Monopoly Reimagined: Cultivating Gaming Literacy for Tackling Real-World Complexities

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Abstract: Gaming literacy proposes specific ways of thinking and acting by providing cognitive, creative, and social skills, which are necessary in the face of complex (Zimmerman, 2008) and wicked problems we encounter in today's society (Rittel & Webber, 1973). This paper presents preliminary findings from an exploratory study of how students within arts, design and media might redesign board games and develop gaming literacy; helping them understand and make sense of the world "from the point of view of gaming" (Zimmerman, 2008, p. 156). Through research-based teaching at both bachelor and master levels, we developed a work-in-progress workshop where students must face complexity and practice navigating it. In the workshop, students redesigned the familiar board game Monopoly, using it as a metaphor, and our emergent findings suggest that it can provide a scaffold that enables students to map, prototype and simulate different complex problems and systems onto it - without prior game design knowledge. Monopoly introduced a balance between familiar and known rules and constraints on one side, and hackability and the freedom of play on the other. The monopoly workshop provides an experimental, hands-on, and collaborative approach to understanding complexity through intertwined actions of exploring, prototyping, testing, and reflecting (Zimmerman, Forlizzi & Everson, 2007). We found that the success of such a process seemingly depends on the facilitator and the participants. Here, allocating time for explicit reflection on learning outcomes was a necessary and vital part of the workshop (Alme & Hvidsten, 2022; Dewey, 2018). This work-in-progress workshop method contributes to studies of pedagogical games by focusing on how students might develop gaming literacy through board game redesign, offering a novel, hands-on model for engaging students in, and understanding, systemic complexity. We suggest that future research should validate this approach further, in other contexts and with other types of (board) games. Further, future research should investigate this approach as an introduction to the overarching model of gaming literacy in the face of complex problems.

Key words: Monopoly, game literacy, co-design, wicked problems, hack, complexity

1. Introduction

The use of games for educational purposes, particularly for teaching about wicked problems and future scenarios, is well-researched (Magnussen, 2011; Celis Vargas & Magnussen, 2022; Fernández Galeote, Legaki & Hamari, 2023; Fernández Galeote et al., 2022). However, there is a lack of concrete evidence regarding the effectiveness of this pedagogical approach compared to other methods (Dichev & Dicheva, 2017). Few studies explore how non-game design students might learn about complexity through designing and playtesting games, as well as the potential that lies in redesigning existing games in this context.

This paper presents preliminary findings from an exploratory pedagogical study of board game redesign for students within the fields of arts, design, and media. It introduces our *Monopoly workshop*, a novel and work-in-progress approach designed to engage students in higher education with systemic complexity by developing gaming literacy. Lasting half a day to a full day, the workshop utilizes the globally recognized game of Monopoly, known for its clear goals and familiar mechanics. This paper shares our experiences conducting the workshop, the insights gained, and our perspective on how this method can facilitate engagement with complex problems. We conclude with suggestions for future research, highlighting the potential of this novel approach to the fields.

2. Background

This part of the paper briefly presents the background of our workshop approach. First, it describes the gaming literacy model. Second, we explain its relevance to complexity and our argument for choosing the Monopoly game as a starting point.

Gaming literacy

When relating to, and experiencing, the current world, literacy should be thought of more broadly than the ability to read and write (Gee, 2003; Zimmerman, 2008). Literacy is a *social achievement*. For example, reading

a text is about the text—its meaning and its interpretation by the reader—which is influenced and determined by the social group to whom she/he belongs and through their social practice (Gee, 2003). Moreover, *New Literacy Studies* argues that reading and writing are "social and cultural practices with economic, historical, and political implications." (Gee, 2003, p. 8). Gee (2003) combines *situated cognition*, the area of work that claims that human thinking and learning are tied to the body and its real-world experiences and sensing, with *new literacy studies* and *connectionism,* the power humans of for pattern-recognition, to explain how video games are learned and played.

