A Case Study in Playful Facilitation for Designing Embodied Experiences

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Abstract. Embodied design is fostering relevant advancements in novel design methods for learning and innovation. Nevertheless, practice and research show that teaching and facilitating embodied design is a challenging task. This paper presents a playful approach for conducting embodied design sessions, which adapts existing card-game mechanics to improve the accessibility and usability of existing embodied design toolboxes during a design session. Our approach hypothesizes that card-game mechanics can address usual pitfalls common to card-based facilitation toolkits by adding structure, guidelines, and playfulness. We also envision that such toolboxes, that have become popular in the research in participatory and co-design contexts, can seamlessly incorporate card-game mechanics like the ones we propose. We describe the setting of the design session, as well as present and discuss the results obtained from observation and participant questionnaires. Finally, we also outline the next steps for designing an embodied workshop in sustainability based on the results from this study. We strive to analyze our proposed method by its capacity to blend into the structure and materials of a card-based toolbox, eliciting the playfulness embedded in the leveraged card-game mechanics to implicitly provide support and guidance through the session, to both facilitators and participants, without disrupting the flexible and open flow of an movement-based design session.

Keywords: Movement-based design · game-based design · design facilitation · method cards

1 Introduction

Addressing today's complex challenges necessitates interdisciplinary collaborations and crossing knowledge boundaries. Design thinking and participatory design have gained prominence as a user-centered approach to innovation, so that collaborative design practices can integrate diverse perspectives. The roles of trained designers have thus diversified, highlighting the relevance of the role of the facilitator in participatory and co-design contexts. The facilitator has the

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complex task of driving a participatory design process through specific methods and towards a particular end, with enough flexibility and adaptability to meet the evolving demands of the participants [23].

Movement-based design methods [13], like *bodystorming* or *soma design*, widely adopted across various domains for their promptness at giving early first-hand insights into embodied experiences, as well as their flexibility to be applied at different stages of a design project, face similar challenges in terms of the many factors that facilitators must deal with, both when designing the activities and when adapting them on the fly. Improvisation is a relevant facilitator skill, but the facilitation process can't solely rely on this [31].

This has motivated the popularity rise of the design and creation of facilitator materials, similar in concept to traditional teacher classroom materials, but in shapes that better fit the particularities of participatory and movement-based design sessions, i.e. toolboxes or toolkits [25], which in the majority of the cases consist of cards and templates sometimes complemented by a digital or web companion [17]. Such toolboxes present many advantages related to the physical form and properties of the cards that offer a tangibility play that improves cognitive processes, as well as a low-cost, re-configurable, and easy-to-use visual representation of a problem space. Nevertheless, design toolboxes also present facilitation challenges that usually relate to an overwhelming amount of content and materials that can't be presented at once or expected to be learned and handled on the spot.

We argue that game mechanics can provide structure, guidelines, and playfulness that can support and improve the facilitation process. In particular, card-based toolboxes can directly make use of card game mechanics with little and straightforward adaptation. We propose a case study in designing embodied experiences for an open workshop to be held as part of the program of a local design festival, using the Mecamind toolbox [1] as the material for design facilitation. Inspired by the work of Bentz et al. [2], we leverage the creative potential of embodied practices for sustainability transformations, to approach the topic of the festival, *care*, under the tagline of designing for the invisible actions that have a real impact on the planet.

This paper presents a playful design session facilitated with the Mecamind toolbox, in which experts in embodied interaction and design are tasked to design embodied social activities for the envisioned workshop. We also present and discuss the results from such session from observation notes and participant questionnaires, as well as describe the next steps towards the ultimate design of the workshop.

2 Related Work

2.1 Mecamind (Method Cards for Movemement-Based Design)

The MeCaMInD toolbox is based on a set of principles drawing from embodied cognition [30] and soma-based design [16], which aims to position the body as an instrinsic part of the design process [18]. The toolbox (Fig. 1) is a set of method

cards developed to simplify the design process of activities and experiences that include movement, embodiment, and technology [1,5,29]. Each method card describes a particular goal, procedure, context of use, and potential variations. The toolbox can be applied to various application domains where activity design is key, such as sports performance enhancement, health treatment, workplace physical activity, education, creative technology development, and exergames [6,11]. The toolbox itself is grounded on a four-category model (4M) that makes the method cards actionable in the field of interaction design [7], which is in turn based on the theory of embodied cognition [27].

The method cards in the toolbox come in five categories (Fig. 1). Mood Setters (red) are activities to set the creative mood and mindset with icebreakers, warm-ups, and team-building activities. Movement cards (green) describe methods for sensitising designers, ideating, evaluating/polishing, or documenting solutions. Movement Concepts (blue) summarize the theoretical grounds that underpin and further inform users about the methods in the other cards.

Fig. 1. Mecamind toolbox with sample mood setting, movement, movement concept, and instruction cards, via project's website (https://mecamind.eu/documents.php).

