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Our Museum Game

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Abstract. The 'Our Museum' board game (referred to as 'the game' throughout this paper) is a dialogical tool for museum professionals, researchers, exhibition designers and developers. The game is designed and developed through a coordinated effort between museum professionals and researchers. The work presented here will detail the conception of the game and establish parts of the theoretical background for the game design, offset by two iterations that are based on insights from two separate playtests. These insights have been reworked and implemented into the current version of the game. With the game, we aim to offer a tool-supported method to tackle user-centered challenges in the exhibition space, by bringing different roles together and provide a medium to form a shared language as a part of the design process of creating exhibitions. The work here could be interesting to both practitioners as well as researchers working within the museum context and to an extent within the fields of games and gamification.

Keywords: Museums, Design Game, Game Design, Gamification.

1 Museums between Enlightenment and Experience

Over the years, many fields have merged with museological studies and development, with scholars from anthropology, psychology, education and technology, contributing to a trend towards more diverse experiences in museums [1–3]. However, when different professions, such as curators, exhibition designers, technology providers and user researchers engage in a collaborative design process, the communication and understanding between them is challenged by their respective domain knowledge. One way to address these underlying challenges is through research projects. The 'Our Museum' (OM) research program (2016-2020) is among the most recent research and development initiatives in Denmark (ourmuseum.dk) stemming from a long line of collaborative constellations that combine academics and professionals from the museum context, such as European National Museums (EuNaMus), Material Encounters with Digital Cultural Heritage (meSch) and Europeana. The program is a national collaboration between 5 universities and 8 museums with 13 individual research projects. The collaborating museums are a mix of arts, cultural and natural history museums. The foci for the 13 projects span from analytical to practical, where some study the museum context in a historical perspective while others engage in practice-based research with design and development as their primary objectives.

The OM program's overriding thesis is that museums are historically created and developed in a field of tension between a perception of the museum as a means of public information and enlightenment and as a means for the visitor's experience and entertainment; and that this tension field is particularly visible in dilemmas emerging with current communication practices [4, 5]. Here, the term 'enlightenment' denotes the didactic, educational, factual, forming and informative, while 'experience', on the contrary, denotes emotional, engaging, entertaining, imaginative, involving, narrative and playful. From this, the 8 museums articulated research projects in collaboration with the 5 universities, resulting in 13 research projects. However, in order to align all the projects, three analytical dimensions were defined as part of the research inquiries and investigations. These dimensions are *institution*, *communication* and *user*. These three dimensions ensure that the 13 projects have a shared agenda to investigate, understand and challenge the collaborating museum institutions in how they communicate their knowledge to the public and how they position their users. As the research program is currently nearing its end-of-cycle, the knowledge shared between the projects, collaborators and the program, are being refined into 'research contributions'. Thus, the program, the projects, the collaborating museums, the insights gained, and the knowledge produced over the past three years incentivized the development of the board game. We will elaborate on the framing of the game in the coming section, in part through theoretical foundations and in part by translating the program's foundational thesis regarding enlightenment and experience, along with the three analytical dimensions into game elements.

2 Collaborative Game Play

2.1 Collaborative Design

Collaboration is an essential activity of museum practice, across both professions in-house, with other museums or organizations and with design or consultant companies. Knudsen and Olesen [6] discuss the potentials and challenges of collaboration in museums by identifying three constellations of collaborative design in museum studies: *internal collaboration across different museum staff groups; collaboration across museum staff and external design professionals;* and *collaboration across museum staff and museum users* [6]. This goes to show that the museums are facing multiple collaborative situations in the daily practice. Some of which are connected to the development of communication and exhibition design. There are many ways to approach collaborative design. Brown [7] describes innovative design as a product of interdisciplinary team efforts not a lone designer - '*all of us are smarter than any of us*' - the key to unlocking the creative power of any organization. In these interdisciplinary collaborations Cross [8] points to the fact that the participants assume different roles in collaborative design processes rather than representing their profession but assuming a social role in the group dynamic; being a facilitator, taking charge etc. It can be argued that it is in these group dynamics that we can distinguish between multidisciplinary and inter-

disciplinary as Brown [7] describes it. Interdisciplinarity occurs when multiple professions collectively take ownership of ideas, rather than advocating their respective domain.

