A Multi-Faceted Look at Computer-Based Role-Playing Games Created by Children

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Abstract: We describe the results of a study which examines the potential educational role of children's use of story authoring tools for virtual environments. We carried out interviews with children, a game designer and an expert teacher, and asked them to play and critique games authored by teenagers. While examining the games, they discussed the features of successful games from a number of perspectives: games which were enjoyable to play, games which made full use of the potentialities of the game environment, and games which incorporated sophisticated story structures. Although there are clear, and expected, differences in perspective between the representatives of the three groups interviewed, there are also common threads that run through all of the interviews. Taken together, the data offers a rich source of information for exploring the use of game creation in educational contexts, and the design of new game authoring environments for children.

1. Introduction

The potential for using computer games to foster children's narrative development is compelling. Children are noticeably enthusiastic about computer games, and teachers and researchers alike have become interested in trying to capitalize on this enthusiasm in educational settings (Gee, 2003; McFarlane, Sparrowhawk and Heald, 2002; Prensky, 2002). In terms of the development of narrative skills, role-playing game creation offers a rich area for exploration. Creating this type of narrative has many features in common with other types of creative writing, e.g., plays. In both cases, settings must be developed, characters created (both their physical characteristics and personality), a plot structure must be devised, and dialogues written for each character. In the case of interactive fiction of the type found in computer based role-playing games, multiple plot threads must also be created, with appropriate dialogue for each thread, so that a player taking part in the game can have a potentially different experience each time the game is played.

Previously, creating these types of games required substantial amounts of programming. In the case of 3D interactive virtual reality role-playing games (e.g. *Tombraider*), the technology has now reached the point where children could create their own stories with little to no programming, and this is an extremely important landmark from the point of view of research and education. By having environments in which these types of stories can be created with minimal scripting, children can focus on literary concepts such as creating gripping plots, believable characters and compelling stories. As such, these environments could have a beneficial effect on the development of narrative skills.

Although researchers have examined children's interactions with pre-existing role-playing games (Beavis, 2000; 2002), we have carried out studies which look at children's *creation* of role-playing games (Good and Robertson, 2003; Robertson and Good, submitted) and, in particular, on the development of interactive narrative within these games.

In this paper, we look at the *product* of game creation, i.e., at actual games made by young people. Our main question is whether there is a tension between the educational benefits of the game creation process, and the entertainment value of the result of that process, i.e. the game. In addition to the features that game design shares with creative writing, games require other features in order to be compelling to players which may be at odds with the educational benefits. What if, by following a teacher's prescriptions for creating a good game from an educational point of view, the game turns out to be boring to play, and uninteresting to other children?

2. Methodology

In order to explore the potential conflicts between the educational benefits of game-based story creation and the entertainment aspects of the game, we carried out a multi-faceted qualitative study which looked at this question from the perspectives of children, expert game designers, and teachers. As the basis for interaction with the three groups, we used games created by young people aged 12-15 using the *Neverwinter Nights* toolset during a four-day workshop (Robertson and Good, submitted). A total of ten games were used. Given that the games were created using the same toolset, there were similarities in terms of settings and overall visual "look and feel". However, the games varied widely in terms of the characters used, size of the area to explore, overall plot structure, dialogue, etc.

We interviewed representatives from the three populations, and transcribed all interviews. Each interview was then analyzed in order to uncover the main themes as they relate to the educational merit of role-playing games created by young persons. Finally, the data from the three sources was compared to investigate common themes.

We describe the interviews in the sections below, and then discuss the ways in which these results complement each other or alternatively, offer varied perspectives. Finally, we consider the implications of these findings for the design of games authoring environments for children. In doing so, we consider the question of whether education and entertainment really are compatible aims.

3. Interviews with children

When choosing a sample of children to interview, we elected for representation from both genders, as a number of studies point to marked differences in game preferences according to gender (Cassell and Jenkins, 1998). Furthermore, pairs of children were used so as to capture more natural dialogue while the games were played and evaluated. We therefore interviewed one pair of girls and one pair of boys, all ten years old. The pairs were interviewed separately, and the sessions lasted approximately 3 hours. During the sessions, the children described their game playing experience, and talked about features that they valued in games. They then played each of the ten games, described what they liked and didn't like about each game, and ranked the games.

Below, we describe the main characteristics which children feel are important in games, along with those features they dislike. We focus on features that are specific to games involving narrative. Additionally, although we analysed the features separately for each gender pair that we interviewed, space precludes a consideration of gender issues, and we therefore present only those features which both genders identified as important.