Modifiers (smaller cards, multicoloured) are quick suggestions to easily tweak and produce variations of activities described in either mood setters or movement cards, arranged in seventeen different modifier categories (Fig. 2). Instruction Cards (yellow) are like a rulebook turned into cards, containing detailed instructions on how to use mood setters, movements, and modifiers, as well as design flows: sample pre-made scenarios to quickly put the toolbox into practice.

2.2 Embodied Design in Games

In HCI, movement-based design methods [15] and embodied ideation methods are often used throughout the design process, and can be more generative (e.g.,

Fig. 2. Sample modifier cards representing several of the modifier categories, via project's website (https://mecamind.eu/project.php).

within the ideation phases [33]) or later on as a way to explore and evaluate the interactions. Designing movement-based games using these methods has seen much attention at CHI PLAY and within the broader HCI/games community [21], for example using embodied sketching [24] as a way to design social fitness games [22], bodystorming as a way to playtest and explore the design space of games [4], or embodied explorations to design a mixed-reality dance game [34]. Live-action roleplay, or larp, has even become a valued ideation method at CHI as a way of sensitizing designers to scenarios, or as a test-bed for prototyping and iteration [20].

More recently, feminist lenses have been applied to the embodied design space, for example challenging the norms and assumptions in embodied design [26], and moving toward designing for the pluralities of bodies. While the core of these embodied methods rely on the first-person perspective, they "...abandon the notion of universalism and instead build on the plurality of bodies; emphasizing that their corporeal differences are not sought to be generalized or ignored, but rather brought forward and generative in their uniqueness." [14].

However, there are numerous challenges with articulating and teaching these embodied methods [28], underscoring the need for more tools that help us translate this knowledge to the wider community [9].

2.3 Interventions for a Sustainable Future

Despite widespread awareness of the need for individual actions to combat climate change, we continue to live in ways that are unsustainable. Many individuals consider themselves committed to sustainability but struggle to align their actions with their principles [32].

Theories such as the attitude-behavior gap [12] and cognitive dissonance [10] explain the gap between people's sustainable intentions and actions. Cost and comfort often influence decisions, like choosing a cheaper, faster flight over a train [3]. This discrepancy creates cognitive dissonance, leading people to justify their choices with rationalizations like, "I didn't have a choice due to high prices" or "I usually take the train, so flying this once is okay."

Sustainable development requires long-term thinking, both individually and societally [19]. Neuroscience shows that decisions for our future selves activate brain areas similar to those used when considering others, suggesting that aligning current actions with sustainability feels like caring for a stranger [8]. Therefore, a promising path forward is to look towards interventions in the decision-making process that sensitize individuals to sustainability and spark a cognitive awareness of how their actions today impact their, or others', future selves.

3 Playful Design Session

Section 2 motivates the project that frames this paper: the design of an open workshop, to be run at a local design festival, with the aims of sensitizing individuals and raising awareness and discussion about caring for the planet, by means of taking part in embodied and social activities.

To these aims, we have conducted a playful design session whose main goal is to design and create embodied social experiences for such workshop. This section describes this design session, that puts into practice and evaluates the contribution of this paper: a card-game inspired facilitation method to easily make use of card-based design toolboxes, articulated in this case by the Mecamind toolbox. The choice of this toolbox comes motivated by the fact that it can be used off-the-shelf to conduct brain- and body-storming sessions for designing embodied activities, such as the ones envisioned in the framing project.

3.1 Session Procedures

A group of six experts were invited to a 2-h design session. This group of participants was composed of 4 lecturers in embodied interaction, interaction design, and information technologies, and two master's students with backgrounds in interaction and game design. Additionally, three researchers facilitated the session and a fourth one acted as an observer, taking notes throughout the entire session. Qualitative data used for evaluating the proposed facilitation method is gathered by means of the observation notes, as well as through anonymous responses to questionnaires that the participants answered immediately afterwards an experience had been designed and enacted.

One facilitator, namely the session lead, informed the participants about the purpose and procedures of the session, as well as about the possibility of ending their participation at any given moment. He then briefly introduced the participants to the festival and the envisioned workshop that would ultimately be designed for it. This workshop has a fixed topic defined by the authors, with the aims of ensuring that it fits to the topic of the festival, "care", while at the same time leaving enough room not to constrain the participants' creativity during the design process. This topic is "Designing the invisible", as designing for the actions and choices that people inadvertently make, and that have a real impact on the planet and a sustainable future.

The session lead introduced the Mecamind toolbox, which only two of the participants were had previous experience with and explained the rules of the proposed game-inspired approach for using the toolbox. This introduction took 30 min, leaving 90 min for the design session. The six participants plus the other two facilitators teamed up in four pairs. Due to the nature of the proposed game-based approach, the design session was framed similarly to a boardgame play session, and it's played with all player teams sitting around a table. For consistency, the session procedures are described in the following subsections mimicking a game rulebook. Hereinafter, participants are referred to as players or participants indistinctly.