Sanders & Stappers [9] also discusses both the roles and facilitation of collaborative endeavors. They propose generative tools to create a shared language for the collaborating stakeholders to communicate and discuss ideas, requirements, potentials, limitations and dreams. Sanders and Stappers described generative design methods and research as a way of providing this shared language: '*Generative design research gives people a language with which they can imagine and express their ideas and dreams for future experiences. These ideas and dreams can, in turn, inform and inspire other stakeholders in the design and development process*' [9]. By approaching a collaborative design process through workshops with generative tools, we can support stakeholders in developing a common interdisciplinary design language, one which can make people's different ways of seeing, thinking and doing come together in agreement - from multidisciplinary to interdisciplinarity. Gudiksen & Inlove [10] take the generative toolbox idea one step further, by arguing for the relevance of gamification and game design to facilitate collaborative and innovative design. Gudiksen & Inlove [10] propose that games and game-based design can facilitate better communication, breaking down silos and engaging staff. Thus, using games as a method for facilitating development processes and initiating shared language between participants.

2.2   Game Design

The objective was initially to create a tool-supported method to facilitate design processes behind exhibitions through collaboration. However, the complexity of facilitating such activities increase with the number of different roles. The logic behind using games, or more specifically, gamification stems from multiple points of interests, but here we focus on the concept of 'third space communication' [10, 11] and how games can act as a space between spaces. The notion of 'third space' can be explained as the void that exists between two or more participants with different domains. Participants will always bring their professional background, history and specialized language into a discussion. This can in turn create confusion and misunderstanding between the participants. The 'third space' offers a way to facilitate and mediate between participants, for example through the use of generative tools, where participants can work towards a common goal. Bringing the participants together is insufficient; a structure is required to engage in a design process where participants can be supported to engage in processes that enables them to transition from multidisciplinary to interdisciplinary. In other words, a collaborative setting that includes tools and techniques that can support stakeholders in developing a common interdisciplinary design language [9, 10]. Building on past research, such as 'design games' to overcome organizational challenges [10] and past experiences [12, 13], we applied gamification as a method to merge the spaces.

Here we highlight some of the features that makes games formidable tools for facilitating collaborative design practices but recognize that games are highly complex multilayered systems. We extracted core elements from the research program and trans-

lated these into game elements; we have experienced first-hand and studied in the literature the complexities of gathering multiple disciplines in collaborative design activities, so we implemented roles. We also included a resource mechanics to drive the game and facilitate decision-making activities. We looked to game theory to understand how play modes can affect the game and to select a suitable one. Here we identified three categories; competitive, cooperative and collaborative. In competitive games, players are diametrically opposed and require them to form strategies that directly oppose other players in the game, such as chess [14]. Cooperative games offer a situation where two or more players have interests that are "neither completely opposed nor completely coincident" [15]. Collaborative games necessitate collaboration and are games that supports players working as a team and sharing the payoffs as a team. This means that if a team wins or loses, every player wins or loses [16]. A team can be seen as an organization in which the kind of information each person has can differ, but the interests and beliefs are the same [16]. This can be mapped to the different roles, where they can share the same goal of wanting to create a compelling exhibition experience for the user, but a mismatch between the underlying information can create miscommunication and disagreements. Consequently, a competitive game is not suitable due to the egocentric win-condition. However, cooperative games have elements that can reward a team effort, yet in a cooperative game, players can still abuse the game system to e.g. 'free-ride', meaning they get carried through the game without contributing to the effort. We want every role to be represented and active, so the third option seems most suitable; a team effort where the whole team wins or the whole team loses. In the paper *Collaborative games: Lessons learned from board games* [16] three pitfalls are highlighted that should be taken into consideration while creating collaborative board games. Pitfall 1: *To avoid the game degenerating into one player making the decisions for the team, collaborative games have to provide a sufficient rationale for collaboration.*, Pitfall 2: *For a game to be engaging, players need to care about the outcome and that outcome should have a satisfying result.*, Pitfall 3: *For a collaborative game to be enjoyable multiple times, the experience needs to be different each time and the presented challenge needs to evolve.* [16]. We considered these pitfalls while creating the game, which will be reflected upon in the gameplay subsection.

We then ask ourselves; how can we design a game that integrates the agenda and insights of the research program, in a space that allows for facilitation of multiple professions to design exhibitions through collaborative practices.

3 The Our Museum Game

The Our Museum Game was designed to assist and facilitate ideation for exhibition design which takes enlightenment and experience into consideration. It was created as a dialogical tool that invites different roles into a collaborative design process. The need for such a tool emerged from the collaboration between research projects and museum institutions under the Our Museum research program. The challenge of creating the game, was to include activities that can facilitate and support the design process by

directing the participants towards a shared language through common goals and ownership, while retaining focus on the user-centered dimension as part of the game's underlying framework.

