

The Child Behind the Character

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Abstract

This paper presents our research approach for guidance and control of a story character by young children. With this approach we argue that it is possible for a child to be at the same time an actor performing a role in the story and an engaged and empathic spectator of the overall story. To illustrate the approach we will describe *Teatrix* a collaborative virtual environment for story creation by young children. In *Teatrix* children control the actions of their story characters in order to perform a certain chosen role (ex. a villain or an hero). Following a theatrical metaphor, *Teatrix* allows children to set up new stories and act them out in a game like manner.

Introduction

In the first three years of their lives, children play and try to make sense of the world that surrounds them. Through direct interaction and exploration they start to assign categories and concepts to the objects and events of the world.

After having acquired their first notions and knowledge about the world, they begin to construct more decentralized plays and start to include the others in their make-believe world. At this point they also start to use common objects in such a way that they became magical and powerful props in their stories (for example, a stick that becomes a horse) (Singer & Singer 1990).

Following Piaget's theory, this evolution of the make-believe activities allows children to perform different roles, gain control of the course of the action and acquire the skills to organise the sequence of a play and most important to project these experiences into the cognitive and social requirements of the real world.

Along with these findings about children enactment in make-believe worlds, there is also evidences that show that when being part of the audience of a play, children develop an empathic and close relation with the cast of the story (Wood & Grant 1997). Furthermore, when "acting" as audience, children enjoy taking sides, identifying themselves with a good character or being

angry with a mean character. They become very emotional and emphatic about the characters and plot, and instead of keeping their thoughts to themselves they instantly demonstrate their feelings and automatically respond to a change in the flow of the story. Therefore, children are the most truthful audience, they let the actors know when they are bored and conversely when they are really liking the play they interact with it.

When starting to develop the characters for the collaborative story creation environment, *Teatrix*, we grounded our research not only on the benefits that children take from being actors in dramatic games but also on the children fulfillment that is provided by being in the audience.

To this end, we designed our characters in such a way that they are the ones really acting the story out, but they are only able of such acting because they are directed and controlled by the children. Therefore, children are simultaneously the actors of the play - by means of their characters - and the audience of the same play - since they are not physically in the story world and they assist to the story development at *creation-time*.

Application: *Teatrix*

The story characters are being developed within the context of the *Teatrix*¹ application. *Teatrix* is a collaborative virtual environment for story creation by young children (4-8 years old), which aims at providing effective support for children developing their notions of narrative through the dramatisation of different situations.

This application is divided in three steps strongly related with the theatrical performances (see (Machado, Prada, & Paiva 2000) for more details about the design of the application). The first one offers the children the possibility to prepare the scenes, props and characters for each story (in relation with what happens in the backstage of a theatre during the preparation of a play

¹ *Teatrix* is an application being developed under the Networked Interactive Media In Schools (NIMIS) project, a EU-funded project (n. 29301) under the Experimental School Environments (ESE) program.

- Figure 1).



Figure 1: *Teatrix*: Backstage Option

The second step provides the children with the possibility to initiate one story and to start the acting (on stage performance).

This option is realized in a collaborative 3D world (see Figure 2). In this phase, virtual reality technology plays an important role since it provides the children with the means to explore the scenes during the story creation (Roussos *et al.* 1996). The story creation only evolves if the children work together to achieve a common goal: their story. From the story creation process a "film"-like object is created. This "film"-like object offers the children with a product, which they can analyze and even to reconstruct in future performances.

Furthermore, the children get much more from an interaction or experience if in the end they will create a meaningful artifact, that they can exhibit as a proof of their individual or collaborative work (Papert 1991).

The third option is based on the artifact produced from the story creation process. In this phase, children can be the audience of their own performances and watch their previous performances (as being the audience or the public in the Theatre). In this option the children have also the possibility to write about the stories previously performed. With this part we want to provide the children with the opportunity of watching and discussing what they've produced. By supporting the discussion of the story we aim to promote a bet-



Figure 2: *Teatrix*: On Stage Option

ter understanding of the characters interactions, and maybe to encourage the reflection of the children about the emotional and intellectual parts of the story (Dautenhahn 1998).