Zimmerman (2008) adds the concept of *design*, highlighting it as an act of creating meaning and giving context to the experience of play. He introduces G*aming Literacy* which is based on three interrelated concepts: systems, play and design and claims that it is a way to understand and make sense of the world by providing cognitive, creative, and social skills – all important for addressing the complex challenges of contemporary society (Zimmerman, 2008). Any game is a system defined by the game rules; "a regularly interacting or interdependent group of items forming a unified whole" (Merriam-Webster, 2024). Games consist of rules that interact to produce outcomes based on the players decisions (Gee, 2005). Gee (2005) defines system thinking as a principle that players can understand through games: "People learn skills, strategies, and ideas best when they see how they fit into an overall larger system to which they give meaning" (Gee, 2005, p. 14). Then, a (good) game will help players see and understand the system it represents; navigate, think and act in the environment of this specific complex system (Gee, 2005). When players agree to follow the rules of the system *play* happens. "Play is human effect of rules set into motion" (Zimmerman, 2008, p. 159). In games, play happens with and within the system structure (Salen and Zimmerman, 2003). Playing with tangible parts of a system, such as game pieces, is an unconscious way to explore a system and change, converse and reflect on this playable system (Celik, 2023). Games are systems embodied into cultural material, thus acting as Metaphors (Slavin, 2014) - the exercise of abstraction allows us to stylize, rearrange and intensify these systems so that they become newly visible to us; we then can take these concepts back to the world and re-apply them (Lantz, 2014). Thus, [game-] design is the act of creation of a set of possibilities (Zimmerman, 2008), while for the players this leads to emergence playfulness, an outcome of meaningful gameplay (Fizek, 2014). Zimmerman (2008) introduced gaming literacy as a relevant model to understand and navigate the world in the coming century. Here, the double meaning of *gaming* is central: playing according to the rules while constantly checking their limits and bending them to our advantage (Zimmerman, 2008).

The use of games as a tool to explore co-creation, systems, and systems thinking has been extensively researched in educational contexts, highlighting their potential as effective pedagogical tools (Arnab, Clarke & Morini, 2019; Morini, 2022; Celik, 2023). This paper explores the use of board games to enhance the tangibility of the co-creation process (Celik, 2023) and suggests the importance of maintaining playtesting, while limiting game creation to a pre-existing game board (Morini, 2022). In the case presented in this paper, we use *Monopoly.* It is a popular board game first created by Elizabeth Magie, originally titled *the Landlord's Game*, to illustrate the negative aspects of concentrating land in private monopolies. Several variants of the game, based on her concept, were developed from 1906 through the 1930s with different game boards and components. The game was used to educate economic students and entertainment. It was later commercialized by Charles Darrow in 1935, who sold the game to Parker Brothers, leading to its widespread success. With this Monopoly offered participants an opportunity to work with a familiar and established system (already "made to be hacked"), to foster playfulness. For a short workshop with players with diverse and "low gaming literacy" starting points, we considered it advantageous to use a board game with familiar mechanics, goals, and components.

3. Method

This exploratory study is based on the hypothesis that gaming literacy might enhance students' ability to engage with and reflect on systemic complexity, and we ask the overall question of: *How might board game redesign develop students´ gaming literacy?* We attempt to answer this question through studying how a familiar system (the Monopoly board game) might help students unfamiliar with game design and systemic intricacy confront complexity, and possibly enhance their gaming literacy. Although we have chosen a well-known game, our research method aligns more closely with *game-like* learning as described by Magnussen (2011), rather than *educational games*. Magnussen (2011, p. 34) advocates for the design-research of learning environments motivated "by understanding of games, learning and play". This approach aims to create dynamic frameworks that encourage reflection. By promoting and practicing remixing and modifying ("modding") existing games as well as discussing this act with the students, we hoped to encourage playful creativity (El-Nasr & Smith, 2006).

Extended from previous research within *Game-Based Learning*, we endeavour to make the students playful while creating meaning and fostering reflection. Our aim is for students to engage with the combined processes of cognitive, creative, and social elements of gaming literacy, rather than understanding these components as separate principles. We encouraged them through the workshop's structure, to make and act, prototype and test, knowing it might be "wrong" but still a way to communicate and interact about their ideas, a process known as research through design (Zimmerman, Forlizzi & Everson, 2007).

This paper presents findings from two Monopoly workshops. The first workshop took place in a bachelor-level elective course with 26 students from multiple specializations within the broader field of arts, design, and media. The second workshop was with ten master students within one specialization. Each workshop was recorded and transcribed in full. The master students also partook in a group interview and answered a questionnaire where some of the questions focused on their experiences with the Monopoly workshop. The analysis was done through mainly qualitative interpretation; the transcripts were coded using thematic analysis (Bryman, 2015), aiming to explore and identify recurring patterns of meaning (indexing, categories, themes) across the dataset. Additionally, we quantitatively analysed the data from the questionnaires, using Microsoft excel.

3.1 The Monopoly Workshop

This section describes the workshop structure as well as our emergent findings. This work-in-progress workshop lasts between three to six hours and requires at least one group of 2-5 participants. This section presents how we structured the two workshops we held in the spring of 2024. The workshops were designed with theory-based assumptions which were then strengthened by the analysed data. Therefore, it includes our reflections and understanding of the importance of each step in the workshop as well as its objective within the whole workshop flow and its desired result.

