

FEARNOT! DESIGNING IN THE CLASSROOM

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ABSTRACT

In this paper, we present a classroom-based approach to obtaining design input from children in the 8-12 age group. The method described, Classroom Discussion Forums, allowed children to verbalise their opinions about FearNot (Fun with Empathic Agents to Reach Novel Outcomes in Teaching), a virtual school populated by synthetic characters for exploring bullying issues. Children's views have had a significant impact on research, design and development of FearNot. Our findings highlight the importance of children's perspectives for designing interactive products.

Keywords

Children, design process, synthetic characters, classroom-based, virtual worlds

1. INTRODUCTION

Recently, researchers have acknowledged that children's views are essential for the design and implementation of successful software products aimed at children [6]. There has been a tendency to directly translate adult design and evaluative techniques for use with children [1], however, involving children in the design process requires the identification of a suitable environment and method to capture children's views and perspectives.

Participatory Design (PD) and Cooperative Inquiry (CI) are well-developed research practices advocated by Druin [1, 2] for use with children. PD is based on the assumption that children can play a part in the design process at various stages depending on the designer needs and can use a variety of available methods to address such needs. CI involves a multidisciplinary partnership with children, field research and iterative low-tech and high-tech

prototyping.

Although these methods have numerous strengths, one central shortcoming is that they are not carried out in the classroom. A school setting allows researchers to build up good relationships with teaching professionals. High ecological validity is maintained [7], with children remaining in a familiar, safe environment. Working in the classroom ensures that application developers consider practical aspects such as lesson logistics and technical resources. The limitations of a classroom setting include time restrictions [5] and in some cases a lack of experimental control [10].

Few approaches are classroom based, an exception is Curriculum-Focused Design [5], a variant of Druin's CI that takes place in the classroom as opposed to the laboratory using a lesson-driven approach. Think Aloud sessions with small groups of children complement questionnaires and verbal feedback sessions.

In this paper, we discuss a method that we have developed for obtaining classroom-based input for FearNot (Fun with Empathic Agents to Achieve Novel Outcomes in Teaching) an application developed within the VICTEC (Virtual ICT with Empathic Characters) project [8]. This project aims to apply synthetic characters and emergent narrative to Personal and Health Social Education (PHSE) for children aged 8-12. FearNot provides a school-based Virtual Learning Environment populated by synthetic characters representing the various characters in a bullying scenario.

In VICTEC, we aim to provide a comprehensive and combined set of classroom-based research methods. In this paper, we focus on Classroom Discussion Forums (CDFs), a method for exploring children's perspectives. Firstly, CDFs are briefly described. The method and results of a small CDF study are then presented. Finally, the impact that children's input has had on the design of FearNot is discussed.

2. CLASSROOM DISCUSSION FORUMS

Classroom Discussion Forums (CDFs) aim to assist children in verbalising opinions about novel, innovative software. Using CDFs children can participate in the design process through informing [1] the technical design teams and ensuring that FearNot is created from a child-

centred perspective rather than relying on adult aspirations and goals.

Our initial intention had been to use focus groups [3] to elicit verbal views, expectations and needs from children. This approach has been successfully used with children [9], however, classroom logistics make it difficult to implement, with teachers expressing a preference for discussion to follow the normal classroom approach of “Table Time” (small group discussion) followed by “Circle Time” or “on the carpet” (whole class discussion).

Classroom culture impacts on the discussion activity, requiring it to be structured with clear goals and steps. As well as verbal discussion, CDFs involve tangible inputs (e.g. FearNot trailer) and outputs (e.g. FearNot interface designs) that are used to focus and structure the discussion. However, where CDFs differ most strongly from focus groups is in their staccato pace, something that strongly reflects the classroom situation.

Rather than a facilitated discussion, a CDF involves a question and answer session, involving many small, related questions from the researchers and rapidly raised hands and responses from the children. Even when a child responds to another child, our fieldwork has identified that rather than a free-flowing discussion, children in this age group typically turn-take via the researcher who nominates whoever has a raised hand to respond. This was seen in all VICTEC partner countries: Germany, Portugal and U.K.

3. METHOD

8 primary school children aged 10-11 years (4 boys and 4 girls) participated. Children were introduced to FearNot through presenting a trailer. This is a snapshot vision of the final product, similar to the trailers seen for movies, where the major themes of a film are revealed. After the trailer, the children completed a short questionnaire (see [11]).

