To Design, or to Redesign?: Juxtaposing creation and play in Game Design

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Abstract: We implemented analog game creation (design) sessions at public library spaces with children and teenagers as well as game playing (redesign) sessions at a university campus with adults. In this poster, we present preliminary results of our ongoing data analysis which seeks to compare participants' talk and interactions as they relate to design and designerly thinking when creating an analog game in contrast to *re*designing a provided game.

Introduction

Given the widely accepted affordances of digital and analog game design, such as engaging in systems thinking (Tekinbas, Gresalfi, Peppler, & Santo, 2014), perspective taking (Roussos & Dovidio, 2016), and computational thinking (Denner, Werner, & Ortiz, 2010), our research team carried out analog game *creation* (or "design") workshops as part of an earlier stage of an ongoing design-based research project. These workshops were held at public library maker spaces with children and teenagers. Our general goal with this initial stage of our project was to glean theoretical and practical insights relevant to how children and teenagers engage in design thinking while designing analog games. As we played the resulting games ourselves during early stages of data analysis, we noticed that all of them warranted some form of redesign to allow us to play them through to completion. As we played, we tweaked the games to make them finishable. We noticed this "fix-as-you-play" approach appeared to afford similar, though seemingly more scaffolded, points of entry to engaging with design thinking. To explore this idea further, our research team conducted a new set of sessions using these same created games but focused instead on game *playing* (or "redesign") instead of game creation. These redesign sessions were held at a university campus with adult college students. In what follows, we refer to the sessions held at the library maker spaces as game creation or design sessions because participants started the design of their games with no readily available prototype to build from; they started with a metaphorical "empty canvas." In contrast, we refer to the sessions at the university as game playing or *re*design sessions because they started to play, and make changes to, the already-created games that the teenagers devised beforehand—an "already-painted canvas".

Poster goals

In this poster, we present preliminary results of our ongoing data analysis which seeks to compare participants' talk and interactions when designing an analog game from said "blank canvas" in contrast to *re*designing, or fixing, an existing game prototype. To this end, we focus our data analysis on comparing participants' engagement with design thinking (Stanford d. school, 2018) and designerly ways of thinking (Johansson-Sköldberg, Woodilla, & Çetinkaya, 2013) as made visible through their talk and interactions recorded through observations, field notes, transcribed and coded audio and video data, post-activity debriefings, and answers to open-ended questionnaires. Our goal in this poster is to share the practical and theoretical insights into the kinds of constraints and affordances for engaging in designerly ways of thinking that are permissible by the related yet distinct activities of making and playing (or designing and redesigning) analog games.

Productive discussions

We understand this to be a promising idea to explore further because though activities of *designing* games have been shown to align with positive outcomes, (e.g., engaging in systems thinking, perspective taking, computational thinking) they may still carry unexpected burdens on facilitators' and participants' cognitive, time, expertise, and resource demands. These burdens could prevent educational contexts from reaping the full potential benefits of such design activities. In contrast, starting with the *re*design of an existing game may help scaffold these demands in underexplored ways. We believe our topic can lead to productive discussions with conference attendees during the poster session because designing games from a blank canvas is a popular pedagogical activity that could stand to benefit from the consideration of the related, yet distinct, activity of redesigning a game. In doing so, these discussions could lead to potential alternatives to enriching popular design initiatives.

Data sources

We gathered our larger corpus of data in the American South West across multiple game design and redesign sessions spanning from Summer 2017 to Spring 2019. We first conducted game creation sessions in which children and teenagers would work in groups to create analog games. These sessions were held across nine makerspace locations in public libraries, during which participants, ranging in age from 4 to 18, produced roughly 40 different games at varying levels of completeness. The games were low-fidelity, paper-and-pencil prototypes which participants produced in teams with provided materials (e.g., play money, player tokens, varieties of dice) during 2017 and 2018. We closely examined this larger collection of games and selected those that demonstrated sufficiently nuanced and detailed rules and mechanics, yet still required further redesign to make them playable. A total of eight games met our criteria, and we had them "polished" by commissioning a professional game designer who typed up handwritten rule sheets and made visually appealing game boards and cards but did not change the original mechanics and rules, therefore keeping the same "kinks" or "bugs" that were present in the paper-and-pencil prototypes. We took each of these polished versions of the games and ran game redesign sessions in our university games lab in the spring of 2019. In these sessions, adult participants (18+) pursuing varied undergraduate and graduate degrees played these games in groups, unavoidably encountering moments of ambiguity in either the game rules or mechanics that necessitated them to redesign it in some way. For each of these sessions, we conducted observations, composed field notes, and video/audio recorded game play and talk. We also conducted post-activity debriefing sessions and asked participants to answer to pre- and post-activity open-ended questionnaires.

Results

We are currently performing analyses on our larger corpus of data from all our available games and sessions. We are manually coding our data using a combination of inductive codes for designerly ways of thinking and a priori codes for design thinking stages. Preliminarily, we have identified moments in participants' talk that demonstrate quicker ventures into engaging with designerly ways of thinking in the redesign sessions as opposed to the design workshops. We are working to tease out how these quicker ventures compare to the quality or "depth" of these conversations across contexts. We have also identified explicit statements from participants during design sessions that indicate they possess an overt awareness of the design thinking stages (an unsurprising finding given that creation workshop facilitators instructed participants on what these stages were named as well as their descriptions), but we have found little evidence to support the assumption that this overt knowledge helped them grasp or enact the concepts any better than their redesign counterparts did (who received no overt instruction on design thinking prior to redesigning).

Sample visuals

Below we provide an illustrative example of the visuals we would use on the poster to support our discussions with attendees (see Figure 1). Here, we chose to juxtapose the creation (design) as well as the play (redesign) versions of the same game, *Pollutaplop*—a game in which players work to clean up pollution from different bodies of water.
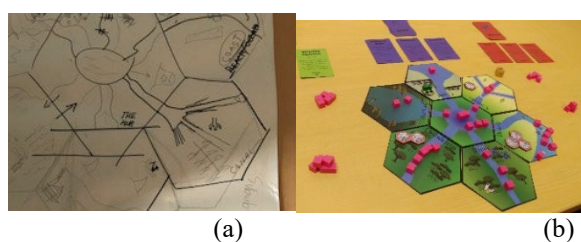

(a)   (b)

Figure 1. Paper prototype (a) and polished prototype (b) of *Pollutaplop*.

References

Denner, J., Werner, L., & Ortiz, E. (2010). Computer games created by middle school girls: can they be used to measure understanding of computer science concepts? Computers and Education, 58(1), 240–249.

Roussos, G., & Dovidio, J.F. (2016). Playing below the poverty line: Investigating an online game as a way to reduce prejudice toward the poor. Cyberpsychology: Journal of Psychosocial Research on Cyberspace, 10(2).

Stanford d. school. (2018). Design thinking bootleg. Retrieved November 18, 2019, from https://dschool.stanford.edu/resources/design-thinking-bootleg

Tekinbas, K.S., Gresalfi, M., Peppler, K., & Santo, R. (2014). *Gaming the System: Designing with Gamestar Mechanic*. MIT Press.