Going Ape: Collaborative Technology for Families

Peggy Gregory
School of Computing, Engineering &
Physical Sciences,
University of Central Lancashire
Preston PR1 2HE
+44 (0)1772 893284

ajgregory@uclan.ac.uk

Karen Whittaker
School of Health,
University of Central Lancashire
Preston PR1 2HE
+44 (0)1772 893786

kwhittaker1@uclan.ac.uk

Katie Taylor
School of Computing, Engineering and
Physical Sciences,
University of Central Lancashire
Preston PR1 2HE
+44 (0)1772 893321

kjtaylor@uclan.ac.uk

ABSTRACT
We discuss the context, process and implications of using an inter-disciplinary and collaborative approach for developing interactive technology aimed at improving communication within the family.

Keywords
Parenting, Home computing, Collaborative development, Agile approaches, Family communication

1. INTRODUCTION
We describe the context, and process of developing a prototype DVD, called APE (Adolescent & Parent Experiences), that contained a cartoon-based interactive story about a teenager and their family. The project was funded by Crime Solutions, a knowledge exchange project for the anti-crime sector. We explored the feasibility of using digital technology to establish and facilitate communication between young people and their parents/carers in the home environment without intervention from outside agencies. Given recent UK experiences of social disruption it is anticipated that using digital media to foster better communication in the home, may be one way of moving forward.

The project evolved as an extension to previous work, DVice – www.dvice.org, a joint project between the School of Computing, Engineering and Physical Sciences (CEPS) and the Lancashire Youth Offending Team (LYOT) [10]. The DVice project centred on the offending behaviour of 13-17 year olds, through the development of an interactive web-based cognitive behaviour programme that young people could use with the help of a professional LYOT worker. Evaluation revealed that despite a positive response to the software from the young people, the work did not address relationships at home. This limitation was a concern given that the home environment is where key influences on personal behaviour start and develop as children mature. Previous studies indicate that children learn key social skills through their relationships with their parents [1] as well as self-control and how to manage risks [3,5,9].

2. THE STUDY
A prototype DVD, www.apeproject.org.uk, was developed that could be watched by the whole family on television; with both parents and adolescents able to make choices about how the story

progressed by choosing responses that most closely matched their own. We used three different types of cartoon apes to play the characters – gorillas, orang-utangs and chimpanzees - with a parent and adolescent character for each type. The three ape families were based on a model of three parenting styles [1]: authoritarian (gorilla), laissez faire (orang-utang) and democratic (chimpanzee). Adolescent responses to those parenting styles were based on experiences of experts in the development team. A combination of humour and real-life choices in the story aimed to bring a light touch to the serious process of reflection about different ways of responding.

A particular feature of the project was that it involved developing an innovative piece of software that was not fully specified at the beginning of the project. The specification developed through a creative process that occurred as the project progressed. These factors influenced our decision to use a broadly agile approach [4]. We worked with a multi-disciplinary team from three different Schools within the University – Computing, Health and Media – as well as with professional participants from outside bodies – Action for Children (a charity), Central Lancashire PCT (a health body) and Lancashire Youth Offending Team (a statutory body). The animation and software were developed and built by a group of undergraduate students. Additionally the design ideas and product were evaluated by young people and their parents at various stages in the development. The inter-disciplinary team working enabled us to pool our knowledge and working processes and leverage different areas of expertise. We used an iterative, participatory approach to development. However, we found that we used different techniques with the different types of collaborators: we had content design meetings with parenting professionals and academics, prototype reviews with software developers, and evaluation sessions with end users.

Agile approaches use iterative and incremental processes that encourage collaborative working, manage evolving requirements, and control budget and timescales in order to deliver benefit to contributing parties [7]. However they are normally applied in commercial contexts in which business users contribute to the development of software products that are designed to add business value through streamlining processes [2]. In contrast, the context of this development was social, stakeholders had a range of motivations for contributing to the product, and the delivered benefit was difficult to assess and not always directly related to the contributors. The primary collaborators were professionals and academics who input their expertise without anticipating any direct use of the product at all. Potential end-users evaluated the product, but we found that it difficult to include them into regular meetings and it was anticipated that if they had attended there may have been an implied criticism of their behaviours.

Our project aimed to develop interactive software that could be used in the home for the purpose of encouraging social change. As

digital technologies and social media become more widely used, it is anticipated that they will be used increasingly for such social purposes. However, we were surprised to find that despite the UK government's agenda to improve family cohesion and outcomes for young people by improving parenting skills, there is very little interactive material of this type available. For instance, much of the material already available uses film media and is primarily designed to be used by parents only. In contrast our DVD was specifically developed with the aim of encouraging interaction between parents and adolescents. One of the problems with designing interactive systems for use in group situations is that most computer and mobile devices are designed for individual use. We therefore decided to design our application to be viewed on a television, with options selected using the remote control which could be passed between the family group. The rationale for this is that of all the visual digital media available for home use, televisions currently offer the best opportunity for a shared experience that is accessible by most families [8]. This raises some interesting points. First that many digital technologies are designed for intense individual use and are not appropriate for group situations, and second that it is difficult to use new technologies (such as Smartphones, digital assistants or iPads) for social projects because they are expensive, require users to be confident and experienced, and do not have a wide user base.

However there was far more to the project than a consideration of processes and technologies. The real challenge was to design a product that was engaging and novel, but that was more than just a game. We found that practitioner involvement was crucial for this aspect. Parenting and youth practitioners brought both an awareness of theory and a wealth of experience to the design process. During preliminary meetings the team designed a draft framework for a comprehensive application that could be used by a range of families covering a range of issues, of which the APE DVD was just one part. The framework included some elements designed to be used by families at home and others that would require more structured professional support. There was much discussion during meetings about the extent to which the knowledge and expertise of professionals could be captured in a software product. There was also concern that for certain families discussions that arose from watching the DVD may become difficult to manage. For the practitioners in the team it was important that the product was part of a framework in which families could access further services if they needed to.

After several iterations of development the prototype was evaluated in local schools and parenting forums. During evaluation sessions a questionnaire was administered after the DVD was shown. Evaluation was completed by 178 people of whom 127 were young people, 26 were parents and 25 were parenting practitioners. Responses to the DVD were generally positive. 61% (n=109) of participants stated there was at least one element on the DVD that they viewed positively. The most common response to the DVD from young people was that it made them think about their parents' viewpoint, whereas for parents it made them think about how they communicated with their child. Additionally over half of the participants felt that the DVD would help to encourage communication with family members about coming home late. Examples of adult comments were: "*it enables you to see the other side of the story*", and *"the DVD is a medium that teens can relate to and would be more inclined to [use]"*. Examples of teenage comments were: *"it was an easy story to follow"* and *"the DVD is better than a leaflet. It*

makes you want to have a look rather than scrunch it up and throw it away".

3. CONCLUSIONS

The APE project set out to develop a novel interactive product for parents and adolescents. We used collaborative and participatory processes for development, and found that the context of the work affected the dynamics of these processes. Feedback from the evaluation was positive although a range of views were expressed about the characterization, particularly from young people. Results indicated that using the DVD encouraged viewers to consider the thoughts and concerns of other family members [6]. Future plans involve further prototype development, using different approaches to collaboration. The input from young people is considered to be particularly important to ensure that adult-centric perspectives do not dominate the design and hence fail to capture the attention of the intended audience. Future work also aims to explore the potential of using different technologies in the home and assessing the software in real contexts.

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