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Designing Intergenerational Media Experiences

A Participatory Design Approach

Veronica Pialorsi

School of Arts and Media, University of Salford, Salford, UK,
v.pialorsi@edu.salford.ac.uk

Pejman Saeghe

Department of Computer Science, University of Manchester, Manchester, UK,
pejman.saeghe@manchester.ac.uk

ABSTRACT

The advent of new technologies and platforms (e.g. hand-held displays, the Internet) challenge the traditional ways in which we consume media content. The differences in the technological literacy of young children (digital natives) and elderly adults, can deny them opportunities to bond over shared media experiences. However, if designed thoughtfully, novel media experiences can bridge this intergenerational gap. We provide a scenario where connected toys encourage collaborative learning, and create a bonding experience between a grandchild and their grandparent. Furthermore, we propose a set of methods to be used in participatory design for the creation of such experiences.

CCS CONCEPTS

• Human-Centered Computing • Interaction Design Process and Methods • Participatory Design

KEYWORDS

Intergenerational, TV, Connected Toy, Augmented Reality, Participatory Design

1 Context

The advent of new technologies, media, and platforms, is drastically changing the ways in which we consume video content. The physical TV set is only one of the many devices that enable access to video content. The ubiquity of new devices (e.g. hand-held displays) and the affordances they provide (e.g. portability, interactivity) are significantly changing the audiences' experience and the habits associated with screen viewing. Their portability enables the viewers to watch content *on the go*; thus transforming the traditional *shared viewing experience* into an exclusive and unaccompanied viewing experience. Similarly, the interactive features of new devices have the potential to transform the conventional *passive viewing experience* into interactive experiences where the viewers can interact with story elements. These novel technologies and media experiences are extremely popular, particularly among children. A recent study, carried out in the UK, suggests that 75 percent of infants, toddlers and preschool children use a touchscreen device, on a daily basis [4], with between 50 to 70 percent of children aged 3 to 6 watching videos online through tablets, mobile phones and computers, on a regular basis [11]. This introduces the family system with new challenges [14]. For instance, as opposed to children, who are *digital natives* [18], parents often struggle to keep up with the fast pace of digital innovation. This creates a *digital divide*, where parents feel challenged in their role, often due to a lack of competence in learning new technologies [1, 15]. Furthermore, this effect is likely to be larger where the age gap is bigger (e.g. between children and their grandparents). Nevertheless, *digital divide* can provide learning and sharing opportunities (e.g. parents entering a dialogue with their children [1]). In this context, media experiences that engage different age groups can benefit both parties [16, 21, 23], and be used to foster bonding between younger and older generations [11].

2 Scenario

Michael (grandfather, 72) and Oscar (grandson, 4) only see each other over the weekends. They both have a passion for motorcycles and get excited when a race is broadcast on TV. Although, this shared topic has brought them closer together, while watching the race, Oscar often gets frustrated once he loses track of his favourite racer.

Oscar's mom, Hanna is 43 and works for a digital advertising agency. She found out about a projection-based augmented reality system that generates 3-D holographic virtual images from broadcast video. She set this up in their living room so that Michael and Oscar could watch a free-viewpoint version of the race, this weekend on a table top. Earlier in the week, she also found out about a new connected toy that has a generic appearance of a miniature motorcycle-racer on a bike, and can be assigned to a real racer during live broadcast of a motorcycle race. She bought two and brought them to their weekend reunion. Prior to the start of the broadcast, as Oscar picks up his toy, a pop-up window appears on the TV screen with instructions on how to connect it. Michael reads the instructions while Oscar investigates and learns how to connect his toy. The instructions are simple, and as the race starts, Michael and Oscar both hold their toy-racers in excitement and wait for their favourite racer to appear on TV. Each then presses their toy, once they see a close-up of their favourite racer on the screen. This assigns the racer to the toy and matches its appearance to that of the racer.

Oscar and Michael emulate their own version of the race in the living room using their connected toys. Oscar can more easily follow the race by looking at the table-top projection of the entire racing track. Furthermore, the experience has become more engaging for them, since the toys are equipped with visual, tactile, and auditory feedback mechanisms. For instance, when Oscar's racer overtakes another, his toy emits a sound and briefly vibrates.

3 Challenge

There are many differences between younger and older audiences (e.g. content choice, cognitive development, digital literacy). These differences introduce challenges in the design of media content aimed at intergenerational audiences.