Workshop structure

Step 0: One-pager - your favourite board game. Since the participants were not required to have prior game-design knowledge, and to familiarize them with board games in general, they were asked to prepare a *one-pager* on their favourite board-game. This one-pager should include a *photo*, a list of *components*, the *goal* of the game, *feedback* mechanisms (how players track their progress in the game) and the *rules*. A template for the one-pager with an example (Monopoly) was provided as a guide, as most of these terms would be unfamiliar to them. Participants would bring their printed one-pager with them to the workshop and present it the rest of their group. The aim was that this would provide participants with a larger repository of game mechanics and components for next steps.

Step 1: Set-up and complex everyday challenge. Participants were given multiple "blank" Monopoly boards printed on paper in A4 and A3, different game components and blank cards (fig. 1). They were also allowed to repurpose components from Monopoly board games. Each group was given a complex everyday problem/challenge to map onto the game board; examples included planning a party, setting-up living collective, planning a family trip or vacation. These are all examples of dynamic systems, where different people involved have varying (and possibly conflicting) goals.

Figure 1: The workshop set up included two example Monopoly games (one old and one new), multiple almost-blank Monopoly boards, game components and blank cards (Photo: Magnus Hestad)

Step 2: Defining the goal-of-the-game. The next step was dedicated to agreeing on the *goal-of-the-game,* as this is one of the four traits of a game (McGonigal, 2011). This was challenging as it requires student to articulate and define their given system while understanding its complexity.

Step 3: Playtest and revise (Fig. 2). To promote constant engagement through playing, prototyping, and playtesting we encouraged the participants to "plan small" and play with the new scenario while discussing (and redesigning) the *rules*, *components,* and *feedback mechanisms*. Then, time was allocated for discussion and review within the groups regarding the different gameplay strategies and game progression to create a one-pager for the redesigned game.

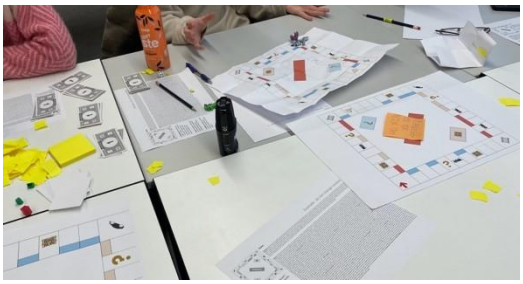

Figure 2: Step 3 of the workshop promotes playtest and revise (Photo: Sarit Youdelevich)

Step 4: Present and reflect. Each group then presented their game to the rest of the class, followed by a discussion, and debrief. This is essential part of the workshop as this enhance switching to a reflection mode which is essential for learning (Alme & Hvidsten, 2022; Dewey, 2018).

The sections below discuss some of our emergent findings from running these workshops.

3.2 Emergent Findings

Monopoly is a well-known board game and therefore we assumed it would be familiar to the workshop participants, allowing them to quickly engage in playtesting. Despite the time constraints, students managed to create a game around a complex system in a short period. One student stated that it is "...nice to be given a concrete example of how easy it can be to just make a game, as long as you base it on things you are already familiar with". We believe that students gained confidence of game design when they did not need to "reinvent the wheel", but rather analyse what needs to change and what can remain as is. Hacking develops critical thinking, as students can question the limitations of a system and identify leverage points for changes and improvements. Here, we find that the scaffolding provided by the existing Monopoly game, as a metaphor of a complex system, was able to be adapted to their needs in the workshop. Most of the students stated that their knowledge and understanding of complex problems had increased following the workshop, as shown specifically in our survey for the master students (Fig. 3).

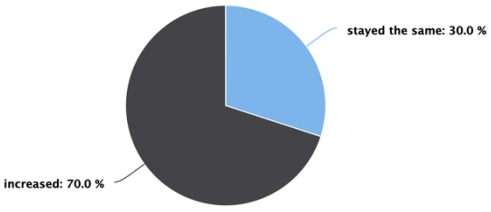

Figure 3: Knowledge and understanding regarding complex systems had increased.

Monopoly's monetary focus was found to be restrictive by some participants, and some felt constrained by this scaffold. Indeed, the groups varied in their ability to move beyond Monopoly as a starting point. As facilitators, we played a crucial role in emphasizing the importance of playtesting and co-designing. We found that most students were more inclined to engage in conversation and discussion, rather than always design and playtest.

The master students in particular were eager to jump straight from long conversations into “the one” final design; in contrast to the continuous playtesting, collaboration and negotiation we aimed for in this workshop. This was, however, a learning point form the presentation and discussion, where they regretted not playtesting sooner to create “better” games.

