana.paiva@inesc-id.pt

Ruth Aylett

MACS, Heriot-Watt University
Riccarton
Edinburgh EH10 4AS
United Kingdom

ruth@macs.hw.ac.uk

ABSTRACT

This demo features FearNot!, a school-based Virtual Learning Environment (VLE) populated by synthetic characters representing the various actors in a bullying scenario. FearNot! uses emergent narrative to create improvised dramas with those characters. The goal is to enable children to explore bullying issues, and coping strategies, interacting with characters to which they become affectively engaged. Through their appearance, behaviours and affect, these characters are able to trigger empathic relations with the user. FearNot! is used for Personal and Health Social Education (PHSE) for children aged 8-12, in the UK, Portugal and Germany.

Categories and Subject Descriptors

I.2.11 [**Artificial Intelligence**]: distributed artificial intelligence – *intelligent agents, multiagent systems*

General Terms

Human Factors

Keywords

Empathic Characters, Emergent Narrative, Bullying

1. INTRODUCTION

Virtual Environments (VEs) are seen as an engaging new way by which children learn experimental science and other disciplines. Following the successful example of computer games, VEs are perhaps the most promising new technology to be used in the development of interactive learning applications for children.

This demo presents FearNot! – Fun with Empathic Agents to Reach Novel Outcomes in Teaching, which is a pedagogical system developed to address the question of bullying in schools [2]. It was developed in the VICTEC (Virtual ICT with Empathic Characters) project and it is continuously being improved in the eCIRCUS (Education through Characters with emotional-

Intelligence and Role-playing Capabilities that Understand Social Interaction) project.

FearNot! uses emergent narrative and a cast of autonomous characters to create improvised bullying situations which are not predictable or completely controlled [4]. The child is asked to act as an "invisible friend" and to give advice to a victim of bullying. The advice influences the victim's behaviour without undermining its autonomy of action and the child's ability to believe in it as a character with an independent inner life.

Figure 1 – Bullying Situation in FearNot!

The aim of FearNot! was to allow children to explore what happens in bullying using an unthreatening environment in which they took responsibility for what happened to a victim, without themselves feeling victimized. This sense of responsibility would be achieved by creating an empathic relationship between child and character, so that the child would really care to what happened to the victim.

2. THE DEMONSTRATOR

Bullying is associated with it a wide range of behaviours sorted in two major groups: direct bullying and relational bullying. Direct bullying is associated with physical aggressions like hitting, punching, or stealing. Relational bullying is associated with social exclusion or malicious rumour spreading.

The virtual stories experienced in FearNot! let the children witness (from a third-person perspective) a series of bullying situations towards a character. However, instead of just watching,

the child discusses the problems with the victim and proposes coping strategies.
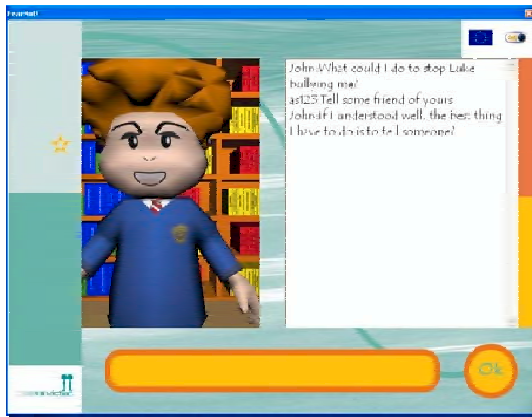

Figure 2 – User Interacting with a Character

Building FearNot! raised several problems related with the issue of creating an emergent narrative. We wanted believable stories that really looked like bullying situations, but we also wanted stories that could be adapted to include the advices given by the children.

The minds behind the characters [5, 6] are autonomous agents that generate the behaviour of each character as the stories shown to the children unfold. These minds capture some aspects of affective processing and allow individual personalities, thus enabling characters suitable for emergent narrative.

However, despite this emergence, it is important to note, especially in a pedagogical domain, that the author must be able to constrain the story flow to meet their high-level authoring objectives. A Story Facilitator [3] ensures that these authorial objectives are met using abstract guidelines defined by the author.
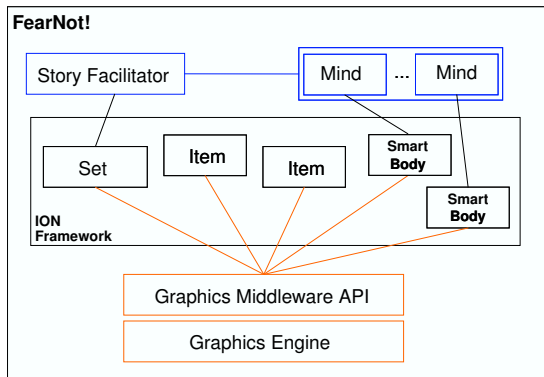

Figure 3 – FearNot! Architecture

FearNot! uses a layered architecture as depicted in Figure 3. The bottom layer has the graphics engine and manages the scene graph and its graphical objects. The characters' bodies are represented by 3D models with a set of key-frame animations. These bodies are able to interact with items and to react to other bodies [7].

The second layer is the world model which keeps a symbolic representation of the entities in the application. We use the ION framework [1] to manage these entities and the communication between them. Entities with visual representations have binds to the graphical objects of the bottom layer, thus providing a clear abstraction between the graphics engine and the world model.

The top layer is the application layer. It puts the application together: manages the user interface, creates the world model, connects the minds to the bodies and initiates the story facilitator.

3. CONCLUSIONS

We have presented FearNot!, an anti-bullying application that features emergent narrative and a full cast of autonomous characters.

Creating believable characters that give the illusion of life allowing the user's suspension of disbelief is essential for FearNot! because not only is believability a precondition for an empathic relationship between characters and users, but also, because we are dealing with a dramatic environment, and to tell a story our characters must be believable.

In the demo we expect users to interact with FearNot! by advising a victim of bullying how to cope with the situations. We hope to show in the demo that a user can become engaged and affected by what happens to the characters they interact with.

ACKNOWLEDGEMENTS

REFERENCES

[1] Ayllet, R., Vala, M.: "Deliverable 3.5.1: Toolkit Final Version". VICTEC EU Project IST-2001-33310 (2005)

[2] Aylett, R., Louchart, S., Dias, J., Paiva, A., Vala, M.: "FearNot! - An Experiment in Emergent Narrative". In Proceedings of IVA 2005, pp.305-316 (2005)

[3] Aylett, R., Figueiredo, R., Louchart, S., Dias, J., Paiva, A.: "Making It Up as You Go Along - Improvising Stories for Pedagogical Purposes". In Proceedings of IVA 2006, pp.304-315 (2006)

[4] Aylett, R., Louchart, S., Dias, J., Paiva, A., Vala, M., Woods, S., Hall, L.: "Unscripted Narrative for Affectively Driven Characters". IEEE Computer Graphics and Applications 26(3):42-52 (2006)

[5] Dias, J.: "FearNot!: Creating Emotional Autonomous Synthetic Characters for Empathic Interactions". MSc Thesis, IST, Technical University of Lisbon (2005)

[6] Paiva, A., Dias, J.: "Feeling and Reasoning: A Computational Model for Emotional Characters". In Proceedings of EPIA 2005, pp.127-140 (2005)

[7] Vala, M., Dias, J., Paiva, A.: "Mind the Body: Filling the Gap between Minds and Bodies in Synthetic Characters". In Proceedings of IVA 2006, pp.469 (2006)