The children construct their stories from a set of pre-defined scenarios, props and characters and the acting occurs in a 3D story world. To create a collaborative story, each child, participating in the story creation, chooses a character to direct and during the acting she directs her character by simply selecting actions to be performed in the story world (in figure 2 the acting activity is shown).

To achieve the main goal of *Teatrix*, a narrative guidance system is being developed, which aims at mediating the story creation process and providing the children with an effective support for improving their notion of narrative.

Characters in *Teatrix*

As has been stated before the characters are the ones that are going to act in the story and to do this they must display a believable behaviour to engage the children in an fulfilling experience, which would help them to understand the real world by means of the stories (Dautenhahn 1998). To achieve these requirements, in the design of our characters we followed the methodology presented by Martinho and Paiva in (Martinho & Paiva 1999). Such methodology encompasses 7 steps:

1. Definition of the actors available;
2. Definition of the characters' roles, i.e, the roles that the characters will perform in the stories;
3. Assignment of a personality type to each role type;
4. Definition of the behaviour features for all the combinations actor x role;
5. Definition of the agent's view of the world, i.e., specification of interest filters based on the roles;
6. Definition of the each role's emotional profile;

7. Integration of the emotional behaviour with the character's reasoning process.

Story characters are the conjunction of two different concepts: *actor* and *role* concepts. An *actor* is the physical representation or appearance of a character (examples: a witch, a boy, a girl, etc.). A *role* is the definition of a set behaviours that are known to both the characters and the audience (Hayes-Roth 1997). In *Teatrix*, the roles definition was based on the seminal work done by Propp (Propp 1968) on one hundred Russian folktales (see (Machado & Paiva 1999) for more details on the characters definition). The roles are:

Villain the role of the villain is to disturb the peace of the happy family, to cause misfortune, damage or harm. The villain may be a dragon, a devil, a witch, a stepmother, or even a little boy or a girl.

Hero/Heroine Introduced by his/her name indicating his/her status. Propp presents two types of heroes: the seekers, which go in search of a loved element; and the victimized heroes, whom are themselves the victim of the villainy.

Helper It has special functions in the story and it can be represented in many forms. For example: (1) an animal (a horse; a bird, etc); or (2) objects out of which the magical helpers appear (a ring; a lantern; etc); (3) objects with magical properties (a ring; a sword; etc) or (4) qualities or capacities given directly to the hero/heroine.

Beloved one and Family Usually described in the initial situation, and is often subject to harm by the villain.

Donor or the provider . It is from this personae that the hero obtains some agent (sometimes magical) which allows the hero to eliminate the misfortune.

These roles define and establish the functional behaviour of an agent, by means of the specification of the actions and goals for that agent (examples: villain, hero, donor, etc.). With this well defined set of roles and actors we aimed at providing the children with a set of varied characters who are interesting, identifiable and fun and at the same time that have the means to develop and grow throughout the story creation process (Wood & Grant 1997).

To better understand how a story character is constructed let's assume the example of a child choosing the actor *girl* to perform the role *villain* and follow step by step the methodology:

1. Actor = *girl*.
2. Role = *villain*. Goals of this role: (1) to do some actions in order to injury the other characters (in particular the character performing the role of the *hero*); (2) to enter in direct fight with the hero; (3) and, to pursuit and defeat the hero.
3. Personality of the role *villain*: she has a cold personality and her way of acting is very conventional

and one can always expect the same kind of reactions for some key situations (for example: when trying to deceive the victim, to pursuit the hero, etc.). Although, the villain character is a cold character she displays an active and talkative behaviour in order to deceive and mislead her victims. Also, when the villain character starts a conversation with her victim, she makes uses of her cynical and unreliable personality and tries to delude the victim with lies.

