

CHARACTERS, FUN AND GAMES: CREATING COMMON GROUND BETWEEN STUDENTS AND CHILDREN AS CO-DESIGN PARTNERS

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ABSTRACT

Design methods that include the end user of a product in the design process can be useful for undergraduate Product Design projects. These approaches allow a novice designer to gain the perspective of others and to work with them first hand on a problem. When designing for children, this can add valuable insight for design decisions and also provide inspiration around the young person's world. However there can be difficulties with time constraints and also the ethics of including children in projects that may be stressful. Here we explore a particular approach to Co-design, with students working alongside children to understand more about their emotional needs and aspirations during the creation of character designs for product design applications. The children were asked to create fictitious cartoon characters that have desired attributes, personal qualities and behaviours that relate to a given scenario. Subsequently this influenced the conceptualization of a product under development for the scenario. The devices being conceptualized were for final major projects and included: a) a blood glucose monitor for young diabetics b) a product to encourage children to eat healthily and grow their own c) a toy to encourage outdoor play. Character design was found to be an enjoyable activity for all, with a tangible outcome that facilitated communication between the student and pupil. It also provides a relatively sensitive method for getting information about the youngster's feelings and aspirations within the context defined.

Keywords: Co-design, design for children, character design, empathic design

1 INTRODUCTION

Those with experience will know that understanding user aspirations and behaviours for a given context can be critical to ensuring an effective product is designed. IDEO have been a leading proponent of these approaches [1]. However, for those relatively new to designing for others, the significance of the task to understand people and the chosen context, in suitable depth, is not always fully apparent. Novice undergraduate designers can particularly find it difficult to appreciate different lifestyles and preferences to their own and may also lack first hand experience of situations or a context for use. This points to a need to get the user 'on board' and involve them directly to get their views.

Consequently Co-creation methods are included in the curriculum for both the University of Sussex and the University of Brighton and their use is encouraged, alongside other user-centred approaches. Medical design for children provides a useful subject to illustrate the benefits of co-design and represents one of the chosen projects. Where there may be stigma or pain involved in the use of the device, insight into young people's emotional needs during the encounter is paramount. In this case the view of the 'other' is key. However, the information must be gained in the least upsetting way possible when dealing with small children.

This approach provides an interesting contrast to a previous experiment where the aim was to expose the design student directly to unpleasant stimuli so that they could understand the consequences of designing for the situation. In a previous EPDE paper, [2] the author investigated immersive techniques that allow students to imagine themselves in a particularly panic stricken scenario. We simulated being in a burning building and engaged in role-play activities with existing emergency products so that their interface could subsequently be improved. The investigation used the Creativity

Zone, a flexible multimedia space, to create the effect of flames surrounding the subject. Examples included a fire extinguisher, a defibrillator, and an emergency radio. This ‘first person’ event helped them to access the thoughts and feelings that a user might have by ‘maxing up’ the experience.

So, how can one make talking about a particularly traumatic experience like having to obtain a blood sample, less stressful and more ethical when working with young co-designers? Could the answer lie with removing the co-designer one step away from the experience being discussed using a character as a third person for discussion? Other reasoning is described in section 3. The Aims for the project, were thus to consider these questions:

- Question 1: Can pupils follow a brief to design characters for a particular scenario?
- Question 2: Do children enjoy and engage fully with the activity?
- Question 3: Can we get useful data from the process that will inform development?
- Question 4: Is character design and its discussion therefore a useful co-design technique for students with limited access and time with younger people?

2 CO-DESIGN

2.1 Why Co-Design?

Co-Design is a useful user-centred method for gaining the perspective of an audience. To be able to design for children, in particular, it is necessary to metaphorically enter their domain and grasp their way of understanding issues relevant to them. Elizabeth Sanders was one of the early pioneers of co-design techniques and part of her work while at Sonic Rim was to invent and apply the ‘**Say, Do, Make**’ model. [3] ‘**Say**’ represents techniques that explore verbal information gathering, for example through questionnaires and interviews. The “say methods” are useful for getting an idea of what people want to tell you in words. ‘**Do**’ represents observational techniques, like Video ethnography. These are useful but in many cases quite time consuming. **Make** describes more projective methods that involve creative techniques with the user, including co-designing. However, according to Obrist, M et al. [4] “There is still a lack of profound knowledge of how to involve children in product development; in particular the early stages of conceptual design and evaluation”. This project is an attempt to investigate one such method. There are good arguments for applying each of the **Say, Do Make** tools that can be defined for a particular design aim or audience. In this case, the *Make* activities are particularly appropriate, discussed next.

