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Targeting experiences

Section introduction within book

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Targeting Experiences

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Abstract. Shook (2007) informed how Human experience is the ultimate source and justification for all knowledge. Experience itself has accumulated in human memory and culture, gradually producing the methods of intelligence called "reason" and "science." Having a focus on such experiences as opening theme for this work communicates the 'human-at-center' perspectives of this volume. Scholarly perspectives are presented that illustrate across disciplines and cultures.

Keywords: Experiences, Music, Audience, Play, Toys, Gamification, Design, Animation, Relations, Values

1 Introduction

1.1 Scope

Targeting Experiences is purposefully a wide theme to open and relate across the research topics presented associated to arts and technology, interactivity, and game creation human perspectives (i.e. audience, users, designers/developers, relationships, visitors, etc.).

The opening contribution in this first section relates to music and audience experiences. Following is a contribution on user experiences of a tool for Gamification, Toyification and Playification. Next is a text on enlightenment and experience relating to interactive exhibition design. Experiences relating to viewing animated animal characters in the genre of film animation follows. Next is a contribution on experiences related to emotional communication systems for remote relationships. Experience of a created prototype in the form of a user-centered communication pad for cognitive and physical impaired people is subject of the next contribution. Topic of the following contribution is experiences associated to interactions with a cognitively biased robot. Headphone experience of music is subject of the next contribution. The final contribution in this opening section questions beyond visual aesthetic values in presenting a mobile application targeting enhanced experiencing of a visited landscape.

The following text snippets elaborate directly from each contribution to further assist readership.

2 Real-time Measurement and Analysis of Audience Response

(Wigham & Challis, 2020)

Musical activities associated to Arts and Technologies (ArtsIT) and Interactivity typically involves bespoke new forms of instrument(s) for creative expression aligned to a performance with said apparatus in a situation targeting impactful emotional experiences for an audience.

In this research, UK authors Philip Wigham and Ben Challis, from Manchester Metropolitan University report on their in-situ data gathering within research into the design of novel musical controllers where audience members were given sliders to position relative to their responses to each of several short musical performances.

This work targeted to measure emotional connectivity and determination according to each piece of music in a performance where audience used the sliders for emotional engagement in real-time, thus suggesting a more robust linkage than as opposed to collecting data post performance.

The contribution presents results from the research where slider data proved crucial to gaining further insight into the qualitative questionnaires and focus group discussions highlighted participant responses to the performance that did not appear within the questionnaires or post-performance discussions. This allowed further examination of those areas of the performance and instigated changes to the performance. Consequently, the authors suggest possible methods of data analysis and discussion on how this approach may be applied in other research contexts. Interesting discussion is the time when disengagement with performance by audience took place when needing to move slider (so perceptual – cognitive engagement) then to re-engage with performance – as the design was for responding continuously to how engaged they felt throughout the performance …. Yet questioned could be that if they were really engaged, they would forget the slider… however the paper states "the participants could fully concentrate on the performance whilst also confidently controlling the slider".

It is concluded as a viable technique and the research is ongoing.

3 Out of the Box, Into the Cubes: Envisioning User Experiences through a Tool for Gamification

(Ihamäki & Heljakka, 2020)

This research by Pirita Ihamäki and Katriina Heljakka represents Finish industry business start-up company Prizztech and Finish academia in the form of University of Turku. The authors inform on their combined efforts that reports on their synthesizing of the latest design knowledge accumulated with the Comicubes service design tool and solution prototyping method whilst sharing some of the lessons learned during multiple workshops that they were involved in organizing.

Readers are informed on how the physical prototyping tool combines two-dimensional sketching with a three-dimensional and open-ended play medium – the cube. The method incorporates key aspects of service-oriented interaction design.

The authors have used Comicubes to facilitate co-creation to generate new ideas, solutions or approaches to various design challenges related to the gamification, toyification and playification of services.

This text elaborates on work summarizing four case studies where Comicubes was employed as a platform for 3D prototyping, testing, and simultaneously, a tool to stimulate, envision and co-create interactive user experiences.

Findings from the case studies indicated that the Comicubes tool and method are suitable to be used in design processes interested to facilitate co-creation and innovation of products, services and experiential spaces.

