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Designing Design Research for Game Development

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Abstract

Design research can fuel innovation, shape approaches, and ensure efficacy. In game development, design research is a means of getting away from common sense assumptions and moving an accurate understanding of player interests, motivations, and concerns. This workshop provided a brief overview of design research approaches. Participants worked in groups to develop design research strategies for their own planned or prospective projects. While we are interested in the benefits and advantages of design research for game development, the focus here is on practical aspects of integrating design research into game development, including the selection and execution of appropriate research methods, how design research can affect game production schedules, and associated costs.

Introduction to Design Research

Design research, put simply, is research conducted as part of the design process. This type of research can be used in a variety of design projects, including the production of things from consumer products to public spaces. Design research is distinct from marketing research; while the research methods employed can be similar, they are used to different ends. Ideally, design research has as its goal not the effective moving of products in a marketplace, but rather the optimization of human experiences. Design research enables design that addresses real human needs and desires. As a practice, design research is fundamentally pragmatic (Hevner, 2007).

Laurel's Approach to Human-Centered Design Research (Kocurek, n.d.)

1. Secondary Research	Literature review of existing studies followed by expert interviews
2. Analysis of Secondary Research	Analyze findings from secondary research to identify patterns and research opportunities and formulate research questions.
3. Qualitative Research	Conduct qualitative research using methods appropriate to the research questions.
4. Analysis of Qualitative Research	Conduct analysis in three stages: identify patterns; express patterns as findings; convert findings into design principles and heuristics.
5. Validate Qualitative Findings With Quantitative Methods	Use quantitative studies to test if findings are accurate for a larger population. Potential methods include presenting a prototype to a larger sample to conduct quantitative evaluation.

Table 1. Brenda Laurel's approach to design research

Design Research for Games

The game design process rarely incorporates design research. However, design research can be useful for driving innovation and connecting meaningfully with audiences. The relative homogeneity of commercial games can be attributed in part to a lack of diversity in the industry's workforce, but both issues can be related to the "I" methodology of game design. In this methodology, designers make games they want to play, presenting scenarios and characters they can relate to, producing games that, in turn, appeal to players who are demographically similar to producers (Potanin, 2010). These players, then, see themselves reflected in the industry and are more likely to enter the field at which point the cycle repeats. Design research is an antidote to the "I" methodology. The games produced by Purple Moon during the 1990s are an excellent example of the use of design research in game development (Laurel, 2001). As VP of Design, Brenda Laurel drew on years of research into gender and technology she had previously conducted at Interval Research. The key findings from this research were translated into heuristics which Laurel and her team then translated into a series of successful games for girls aged 9-12, a demographic that the industry had historically neglected.

General Approaches

Carefully conceptualized design research is relatively affordable. Brenda Laurel proposes a multi-step approach that begins with secondary research and culminates in the validation of initial qualitative findings through quantitative methods (see Table 1). This method is adaptable and can be integrated into the development cycle while still allowing the design team to better understand their target audience and its needs. By beginning with research on a smaller scale, this style minimizes research costs without sacrificing efficacy. Fundamentally, design research moves the emphasis of the design process from the designer and her designers to the audience and their desires and needs.

Workshop Overview

This workshop introduced participants to the practice and benefits of design research as applied to the

design and development of games. The topics in this workshop, Research Design, Implementation, and Funding, were addressed through hands-on exercises and collaboration drawing on our experience with research and design projects, including our current work developing a research-driven game for early language acquisition.

Research Design

Research methods appropriate to a project to develop a game intended to teach young children fractions will likely not be appropriate for a project to create a social network game for adult women. Because of this the workshop covers ways of identifying and implementing appropriate design research strategies. Fundamentally, we suggest that research design should consider various stakeholders—for example, in the case of learning games for children, this includes educators, parents, and of course, the children themselves—and use appropriate research questions and data collection methods specific to each.

Implementation

The integration of design research into development processes can seem disruptive or overly costly. While design research may increase production time in the early stages of the project, it can also save time in the long run and help ensure that design is optimized early in the process rather than requiring substantial correction later.

Funding

Design research can add costs to projects, and individual teams ultimately have to weigh costs and benefits. We argue that the innovation and optimization possible through design research add significant value to projects. That said, the workshop covered how to complete design research efficiently and affordably and how to identify alternative funding through grants, foundations, student professionalization programs, and other types of partnerships.

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