The workshop is too brief to fully experience a game-design process. However, allowing sufficient time for reflection on learning outcomes ensures meaningful discussion and understanding of the need and potential of this process through playtesting. This reflection helped students recognize how for example their playing strategies could represent their stakes in a specific situation or system, and vice versa. Further, it allowed them to reflect on the characteristics of complex systems, their dynamic nature as well as how playfulness can suggest better understanding of and navigating within them.

In retrospect, participants recognized that the process was both enjoyable and educational, for example, one student stated that: “...sometimes you just have to start straight to get started” and “It can help to set ‘shorter’ deadlines to get started, and everything doesn't have to be 100% thought out to get started” and another student stated: “...I also saw the joy in co-creation when we had the creative freedom that we had”. Specifically, they had recognized the playfulness that emerges from balancing between restrictions and flexibility.

In addition, the master students continued using games to research and develop future scenarios for existing complex systems. They had the opportunity to practice redesign with their systems' stakeholders. By the end of the course, they reported having learned how to effectively co-create through redesign by answering the question: “How would you rate your knowledge of working with co-creation after this course?” with all of them stating “well” and above.

4. Discussion and Conclusion

In this paper, we have explored how board game redesign (using the case of Monopoly) can develop game literacy, which could provide important skills for addressing complex problems. We approach gaming literacy as explained by Eric Zimmerman (2008, p.164): “how playing, understanding and designing games all embody crucial ways of looking at and being in the world”. We selected the game Monopoly as a scaffold (an existing complex system) which can play as a metaphor and aimed to facilitate playful interaction with a complex everyday challenge through its redesign. The educational goal was for students to experience and reflect through board game redesign as a process of restructuring human interactions (Fig. 4).

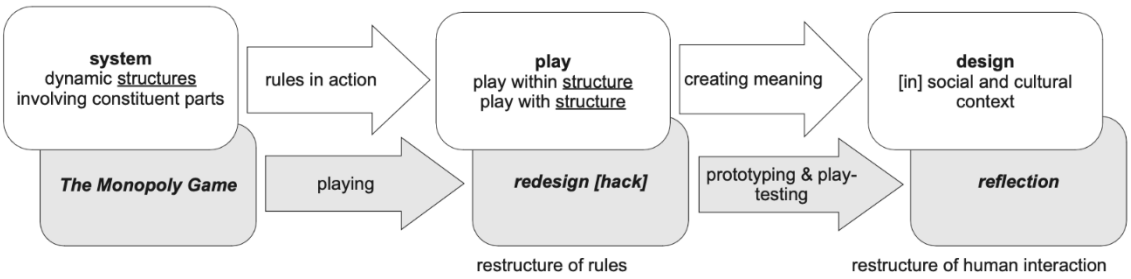

Figure 4: Gaming Literacy and its components (based on Zimmerman, 2008 and Fizek, 2014) applied as a method in the Monopoly workshop

The Monopoly Game acted as a metaphor for students to familiarize themselves with the nature of complex systems. The invitation to redesign and hack the game enhanced both playfulness within the workshop and as system, but also promoting learning about the opportunities and potential of being playful with everyday complexity.

Systems gain significance through their association with people and in the coming century, the focus will shift towards human-centred systems (Zimmerman, 2008). Using a board game and its tangible characteristics increased the immediacy of redesigning acts, facilitating open and informal conversations and social interaction around the table (Celik, 2023). When communicating an idea, we are required to articulate the concept in a way that people can understand and reflect; in doing so, we continuously design and evolve our ideas (Zimmerman, 2022). The process of prototyping and playtesting requires students to communicate: articulate and reflect on, fostering *social* understanding. Acting as a game design process, the students created a set of possibilities to play the game while also examining these possibilities' limitations and identifying where the system can be bent (Zimmerman, 2008). This required them to constantly shift between their role as designers and players. By redesigning the Monopoly game, playing with its strict system while hacking it to create a different meaningful system, students gain understanding of the *cognitive* and *creative* elements of Gaming Literacy. Ultimately, we believe that the final step of the workshop helps students understand this process as a repeatable way to make sense of and interact with the current world (Lantz, 2014; Zimmerman, 2008), representing a new type of literacy.

We presented that gaming literacy can serve as a model for mutual learning, enabling students to restructure human interactions through game strategies, communication, and language. Here, we found that especially the reflection and dialogue portion of the workshop was essential (Alme & Hvidsten, 2022; Dewey, 2018).

The use of gaming literacy as a model for engaging with complex problems warrant further investigation. Specifically, the Monopoly workshop could be implemented and tested with students from diverse backgrounds and within cross-disciplinary educational programs. Different pre-existing board games might be tested as alternative metaphors for systems. Additionally, more research is needed to understand how the workshop serves as an introduction to the overarching method and to identify the potential outcomes in the face of complex and wicked problems.

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