4. Behaviour features: Gloating - when she deceives the *hero*; Disappointed - when she does not deceive the *hero*; Satisfied - when she succeeds to harm the *hero*. Of course this behaviour features are constrained by the type of actor performing the role and they differ in accordance with it.
5. This character has interest filters for the characters performing the roles *hero* and *donor*. Any character performing the role *donor* is also interesting for the *villain*, since it has the power of helping the *hero* to defeat the *villain* by giving him some magical object.
6. At this point, we should define the thresholds of the emotions for this particular role. In particular, the role *villain* has low thresholds for the following emotions: gloating, satisfaction and disappointment.

This method is used to create specific characters for each story set up. Once the set up phase is done, each child has her character to direct and can start playing her story (or a collaborative story if there are more children engaged in the same activity).

The child behind the character

Each child directs her character by using mainly the actions the character can perform. The actions are selected from a set of possible actions associated not only with the character that she is controlling but with the props that the character owns.

For example, "bewitch the hero" can only be achieved by the *girl* if she has in her possession a magical object with such powers. These actions can be picked from a list present in the *Acting Screen* - see Figure 2.

Therefore, the child can control the actions his/her character will perform, even if against the goals established by its role. For example, a child controlling the character *girl* can decide that she does not want to harm or pursuit the hero.

The story will be achieved through the interactions of the different characters of the cast, which can be all controlled by children or system controlled characters. In the later case, the characters behave in accordance to the roles that they play in the story.

Deeper Control of the Characters

Teatrix is already installed in a Portuguese school, "O Nosso Sonho", and we have been testing it since the middle of March. Since the beginning, children showed great enthusiasm to use it and their comments are quite positive:

- “It’s a fantasy of heroes and princesses. It’s play in the computer!”
- “Teatrix is like a theatre where we can play together. What I like most is the feeling of being inside the characters. In Teatrix we can do things that all others can watch, and that is very important because by this way everybody can participate in the stories.”

These first experiences showed that children understood the meaning of the defined roles and that, at acting time, they were able to direct their character in order to meet their goals and display a coherent behaviour. However, and despite the encouraging initial results, some very important problems were brought to light. Perhaps the most important of such problems was the fact that when children were acting the story, they showed a little bit frustrated because the set of character actions did not provide them with the means to develop their characters’ performances as deep as in the play. Their major complains were: they did not have the props they need, the characters were not very expressive, and they could not control the minds of the characters.

To overcome such problems we are now focusing, not only on increasing the number of actions and props available in the system, but also, improving the character’s emotional expression. For the representation of the characters emotional state we are grounding our research on the results achieved by P. George and M. McIllhagga through some the empirical studies run within the PUPPET project (George & McIllhagga forthcoming). These studies showed that children can easily associate and ascribe facial expression to their characters in a story-telling context (in particular in cartoon-based characters).

At the same time, and to allow a deeper control of the characters, we’ve developed a reflection interface - what we call, the “Hot Seating”. The “Hot Seating” allows children to step out of the stage and reflect on their character’s actions and performance, as well as changing their ”minds”. With this new form of character control we hope to foster a better and deeper relation between the character and the child.

The “Hot Seating” method was based on the research of Dorothy Heathcote on acting in classroom drama (Bolton 1998). The idea is that when a child is “seated” on the “Hot Seating”, she is asked to freeze her character’s actions. She should step out of her character and explain what is the meaning of her character’s current behaviour. At each reflection time we seek answers to the following questions:

Character **x** has performed action **z**
 Because <motive>
 Therefore <what are the expected outcomes>

Or

Character **x** is **sad**
 Because <motive>
 Therefore <what are the expected outcomes>

The results from this reflection activity will be particularly useful for the child to reflect upon her character’s behaviour and even to justify why her character is acting that way. With the information gathered from this reflection method we will try to analyse how and why the children direct their characters and maybe what they wanted to express and did not have the required computational features to do it. Further, it is through the “Hot Seating”, that a child can enter the emotional world of the character and at the same time justify its emotional state.

Final Remarks

Although children have been playing with *Teatrix* for more than four months now, we are at present, conducting its formal evaluation. We are also trying to obtain a qualitative assessment method to establish the link between the stories produced in *Teatrix* and the real dramatic games.

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