4 Balancing Enlightenment and Experience in Interactive Exhibition Design

(Vistisen, Selvadurai, & Jensen, 2020)

A trio from Aalborg University next present their research titled "Balancing Enlightenment and Experience in Interactive Exhibition Design" – the authors are Peter Vistisen, Vashanth Selvadurai, and Jens Jensen. This contribution presents insights from a collaborative design research project, in which a zoological aqua park in Denmark integrated multiple gamified digital installations in their new exhibition design.

The work documents design-balancing in allowing game-based interactions, and the didactic communication about facts in the exhibition. The research study focus was on the implemented solutions based on qualitative interviews with visitors alongside quantitative data from the backend game analytics of the installations. From triangulating these data sets the authors show how attempts to deliver purely fact-based information through didactic design elements failed to succeed in engaging the visitors, while 'stealth learning' sparks enlightenment about the subject matter.

The authors posit how results suggest that this is true both in cases in which users fully understand and play through the intended interactions, as well as when more negotiated interpretations of the digital installations are performed.

Contribution to the field is stated as guiding principles for the balance, between experience and enlightenment in gamified exhibition designs.

5 Audience Perception of Exaggerated Motions on Realistic Animated Animal Characters

(Hammer & Adamo, 2020)

Two authors from Purdue University, United States of America, namely Mackenzie Hammer and Nicoletta Adamo, next present their research titled "Audience Perception of Exaggerated Motions on Realistic Animated Animal Characters". They share how the recent push for more detailed graphics and realistic visuals in animated productions

have sparked much debate around the new films' photorealistic visual style. They further inform how some critics argue that the new "live-action" versions of movie classics such as the Lion King are not as visually stylish as the original ones, and the photorealistic characters are not as likeable, fun and intriguing as their stylized counterparts.

This contribution reports on the author's ongoing research whose goal is to examine whether it is possible to apply traditional animation principles to photorealistic animated animal characters in order to make them more expressive, convincing and ultimately entertaining. An extensive audience study is presented.

In particular, the text reports the extent to which varying degrees of exaggeration affect the perceived believability and appeal of a photorealistic talking cat character performing a series of actions in a high detail environment.

6 Towards a Conceptual Design Framework for Emotional Communication Systems for Long-Distance Relationships

(Li, Häkkilä, & Väänänen, 2020)

In this research, Finland-based authors, Hong Li, Jonna Häkkilä, and Kaisa Väänänen, highlight how couples living in long-distance relationships (LDRs) may lack ways to keep emotionally connected. The contribution elaborates that previous research has presented a wealth of systems and user studies that offer insights of individual systems and their user interface designs. Also, it states how these studies have revealed a multitude of design attributes of the relatedness strategies of LDRs and the user interfaces used in computer-mediated communication (CMC) systems for LDRs. The authors synthesize the multitude of different design attributes, and present a design framework that addresses the five main areas of LDR systems: users (the remote couple), the LDR itself, the used technology, the design of the device, interaction, nature of messages and supported connectedness strategies, and the context of the use. In their research the authors validated the framework by analysing and presenting a set of six existing systems and prototypes considering this framework and show how they consider the central design attributes. As a conclusion, the authors propose that this framework can be used to assist in designing and evaluating the user interfaces of CMC systems for emotional communication to support LDRs.

7 Developing a user-centred Communication Pad for Cognitive and Physical Impaired People

(Ilyas, Rodil & Matthias, 2020)

Next, authors Chaudhary Muhammad Aqdus Ilyas, Kasper Rodil and Matthias Rehm present their research titled "Developing a user-centred Communication Pad for Cognitive and Physical Impaired People". The contribution informs how it is always challenging for people with speech inhibition dysfunction to communicate. In this research

the authors focused their explorations on a case study of a resident at a neurological centre who, due to physical and speech paralysis, had complications in conveying messages. To support the case study the team developed a 'communication pad' that enabled the resident to swipe a finger to select printed alphabets and digits. A camera placed over the communication pad detected the finger movement of the resident and extracted the message to display on the computer screen or the tablet. The authors state how the tracking method is robust and can track the fingers even in varying illumination conditions: Main steps of design methods with various design prototypes and user feedback are shared. Evaluations further showed that the authors' designed system had provided independence and convenience to the resident in conveying a message successfully.