3.1 Gameplay

The game was designed as a board game (See Figure 1 below) with three main phases and four intermediate phases. The three main phases are designed as a design and development lifecycle which are represented as *dialogue* tiles on the board. The four intermediate phases are definition and documentation activities. These are represented as *interval* tiles on the board where the players document a session in a report that will serve as the end product of a playthrough. This report serves as a design document that the participants may use as a plan to design, develop, implement and evaluate. The center tile is a *focus* tile where a play session's focus is laid out as a visual cue. These consist of the museum context, the user and the challenge that the participants define for each play session.
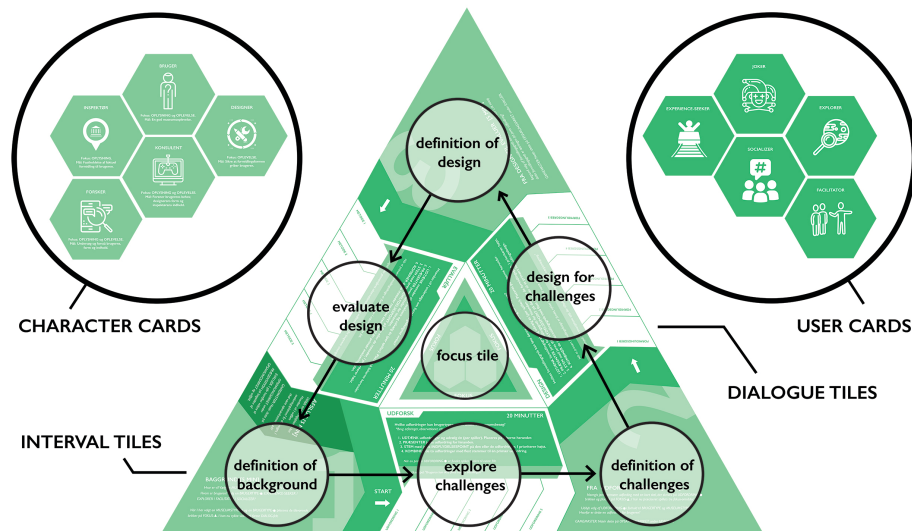

Fig. 1. The Our Museum Game board with an overview of the complete tile set.

The players start the game by selecting one of five roles from the *character* card deck; the museum curator, the exhibition designer, the exhibition developer, the researcher and the user. These roles were chosen based on the roles that are typically represented through the design process. Each role is imbued with an alignment in regard to enlightenment and experience. Some roles are neutral while others are not. The participating players can choose their professional role, or switch to a different role. The roles should address the first pitfall to avoid one player assuming control and makes all the decisions for the team. After this initial step, they must select which type of exhibition context

they will be designing for; arts, history or natural history. Finally, the players must pick one of five users from the *user* cards. Four of the users are constructs based on various user types, typographies and personas found in the literature. The four types of users in the game are *explorers*, *experience-seekers*, *facilitators* and *socializers*. These were inspired by the Falk and Dierking's visitor types in *Identity and the museum visitor experience* [17]. A fifth user card is included with instructions to create a specific user type that does not fall under the predefined four. They are then done with the setup and can initiate the first main phase. The first main phase is "explore challenges", where the players will investigate and identify one primary challenge. The second phase is "design for challenges", where the players will generate, combine and define one primary exhibition concept design. The third phase is "evaluate design", where the players will create a plan to test and evaluate their exhibition concept in praxis. During each main phase, the players spend a limited amount of "influence counters" to vote and select challenges, design concepts and evaluative methods, respectively. The session concludes with an end step where the session is rehashed and documented.

3.2 Primary collaborative traits that the game enables

The games purpose is to mainly support three primary traits, to lead the players through the game and define an idea and strategy for the design of a new exhibition, installation, communication, etc. **Collaborative Design:** As mentioned previously the game seeks to collect multiple museum professions around exhibition design. Through the games character cards, intervals and dialogue tiles the game nudges the players to take ownership of their collective ideas, rather than advocating their own character. Thus, developing into interdisciplinary team; '*all of us are smarter than any of us*' [7]. **Shared Language:** Consequently, this leads directly to the second trait; Shared Language. The game rules, game mechanics and game elements, both frames and supports the creation of a shared language between the participants. The game provides a third space where each participant with their character is required to discuss ideas, requirements, potentials, limitations and dreams. A third space where the game becomes a generative tool that supports the creation of a shared language [9]. Thus, the game provides a third space that becomes the <u>new</u> shared space for collaborative design. **User-Centered Design:** Lastly, the third primary collaborative trait's point of reference emerges from User-Centered Design and is placed in the content and purpose of the game. Namely, placing the user traits and challenges at the heart of the design development and game challenge. Thus, removing the participants focus from their professional wishes and wants, to approaching the design from the user's perspective - how can we enlighten users through experiences at the museum?