The trailer depicts an episode from a physical bullying scenario with the synthetic characters: Luke (bully), John (victim) and Martina (bystander / narrator). It begins with background history about Luke and John followed by a physical bullying incident. John asks for advice from the children and mentions a number of possible coping strategies (telling the teacher, ignoring Luke, hitting Luke back). The final scene shows the educational message used by VICTEC: ‘don’t suffer in silence, tell somebody if you are being bullied.’

The children then participated in a 30-minute CDF that was led by two trained researchers and included questions relating to a number of FearNot design issues:

- Levels of interest and enjoyment that the children anticipated in interacting with FearNot
- Interacting with FearNot and the synthetic characters - design, information provision, navigation approaches, interaction style

- Design of characters focusing particularly on emotions and children’s emotional response to the events in the trailer.
- Changes to improve FearNot particularly related to types of advice, endings and educational goals.

If requested, the researchers could illustrate points through replaying parts of the trailer. Towards the end of the CDF each child was asked to produce a drawing of what they would ideally like the FearNot interface to look like and the group then discussed their ideas.

4. RESULTS

4.1 Enjoyment and Engagement

All 8 children found FearNot interesting and engaging, wanting to know “what happened next.” They identified that they would use FearNot more than once. Several children wanted to interact as a detective: “getting a better idea about what’s going on” and “walk around and see if they are bullying and if other kids being bullied,” “talk to teachers about John,” and know “who John’s friends are.” Children identified that detection should be up to the individual and you shouldn’t have “to find things and look at things” to continue.

Ideal FearNot interaction time between 20-90 minutes, with most agreeing that 20 minutes would be sufficient.

4.2 Interacting with FearNot

The children identified that the interaction possibilities with FearNot were very limited and suggested that we should “add more to it.”

Their suggestions included: “other places,” identifying that bullying is not just an in-school problem. “Free movement” to “walk around the school and find out stuff” about the story. “Physical challenges” such as “picking up” objects that contained advice about bullying. Greater access to the back story (e.g. “meet the head teacher,” “read diaries”) “scattered around the school.” Children were very interested in the idea of having non-human helpers, for example, the messenger bird “could live on top of the school and fly down and tell you when Luke was bullying John.”

The children suggested standard input devices e.g. mouse, keyboard, joysticks. Headsets were also mentioned (assuming voice recognition), however, this was not popular and children noted that they would be “embarrassed telling John what to do out loud.”

Children’s suggestions of interaction styles included: text entry, menu selection and game navigation (cursor / hot keys). Children preferred a point & click approach e.g. “clicking on a tree that told you that Luke had hurt John and John had hidden behind the tree and cried,” and emailing for help “like phone a friend in Millionaire.” Children also wanted “video buttons,” however, one boy

said that “you should not be able to pause or go backwards as this would not be like real life.”

The FearNot interface drawings created by the children included a range of traditional direct manipulation objects, e.g. video buttons, sidebars and button bars. Games style inventories and character / world control mechanisms were also typical.

4.3 Characters and Emotions

Children wanted more characters. No comments were raised on how characters moved or talked with children identifying that they believed and understood the scenario. An issue for the children is “who is Martina? John’s friend or Luke’s friend?” and that she is “not part of the action.” Additional character roles mentioned included Luke’s friends, teacher, school secretary, bystanders: “people like us, who don’t do this sort of thing” and “watchers who don’t help”

Children had little to say on emotions. When asked what emotions would be good to see in the scenario, these typically focused on the negative, e.g. “cry, run away.” No mention of emotions such as happy, having fun or similar. In answering queries about emotions the children quickly went on to the solutions to the bullying problem rather than the emotions this generated.

4.4 Advice and Coping Strategies

Suggestions included “Tell his parents,” “Get a friend to help John,” “John could start crying and walk away,” and John’s friends all “ganging up on Luke.”

In the trailer, children gave advice to John within a coping strategy resource library. Children felt that they would “get bored of using it” and would prefer advice “scattered about.” Children wanted the possibility of not having to “give John advice” if they did not want to.

All scenario endings proposed were positive. No child wanted the scenarios to have negative and unsuccessful endings.