8 Evaluating Interactions with a Cognitively Biased Robot in a Creative Collaborative Task

(Johansen, Jensen, & Bemman, 2020)
In this work, authors, Johansen, Jensen, and Bemman, present how within the field of human-robot interaction (HRI), robots designed for social interactions are not only evaluated in terms of efficiency and accuracy. Factors related to the personality or cognitive ability of the robot such as perceived likability and intelligence are important considerations because they must engage with their human counterparts in deeper, more authentic and sometimes creative ways. The authors posit how they believe interactive art allows for the exploration of such interactions, however, the study of robots in interactive art remains relatively less commonplace and evaluations of these robots in creative contexts are similarly lacking. In this context, the authors present their work on an interactive robot inspired by Norman White's The Helpless Robot (1987), which has been endowed with a cognitive bias known as the Dunning-Kruger effect and the ability to collaborate with participants in a creative drawing task. In the research the authors evaluated the participants' interactions with both biased and unbiased versions of this robot using the Godspeed Questionnaire Series (GQS), which has been modified to include measures of creativity, and relate these findings to analyses of their collaborative drawings. Results from the research indicated a significant difference between the versions of the robot for several measures in the GQS, with the unbiased version rated more positively than the biased robot in all cases. Analysis of the drawings suggested that participants interacting with the biased robot were less inclined to collaborate in a cooperative manner.

9 A Positional Infrared Tracking System Using Non-individualised HRTFs to Simulate a Loudspeaker Setup and its Influence on Externalisation of Music

(Eklund & Erkut, 2020)
"A Positional Infrared Tracking System Using Non-individualised HRTFs to Simulate a Loudspeaker Setup and its Influence on Externalisation of Music" is a body of research from authors Rasmus Eklund and Cumhur Erkut from Aalborg University, Copenhagen campus. In this work the authors explain how many artists produce and mix their virtual reality, game, or screen media audio productions only with headphones, but deploy them to stereo or multi-channel loudspeaker setups. Because of the acoustical and perceptual differences, listening on headphones might sound very different compared to loudspeakers, including the perception of sound sources inside the head (externalization problem). Nevertheless, by using Head Related Transfer Functions (HRTFs) and accurate movement tracking, it is possible to simulate a loudspeaker setup with proper externalization. In this contribution, the authors present how an infrared-based positional tracking system with non-individualized HRTFs to simulate a loudspeaker setup is conceptualized, designed and implemented. The authors elaborate on how the system can track the user with six degrees of freedom (6-DOF); an improvement over current commercial systems that only use 3-DOF tracking. The system was evaluated on 20 participants to see if the additional DOF increased the degree of externalization. While tracking increased the externalization in general, there was no significant difference between 3-DOF and 6-DOF. Another test indicated that positional movement coupled with positional tracking may have a greater effect on externalization compared to positional movement coupled with only head movement tracking. Comparisons between these results and previous studies are discussed and improvements for future experiments are proposed.

10 Finding, Feeling and Sharing the Value of a Landscape

(Jesus, Conceição & Lopes, 2020)
In this next text titled "Finding, Feeling and Sharing the Value of a Landscape" – authors – a trio from Lisbon, Portugal, namely Rui Jesus, Catarina Conceição, and Gonçalo Lopes share their research on developing a mobile application with gaming and social features to support the experience of preparing and visiting of places with distinct landscapes. The contribution reflects how the value of a landscape is often associated with its visual aesthetic value, but a landscape goes beyond that having other important values, such as historical or social value. The guides and tourist itineraries are useful to help visiting monuments but as far as reading and experiencing a landscape, these are still insufficient. This work consists of developing a mobile application with gaming and social features, to support the experience of visiting and reading about places with valuable landscapes. The paper describes the design principles used and presents the main issues of the study conducted during the development process of the application.

It also presents the results obtained by the tests carried out to evaluate the user experience when visiting and appreciating the value of a landscape with the application. The experiments were carried out in the Cultural Landscape of Sintra, considered world heritage since 1995.

11 Epilogue and Acknowledgements

This opening section introduces nine contributions by extracting from each paper. It does so to promote readership of each full paper that are presented in the following chapters. In doing so the authors of this chapter acknowledge the contribution to this section/volume by each author whose original work was presented in the ArtsIT/DLI events in Aalborg, Denmark November 7-8, 2019.

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