2.2 Children as Design Partners

One of the obvious reasons why ‘Say’ tools are impractical for younger children is their relative inability to verbalize their responses. Methods that rely on description and memory are less likely to yield fruitful results, in either written or spoken form. ‘Do’ tools are based largely on the observations of the design researcher and therefore a certain amount of interpretation is required. A child’s world seen through adult eyes is open to misinterpretation. Of the three approaches the ‘Make’ tools seem to fit with a child’s ability and engagement most successfully. Alison Druin is a proponent of including children as active designers through a process called ‘Cooperative Inquiry’. [5] “Creative thinking in all fields occurs pre-verbally, before logic or linguistics comes into play, manifesting itself through emotions, intuitions, images and bodily feelings.” [6] Children’s enjoyment of creativity becomes evident through the work of those who experiment with co-design activities. In the words of Vaajakallio et al. [7] ‘Children were motivated or even enthusiastic with the Make tools.

3 CHARACTER DESIGN

The reasons for selecting Character Designing for the activities are discussed below. Some projects described here will have virtual characters that effectively form a part of their interface and are part of the interaction concerns that initially triggered the idea.

3.1 Characters are Fun

Mazzone et al. [8] alongside Read [9] have found that fun is an important issue when dealing with children. Character design is an activity that children are familiar with, through story creation and other typical classroom activity and one that they appear to enjoy and find easy and tangible.

3.2 Attachment to Characters

Children love Characters, according to many successful toy designers and film-makers [10]. Some psychologists suggest that affection for characters is a natural part of the separation process, allowing children to focus elsewhere in their relationships, beyond the parent bond and be more independent. This could explain children's excitement over Dora the explorer and Thomas the Tank Engine, besides their apparently likeable qualities.

3.3 Characters have personalities just like people and products

Characters are a useful conduit for discussion because characters can have personalities, behaviours, emotions, feelings; likes and dislikes just like their human or animal equivalents. The co-design work done by others, previously described, includes the use of 'make' tool kits, which are usually random elements put together to allow easy creation of simulated objects without dictating the results. It appears from the work of some researchers that the actual designed outcomes are less significant than the expression of thoughts and feelings during the co-design process. The experiments by Vaajakallio et al., which include children, suggest that when people build design artefacts together, ideation, negotiation and justification take place during the process. [7] If activity helps to generate a discussion between participants of different ages then perhaps a character design task could be helpful.

3.4 Characters as mediators for emotion

Psychologists, working with traumatized children, sometimes use an inanimate object like a teddy bear or a doll to allow the child to communicate about upsetting events in a non-verbal way. The object, in one sense, acts a prop, to help where language may be limited. The third party character also helps in an emotional sense as the child is talking about events that happen to the teddy or the doll, which may make it easier to open up and talk about the problem. The character design activity for this project helps with dialogue; it may also make it less traumatic to consider the more sensitive areas for designing like blood sampling.

4 METHOD AND RESULTS

Experimentation for this study was carried out via the work of three final major project students studying for a BSc. in Product Design at either the University of Brighton or the University of Sussex. All of the students needed to investigate children's requirements to inspire new concepts for their products. In each case, their co-designers were a class of 30 primary school children at St Andrews C of E Primary School, Hove. The studies were carried out within the classroom environment. Both the tutor (the primary author) and the student were involved with introducing each project brief and to help with directing activities and discussions with children. The pupil's usual teacher and a classroom assistant were also participants in discussing work with the children. This represented approximately one adult per table of 7 to 8 children. Videoing was unfortunately not possible for ethical reasons, however some photographs were taken with consent. A selection of children and the class teacher were interviewed after the event to review enjoyment and engagement with the activity. Project 1 was conducted in 2011. Project 2 and 3 were investigated during the same classroom session in 2012.

4.1 Project 1: Diabetes Blood Sugar Monitor:

Final year student Bahar Mayahadin graduated from the University of Sussex in 2011. Her major project related to the design of products for children diagnosed with diabetes at a young age. She was trying to understand how young children might feel and in the experiment was considering responses to the idea of sampling and testing their blood to monitor glucose. The ideal was to make the activity more palatable by offering a reward through a game or engagement with an on-screen character.

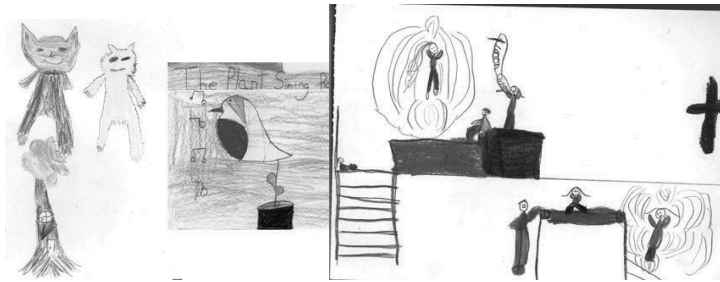


Figure 1. Female Pupil Designs

The student, alongside the tutor, asked the group to create fictitious cartoon characters that took the sample from the child and their behaviour on being given the blood. Alongside their drawing activity, the pupils were asked to talk about the problem and their reaction to it.