Sense of Purpose: Having a goal to complete, for example, defeating a bad guy, was deemed as important. In general, action was considered important, even simply browsing inventory items, or trying on different costumes. Likewise, games in which players spent time wandering around aimlessly were rated unfavorably.

Player Choice: The children mentioned player choice as an important feature of games, and valued the ability to contribute to the plot and action while playing the game.

Collaboration/Interaction: Having other players and/or characters to interact with was viewed positively. Likewise, games with little or no interaction were not deemed to be satisfying. Interaction includes the dialogue in which player and non-player characters can engage, and also encompasses the quality of the character's voice (if it has one), what the character says, and player choice in the conversation.

Pace/Challenge: The issue of the pace of the adventure arose frequently. Both girls mentioned "scary" and "exciting" games positively. Similarly, games with little adventure received low ratings. The boys commented that they like challenging games, but not overly so. As John put it "I do like the challenge but I don't … [pauses] well I like it as long as the things don't get too high up."

Narration vs. On-screen Text: This was an important issue, particularly for one of the girls. She very much liked the Neverwinter Nights tutorial which uses narration rather than text to introduce the game, and disliked games which, for example, included long dialogues with other characters, or used long passages of text to advance the plot. This is an important consideration for games which aim to be primarily story-based.

Characters: This category describes the non-player characters in the game, and is fairly broad, encompassing appearance, motives, contribution to plot and worth as an opponent.

4. Expert Game Designer Interview

Children obviously offer an important perspective on game design, as they are the potential players of the games their peers create. On the other hand, they may focus on what they personally like, rather than considering the features of a good game from a more global perspective. In order to capture this perspective, we conducted an extensive interview with an expert game designer.

In selecting a game designer to interview, it was important that he/she be familiar with designing computer-based role-playing games, and have in-depth experience designing games using the *Neverwinter Nights* toolset, the toolset used in the game making workshop. In addition, we required someone who was sensitive to the potential educational benefits of game design.

During a two-hour interview, the game designer played each of the games, commenting on them as he went along. In addition, he discussed how the games compared to professionally designed games, and the desirable features of a computer-based role-playing game (not all of which, interestingly, are always present in commercially designed games). Following are the features of "good" games from the game designer's perspective:

Plot sophistication: Good games go beyond a simple quest (e.g. "Please go and rescue my daughter and bring her back to me, and you shall receive a handsome reward"), and instead incorporate a more complex structure. At the very least, a quest should be well integrated into an overall plot structure.

Causality and consequence: In some ways, this point is related to plot sophistication in that a story should not simply be a collection of random elements. Instead, the plot should incorporate a causal structure, events should have some meaning within the context of the story as a whole, and actions should have consequences.

Interviewer: "It's not plausible that he could just kill the dragon with his bare hands?"
Game Designer: "It could be, but he hasn't made any attempt to explain why it's plausible. It's just a dragon and you go away and kill it and come back. Based on what I've seen of young kids' story writing that it quite common. The important thing is the event rather than any causality behind the event. Is that right?"

Sense of purpose: From the outset, the player should have a clear indication of what she is doing in the game, i.e. a goal that is being pursued, and how that fits into the overall story.

Game Designer: "But the plot… the plot… There isn't… I've no idea what I'm doing."
Interviewer: "You're to get Neptune's Crystal."
Game Designer: "Yeah, but I've no idea why I'm getting it. I met this guy in the street and he said "Get Neptune's Crystal and take it somewhere" so I am."

Visual coherency: Objects' appearances should be coherent with their nature, e.g. a character's appearance may give some indication of her personality. Inexperienced game designers may include huge, scary-looking creatures in their games which turn out to be relatively harmless (note that this can also be used purposefully to "trick" the player).

Game Designer: "He has the same problem that all of them have, that any concept of scale, of plausibility and scale is just lost. You have a huge dragon just sitting there when you wake up. And you have to kill it straight away, you can just punch it and it falls over. So he's clearly just put a big dragon in because he likes the big scary dragon rather than because it makes the slightest bit of sense."

Signposting: Signposting is crucial in order for the player not to lose interest. It can be achieved both visually (making sure the player knows where to go) and through dialogue (for example, having another character give instructions to the player).

Game Designer: "I think I would rather have the player knowing where they're going with some kind of directions or landmarks or something. You know "head north and pick the middle door" or something. Not have vast extraneous areas where they can easily get lost."