4 Playtesting

4.1 Playtest #1, 2018

The first iteration of the game was play tested internally in the research program, April 2018. The game was introduced as a tool to incentivize dialogue relevant to user-centered exhibition design to the participants. The participants were grouped in a mix of senior and junior researchers, program leader, the steering committee and representatives from the collaborating museum of 4-5 per group, with 5 groups in total. The session lasted 2 hours. The session was planned as a prototype playtest; thus, data was collected throughout the session. The collected data was observational, such as photos and notes. The design documents that each group had produced by playing the game were also gathered, as well as informal feedback after the session had ended.

Fig. 2. Playtest #1 with version #1 of the Our Museum Game Board with the Our Museum team.

The observations and feedback revealed minor fixes, tweaking of mechanics and a few major insights that were used for the second iteration. These were: time constraints and character creation. The implemented time constraints were difficult to follow; the groups spent too much time discussing. It may seem paradoxical that a dialogical tool tries to reduce discussions, but often discussions would lose focus of the task at hand. Therefore, the allocation of time per phase in the second iteration were adjusted so one playthrough would take exactly 1,5 hours and adjusted so the discussion activities are pressed. The game had a character creation process where each participant would create a user, that would represent them on the game board. Consequently, the participants became too attached to their user and could not empathize with the other users. Additionally, the user-centered aspect lost focus because of the many users represented. Therefore, the second iteration was re-designed to one user per session, that the participants select in unison.

4.2 Playtest #2, 2019

The second play test took place at *Kulturmødet*, August 2019. This is an annual meeting for Danish cultural institutions, organizations, stakeholders and the public to participate in activities and events. Our Museum was invited to present the program and to host a play session with participants at the meeting, as part of the key museum event, "We Love Museums" (our translation) event. From the first version of the game, used for playtest #1 to the second version used for playtest #2, the major additions were predefined character cards and user types and a redefinition of the questions asked on the different tiles. For the presentation and playtest, we had one hour. Thus, forcing us to only have the participants play a part of the game. Nevertheless, all game mechanics were still activated. For this play test, the players were given a predefined context (art, cultural or natural history museum), a user type (explorer, experience seeker, facilitator or socializer) and a challenge. The players were asked to choose a character which they wanted to represent. The assignment was then to play through *dialogue* tile 2 (design) and *interval* tile 2 and 3. Two groups of 5 people played through the game for playtest #2. The playtest was documented with video, pictures, observation and the players collected their decisions on a sheet.

Fig. 3. Playtest #2 with version #2 of Our Museum Game at Kulturmødet Mors 2019 as part of the "We Love Museums" event.

From this playtest we observed four main points of interest for further iterations of the game. Firstly, facilitation has to be on-point; the game needs a gamemaster or facilitation mechanics to guide the participants. Secondly, if museum users are invited to participate in the game, more explanation is necessary, since they do not know all of the terms and tendencies of museum practices, such as Falk and Dierking's user types. Thirdly, the predefined characters and user types, created a quicker adjustment and understanding of each players role in the game and understanding of their core target group, making the initiation of game play easier. Lastly, a set of cards to support each main phase should be included to assist participants with the latest tendencies, state-of-the-art communication practices and evaluative methods to draw inspiration from. The cards have been planned as a way to add the research program's insights to the game.

5   Results and Further Perspectives

The design and development of a game that was motivated by the Our Museum research program and necessitated through the challenges identified through the collaborative work between research projects and museums, resulted in the creation of the 'Our Museum Game'. The game set out to gather participants with different professional backgrounds to design exhibitions while retaining focus on user-centered design, through the use of gamification and game design. Although the game has not been through rigorous testing with data collection and analysis, the experience and insights gathered through observation and direct feedback has revealed both flaws and strengths of the core design of the current version of the game. Nevertheless, the game has shown utility as a tool to facilitate the user-centered dialogue of design and involved participants in more relaxed and playful way. The gameplay encouraged the participants to engage in a collaborative space where they could develop a shared language. As a proof-of-concept, the game has been explored and verified, but with space for improvements. Two distinct paths should be explored in future iterations of the game. One is the construction of the game itself, while the other is pertinent to the design aspect. **"Game"** - The game mechanics needs to be developed to support collaborative play further. Additionally, the player representation is currently vague, so the gameplay should be investigated to add more gravitas to the different roles. The use of enlightenment and experience as a balancing mechanic also needs adjustments so they are more apparent throughout the game and make them relevant in designing exhibitions. **"Design"** - The effect of game design should be explored further as well as the application opportunities and facilitation of the game. Thus, research how the shared language develops and how the result of the gameplay format influences the subsequent design process. Finally, the game needs to be examined to understand when during the design process its utility is required and how well the game format supports the transition from multidisciplinary to interdisciplinarity.

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