Figure 2. Male Character Designs

4.2 Results

Some of the more interesting responses to the character design and behaviour brief included: For the female pupils: a girl or a fairy who grew wings and could fly; an avatar who got really fit and ran around a gym circuit; a horse that became happy and started trotting; a girl who falls in love and hearts appear. For the boys: a character that became super magnetic; a monster that could breathe fire; and a character that broke wind or burped. Some of the results are shown in Figure 1. Bahar chose to implement the ‘avatar in the gym’ solution for her major project, and thus the children were influential in deciding the specifics of the game. This idea seemed to her to be the most likely to appeal to the widest boy/girl audience. She also used one of the bird characters as a logo for her work. The creativity of the children was a positive influence on her project. She also used the conversations around the subject to gain insight into the children's feelings. Some of the girls wanted to refer to the blood as 'cranberry juice' to make the idea more pleasant, for example.

4.3 Project 2: Growing Kit to encourage healthy eating.

A similar process was repeated with a group of 30 year 3 pupils. Sam Hancock, a current final year student designed a kit to encourage children to grow their own vegetables and engage with health eating. It includes a digital device that monitors a plant that is being grown and a monitor that also includes a ‘Tamagochi’ style game related to their plant. He asked the children to design a range of characters that represent friendly vegetable characters. As they grow, the good characters gain ‘super powers’. The pupils were asked to consider how the characters would appear and behave and also how these would change with development and the nature of their super-powers.

Results

Several children sketched the changing vegetables as though they had human growth characteristics, for example a ‘baby’ carrot would become a more grown up ‘kid’ carrot. Over half of the children designed vegetables that develop ‘super powers’ as they grow and have particular attributes depending on their nature.



Figure 3. Final images for a vegetable game

For example the mature carrot develops super night vision or uses its greenery as a lasso. Other characters included a watermelon that had 'tsunami' powers, a lemon that had an acid jet, a pea 'cannon' and a strawberry that fired pips. Significantly, Sam managed to get the pupils view of 'eating their greens' and the experience formed a body of research for his project report. Sam's version of the carrot design is shown in Figure 2.

4.4 Project 3: Safe Outdoor Play

Jonno Battrick was a final year student at the University of Brighton, graduating in 2012. He designed a device that encourages outdoor adventure in youngsters while making them feel safe away from their parents. The project is based on evidence that both parents and children feel anxious when children roam and that there are advantages in them being able to explore independently. He asked the children to design a character that goes on an adventure, to decide on a place and to think about what they would take with them.

4.5 Project 3: Results

A variety of common environmental terrains were illustrated, for example the desert, the woods and the beach. Some also created fantasy environments, such as Marshmallow land. Common practical objects were chosen to take on the journey like torches and food. However many also included weapons, and objects like an 'invisibility cloak' to keep them safe. This is illustrated in Figure 3. Communication devices were also common.

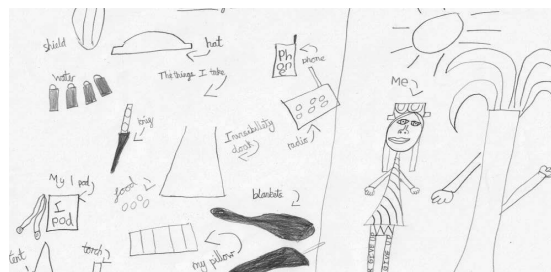


Figure 4. Result showing phone and invisibility cloak

5 CONCLUSIONS

5.1 Initial Project Questions

The full consequences for each of the design projects require a more detailed account than can be given here, however we can answer our initial questions:

Question 1: Can children follow a brief to design characters for a given scenario? For each project, all of the pupils managed to arrive at a character solution and the outcome of the drawing activity yielded creative solutions. Only two Character Designs were similar, which suggests that most understood the task and did not need to copy ideas from a neighbour. It can certainly be concluded that the pupils were able to follow the brief for each scenario.

Question 2: Do they focus on the activity and engage with it? The pupils asked a series of questions during each briefing about the activity, which suggests they were motivated in completing the task properly. For each of the projects the children were attentive and engaged with the activity for 40 minutes. Occasionally they would leave their seats to show their work or to ask more questions. Anecdotally the children seemed very excited. This could have been down to other factors, however,

including the fact that we were visitors, or they were doing something different. Experiments to compare other activities would have to be conducted to prove that this was particularly engaging, but it did encourage them to focus.

Question 3: Can we get useful data from the child's design efforts that will inform subsequent product development?

In all three cases, the student used the information to inspire their design. Clearly, the projects chosen were particularly suitable for this approach, due to having characters as part of their screen design.

Question 4: Is character design and its discussion therefore a useful co-design technique for students with limited access and time with younger people?

A significant finding was that students felt that the dialogue that was formed around the activity was a useful insight into the thoughts of the children during the process.

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