5. Expert Teacher Interview

Finally, we interviewed an expert teacher, who is very involved in storytelling and promoting children's narrative skills. We were keen to have her perspective on the benefits of games as a mechanism for motivating children and encouraging their creative writing development. In particular, by having the teacher look at the games the children

created, we were interested in her description of positive/negative features of the games, and in examining those features which she, as a teacher, deemed important and deserving of work and support in a classroom.

In analyzing the games, the teacher was understandably most sensitive to the overall narrative component of the game. Much of the interview focused on how the creation of interactive narrative could be scaffolded in a computer-based game creation environment. She discussed various ways of representing the structure of an interactive narrative so as to highlight its internal logic and allow children to work with the representation effectively and creatively. Below we describe the main themes which emerged from the interview:

Audience Awareness: The teacher raised a very interesting point in relation to narrative in games, namely that the audience, i.e. the player, of a game may interact with the game several times (contrasted with written narrative, where people frequently read a story only once). Therefore, awareness of one's audience includes not only the diversity of the individuals within the audience, but also the audience as a single individual who plays the game several times, with knowledge and skill that increase through repeated playing and who, at the same time, will expect the game to be different each time it is played.

Teacher [describing a level in a game she has just played]: You're going to have a level where someone just managed to get through, you're then going to have the people who can work it, or maybe are playing for a second time. You can develop it a bit more for them. You're thinking about the actual levels of progression. So you're building in the levels of progression in the same game."
Interviewer: "You have to think about all the different user groups, but it would be very useful for people to learn how to do that."
Teacher: "Exactly. And again, you're talking about audience: "Is this geared towards …"? "Can you make it geared towards…?" Using the same setting, can you make it geared towards someone who is more developed in games?"

Non-Deterministic Stories: The teacher felt strongly that a principal benefit of story authoring in game environments is the non-deterministic nature of the story, which should be exploited fully in conversations between player characters and non-player characters.

Teacher: "'Hi'. There's no choice."
Interviewer: "What do you think about these conversations, when they're short?"
Teacher: "I don't think it's any good. You do have to have a choice, don't you? Because why put them in otherwise if there's not a choice?"

Interactive Story Structure: The teacher discussed the nature of non-deterministic interactive stories, and described their internal structure and logic. She felt it was very important to encourage children to work through this structure very thoroughly as an integral part of the game design:

Interviewer: "What do you think about the story of this game? Have you picked anything up about the story?"
Teacher: [pause] "Well, his story… I think he hasn't thought it through. He hasn't thought of the end, so he hasn't thought of a path. He doesn't know where it's going."

Additionally, she noted that this type of story structure helps children to think about choices, both in terms of the choices inherent in an interactive story, and also as a result of the constraints of a computer-based environment and the types of story it can support.

Interviewer: "What effect do you think it would have on children's storymaking skills in general?"

Teacher: "I think it would give a very clear idea of points in the story. Actually turning points in the story, and how a story can develop in different ways. It would also help them with the setting as well. Because they have to get the setting to match their ideas."
Interviewer: "They have to get it to look like what's in their head?"
Teacher: "Exactly. Or the nearest thing they could to it. And that would be a good thing because they would recognise that this, in a way, is restrictive. They have to accept the restrictions because doing anything else on a computer would be far too difficult, too long. So they are trading. And that is a very good thing. Because how often do you get to trade in your learning? "If I do this", "but I choose not to do this" and it's the same principle that you've been training them in [to make choices]. So that's a reinforcement."

Consequences: Like the game designer, the teacher felt that consequences should be a major component of interactive story-based games. She described consequences at two levels: firstly, the child game designer should be designing by thinking in terms of choices and consequences, and secondly, the fact that actions have consequences should be apparent to the child game player. As an illustration of the first point, the teacher and interviewer are discussing ways of representing the developing story structure for the child designers, specifically whether children could understand a representation in which a blue arrow between scenes signifies a logical "OR".

Interviewer: "Do you think children of 10-12 would be able to understand that?"
Teacher: "Oh yes. Yes they could. It's a consequence. Choice and consequence. If you have a choice then you have a consequence. And that's a very good thing because if you think about it, in fairy tales, the sisters or the brothers who go out first make the wrong decisions [describing a commonly used structure in fairy tales]. So they have different consequences."

The following excerpt deals specifically with consequences during game playing:

Teacher: "Obviously if it has possibilities of just fighting and killing that's not going to stop because that's more interesting. Just to have different fights and kill. Especially if there's no consequence. And I think that should not be in the story. There should always be a consequence."