Children thought FearNot would be a useful resource for learning about bullying behaviour. Children said that they would use FearNot to potentially help out one of their friends who was having problems with bullying so that they could try out different coping strategies to see if they are successful.

5. RESPONDING TO THE CHILDREN’S VOICE: DESIGN IMPLICATIONS AND IMPACT

Children were positive, interested and engaged in the FearNot trailer. This is positive for the VICTEC team. and overall, results indicate that we are moving in the right direction.

Children identified a wide range of extensions including more locations, free movement, more information and additional challenges, typically involving the use of story-

telling objects. As FearNot is a virtual school, any additional environments would be school based. Recent additions to FearNot include a library, stairs and football pitch / playground. These have been evaluated by children with positive results.

Free movement has been implemented within a limited version of FearNot. This allows users to move within a 3D virtual school to locate certain people or locations that result in a 2D bullying episode being played to the child. Children interact through cursor keys, point and click and menu selection Children’s reactions to this application are positive and a comparison will be made between this application and FearNot. In the short term, free movement is not possible, however, choice of location will be made available allowing children to select the settings for each episode in the interaction (e.g. classroom, corridor, canteen, etc.) from a games style map.

Providing more information in the guise of the narrator (Martina) had been proposed within the design team. However, no child suggested this and Wizard of Oz testing and storyboard evaluation with children support the use of short speech acts rather than extended speeches by synthetic characters. Following the children’s suggestions, the usability of storytelling objects will be evaluated with a point and click approach used to select objects. A possible extension of storytelling objects would be to incorporate the “user as detective,” an interesting idea proposed enthusiastically by the children. However, several issues need to be resolved, including the potential of children to become lost in the interaction and distracted from the task, with FearNot possibly appearing too game-like.

Children were keen on interaction approaches they had seen in other applications (e.g. Windows, video players, etc.) Children were particularly keen on games interfaces and our aim is for FearNot to exhibit high levels of interactivity with multiple paths to the same outcomes.

Children are happy to interact using a range of styles and devices, however, during that interaction they wish to be in control. This was seen in their desire to control world and character appearance, and more explicitly in their requirement to “say nothing” if they wish when the characters ask for advice. This possibility of no response had not been previously incorporated within FearNot. Now, if children do not respond within a certain time when an interaction is required, the FearNot characters restart the interaction through a general response, e.g. “You must be busy now, lets talk later.”

Children’s comments confirmed that there are a lack of characters in FearNot. The team are currently working on designing bully assistants, bystanders and defenders. Adult characters will not be included. Martina is to be more involved within the scenario, to clarify her role as a bystander. FearNot will be tested once well populated to determine whether non-human, fantastic characters are still a priority for children

FearNot characters have relatively crude facial expressions, however, children clearly understood these. We had difficulties in discussing emotions, with the children having little to say about emotions, either their own or those of the characters. Alternative approaches for discussing emotions are now being used in VICTEC including Theory of Mind questions and DANVA. It has been noted that 'happy' emotion was not represented in the FearNot trailer and this has now been added.

Suggestions provided by the children to help John the victim cope with bullying generally supported those considered by the design and psychology team. However, the suggestion made by the children that the scenario endings should all be positive, supported by discussions with teachers, has resulted in a significant change for the VICTEC project. Whilst the intention had been to have some scenarios with negative endings (e.g. the bullying issue does not get resolved, thus reflecting the real world – and a clearly adult perspective!), now all scenarios end with a positive outcome and a resolution of the bullying situation.

The resource library where children find out about bullying appeals to adults, however, it clearly did not win with children's interaction mechanism preferences. A resource library might be a good supplement but not the main one for children to find out about coping strategies. John's requests for advice can now occur in a variety of ways.

6. CONCLUSIONS

The Classroom Discussion Forum generated invaluable input from a child-centred perspective for the design of FearNot. Significant changes have already been made to FearNot in relation to children's opinions relating to scenario endings, interaction and control. Small-scale studies are underway to evaluate other design ideas presented by the children.

Classroom Discussion Forums provide a useful approach to gaining significant child input to the design process within the classroom. The perspective provided by children has resulted in an increasingly child-derived and -centred

product that is to be evaluated in Germany, Portugal and the UK in summer 2004.

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