RQ: How can we design media experiences that are engaging for both groups, while encouraging interactivity and bonding between group members?

To address this challenge, we suggest adopting a Participatory Design (PD) approach to the design cycle for eliciting ideas, creating low-cost prototypes, and evaluating designs. In PD, one-on-one partnership with adults facilitates children's engagement and ensures clear communication of their ideas [9]. Therefore, the children and the older adults are engaged in *pairs* as 'equal design partners' [20] in the generation of new concept ideas for media experiences aimed at intergenerational audiences.

We propose PD for its inherent power to actively engage final users in collaborative partnerships with the stakeholders involved in the project [8, 13]. This provides inclusion and ensures that anyone involved in the process has an independent position in the development of *technological alternatives* [7]. Furthermore, PD entails the use of interactive and hands-on techniques [3] that can be suitable for young children.

We propose a range of tools strategically selected from the most common toolkits and techniques used in PD practices [19]. Each method is tailored according to cognitive skills, motor skills, and the developmental stage of the intergenerational cohort engaged in the design cycle (preschool children and older adults, age 60+). Since children at this young age make sense of their world through play and stories [2, 17, 22], the research activities would mainly be structured around such activities. Moreover, to gather a deeper understanding of the psychological processes that channel the intergenerational audiences' choices and behaviours in terms of media usage, we suggest to integrate design methods with techniques that are often used for psychological assessment, such as laddering [6] and self-characterisation[5].

The selected methods are used in different forms, making, telling, doing [19]. These methods serve three main purposes:

1. **EXPLORE** - *Elicit past experiences to anticipate future possibilities.*
 We have selected drawing and interview as methods to gather understanding on the intergenerational cohort’s relationship, their habits, and previous media experiences and preferences. Furthermore, we suggest to integrate those methods with observations through video ethnography of the pairs playing in their own setting (e.g. their living room). This is useful in gathering insights from their existing behaviour (e.g. roles, relationship dynamics).

2. **CREATE** - *Foster the creative process to generate future possibilities of interaction and engagement with media in a connected environment.*

Creative toolkits will be provided and the pair and the designer(s) will be engaged in creative opportunities. Projective methods will be used to invite participants to express their desires and thoughts to elicit new ideas for example on new games. Projective methods are usually ambiguously instructed [10] to allow the elicitation of spontaneous insights that come from flexible and creative play.

Children and older adults are firstly involved in the creation of a 2D collage (used as a self-characterisation). They are asked to choose their characters among a set of cards providing *ambiguous* illustrations (see examples in the Appendix) and to imagine a story in which they are the protagonists. They are then engaged in generative research to create an artefact (e.g. magic weapon) to be used in the story previously invented. Lastly, participants are invited to role-play the story to gather understanding of the role that the artefact plays in their interaction. The artefact created, for example using dough, might trigger new concepts for future scenarios.

EVALUATE - *Test emerging design concepts against user expectations.*

The concepts emerged in the previous creative sessions are developed to create low-cost prototype(s). The final prototype(s) is then tested and refined with the intergenerational pairs. A brief and simple scenario is presented to help participants imagine the prototype(s) in a practical context. Participants will then be invited to play freely with the prototype(s) and report their opinions and recommendations.

Table 1: Suggested PD methods with intergenerational cohorts.

Purpose	Methods		
	<i>MAKING</i>	<i>TELLING</i>	<i>DOING</i>
<i>EXPLORE</i>		Drawing Interview	Free play
<i>CREATE</i>	2D Card collage	Laddering Storytelling	Role-playing Generative research
<i>EVALUATE</i>		Self-report measures	Free play

4 Conclusion

As the media-related technologies advance, our viewing experiences and habits are changing. Inclusion and engagement of final users through participatory design can provide insights into emerging viewer habits, needs and expectations. In particular, when designing for intergenerational audiences, this methodology can be used to create media experiences that foster learning and intergenerational bonding.

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A APPENDIX

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Veronica Pialorsi is a PhD researcher at the School of Arts and Media, at the University of Salford. She holds an MSc in Clinical Psychology and a further specialisation in Media Psychology. In her PhD, she researches the psychological processes behind intergenerational interactions with media and technology to inform the design of user-driven-experiences.

Pejman Saeghe is a PhD researcher at the Department of Computer Science, at The University of Manchester. He holds an MSc in Computer Science and a BSc in Audio Engineering. His PhD interests are in the applications and the design space of augmented reality TV hybrid.