Spoken vs. Written Text: When discussing the issue of spoken vs. written text, the teacher made a very interesting point, namely, that providing characters with voices allows children to create more complex characters, and to express their personality more fully:

Teacher: "Exactly, and for character, you're using - and this is a very good thing - you're actually using dialogue to make character. And I noticed that you have to - there's also emphasis, so it's very much spoken rather than written. …you could think of the voice of the person and how they would speak. What they would say and what vocabulary. All of these things would be reinforced."

Character development: Character development often receives little attention in game design. From the point of view of narrative development however, it becomes crucial.

Teacher: "Yes! But…if you're working on a story you really have to say 'How would this character behave? Does it feel true?' You always have to make these decisions..."
Interviewer: "Evaluate it."
Teacher: "Evaluating all the time... trying out... fine tuning. That's what story making is about."

6. Discussion

In putting together the various perspectives on computer-based role-playing games, and on looking at what makes for a *good* game, it is obvious that there will be differences in opinion. Children will be looking for what they like as the *player* of a game. Game designers will want to see how the features afforded by the particular game have been put to best use. Teachers will be looking at the game produced as an artefact similar to, say, a

short story, and will be seeking evidence of quality from an educational perspective. Nonetheless, there is a definite overlap between the elements valued by each, and we discuss these here. This is not to suggest that things that only one group deemed important are any less important than others, simply that issues mentioned by all groups give us a truly multi-faceted perspective on story creation in virtual environments.

Player Choice: The benefits of player choice were mentioned in all of the interviews. Additionally, the expert teacher noted the educational benefit to the child game *designer*. Creating narratives involving player choice requires the designer to think of many alternatives to the same story, manipulate the story's structure, and consider choice and consequence, elements which are all part of the art of crafting a story, interactive or not.

Consequences: The expert teacher considered consequence to be a defining feature of many types of narrative, particularly fairy tales. The expert game designer also noted the importance of consequence as allowing players to perceive themselves as effective agents who have an impact on the environment. Finally, although much is made of the decontextualized and gratuitous violence present in many computer games, the boys mentioned the importance of consequence, and of having to make up for wrong decisions.

Spoken vs. Written Text: The children and expert game designer mentioned the issue of spoken vs. written text frequently: experienced game players do not want to read text if it interferes with action, while children may have problems reading large amounts of text. The expert teacher noted that spoken text would allow child authors to more fully specify their characters, given that much of the character development in a game must be effected through dialogue. Although we had initially seen the provision of voiceovers as a way to help struggling readers, we now see its potential for making the story itself much richer.

Character Design and Development: Interestingly enough, the boys discussed the importance of characters from a number of perspectives, including appearance and motives. The game designer noted the importance of ensuring that dialogue was in keeping with a character's supposed nature since, as the teacher noted, character is primarily expressed through dialogue. At the same time, creating plausible, believable characters is a primary concern in creative writing, and any game authoring environment designed for children should provide more adequate support for this activity than is currently the case.

7. Implications for the design of game creation environments

In looking at the factors which have emerged from the interviews, it seems apparent that computer-based role-playing game creation could have a profound impact on children's motivation for story creation, and on the development of their creative writing skills. We have attempted to go beyond broad-brush statements about the motivational aspects of playing games in an educational context. Instead, we have taken an in-depth look at the features of computer-based role-playing game creation that could have educational benefits while leading to games that are enjoyable to play.

Additionally, we have looked at the specific narrative skills that could be fostered in such environments. Although environments exist in which children can create games of this kind with minimal or no programming, it is clear that more could be done to scaffold their narrative skill development as they do so. Notwithstanding the content of such games,

which is often inappropriate for children younger than teenagers, these games frequently revolve around one-dimensional characters and thin plots that provide little more than an excuse for combat. Nonetheless, many persons see the potential for environments to go beyond this current paucity in narrative, e.g. (Poole, 2000; Wolf, 2001).

With respect to the development of environments specifically designed to scaffold children in creating interactive narrative in virtual environments, we make the following suggestions, based on our research:

> Ensure that the interface to the story creation tool supports children as they map out the structure of the story, and enables them to understand and manipulate choice points in the story, and the consequences that arise from these choices;
> Design representations that allow children to work with multiple plot threads simultaneously, and provide support for the complexity arising from having to consider the numerous turns that a story could take.
> Provide tools for creating complex, plausible characters via increased choice in character appearance, and the ability to record dialogue. From an educational perspective, give children support for conveying character through dialogue.

We are currently implementing these features into a game creation environment designed specifically for children aged 10-12 called *Adventure Author*. Given the data collected to date, we believe that the process of game creation in such an environment will be both educational and entertaining.

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