3.2 Session Rulebook

Game Setup (for 4 Teams). Create a deck of mood-setters by randomly sampling 24 cards from the box. Shuffle and place faced down on the table. Similarly, create a randomly sampled deck of 32 method cards. Shuffle and place next to the mood-setting deck. Place all modifier cards from the box, grouped by category, in separate decks at the center of the table, faced down. Finally, give pen and paper to all teams.

Note: Steps 1 and 2 can alternatively use a fixed selection of cards instead of random sampling, or a mixed approach with random sampling from a previously filtered deck. Similarly, some modifier categories can be filtered out. This enables facilitators to arrange custom game sessions in which only specific subsets of cards are used. The described session followed the steps are per above.

Goal of the Game. In teams, participants must create as many custom Mecamind design flows as desired, composed of as many mood-setters, methods, and modifiers they prefer. The created flows must follow the structure of the existing design flow cards in the Mecamind box (see Instruction Cards in Sect. 2.1), as well as they need to propose a narrative that targets the envisioned workshop.

How to Play. The game is played in two rounds: a first one using the deck of mood-setters and a second one using the deck of methods. Round 1 starts by

dealing all cards in the mood-setter deck, so that each team receives a starting hand of six cards. The round lasts six turns.

In every turn, teams simultaneously and secretly choose the card that they want to play. When all teams have chosen a card, they simultaneously reveal it, play it, and pass the remaining cards in their hand to the team to their right. By playing a selected card, a team places it on the table in front of them. Teams get a new hand of cards from their left, which they use to play the following turn in the same way. This repeats until all cards in the mood-setting deck have been played. *Note:* When players are not familiar with the used card toolbox, it's recommended that each team briefly explains the card they have chosen.

Round 2 follows the same rules but using the method card deck. Unused cards are this time handed over to the team to the left, and the round lasts for 8 turns. *Note:* Teams compose their own design flow by, turn after turn, arranging the played cards in sequences of mood-setters and methods. Cards can be freely rearranged during the gameplay, but teams can't trade cards among them.

When playing a selected card, a team may choose not to use it for any design flow, but instead they "burn" it (discard), which grants them the possibility to pick the complete deck of one modifier category from the center of the table, browse through it and keep as many modifier cards as they would like to incorporate to their flows. Modifiers not used are returned to the center of the table.

Endgame. When both rounds are over, each player team chooses one of their designed flows at their own preference and demo it by acting as facilitators themselves, while having the remaining 6 players as participants. Anonymous questionnaires are answered by all participants directly after experiencing each design flow.

4 Results

Four different design flows, one per team, were chosen by the players to be represented. We have carried out content analyses on the observer notes and the questionnaire responses. The following sections present the results from these, followed by a discussion where we highlight recurrent concepts and relate them to specific parts of the design session.

We place the focus of the evaluation on the proposed card-game based facilitation method rather than in the delivered design flows. For the purposes of this particular paper, the design flows are merely a design task for the case study participants. Nevertheless, the content of such flows is very relevant for the next steps of this project towards building a workshop for festival, which is developed further in Sect. 6.

4.1 Observation Notes

Participants' fluency in using the cards flew from a slow start, in which longer times were needed to understand their purpose, to a more fluent mid- and late-game, when participants engaged in creative use of the cards, particularly the

movement cards (green), by reading, comparing, and discussing them. This creative engagement demonstrated that once participants overcame initial hurdles, they were able to interact with the cards effectively.

The process of composing sessions by sequencing cards initially caused some confusion, especially concerning how to connect mood setting (red) and movement (green) cards. However, the process felt smooth overall, with the one-card-at-a-time approach facilitating discussion and session composition. As participants progressed, they began to understand and enact the sessions, sometimes using props to aid their sequences. This gradual understanding helped teams find common themes and hand over to each other seamlessly, though initial friction was evident.

Incorporating modifiers into sessions proved challenging for participants. The concept of"burning" your card to obtain modifiers was unclear, leading to minimal use of modifiers until late in the session. While some teams began experimenting with modifiers in later rounds, others did not use them at all. There was a noticeable curiosity and willingness to experiment with modifiers, suggesting potential for greater engagement if the process were clearer.

The card-related mechanics initially introduced complexity and confusion, particularly regarding modifiers. Despite these initial challenges, the mechanics eventually provided a structure that facilitated the construction of customized sessions after a few rounds. Participants occasionally lost connection to the theme due to their focus on the rules. Timed sessions for card selection might improve flow, as the varying speeds of participants created friction. As understanding improved, gameplay became more fluid, though moments of complexity persisted.

Participants were initially hesitant to stand and enact their proposed ideas based on the cards. Most teams remained seated, discussing movements without enacting them. However, as the session progressed, enactments became more frequent, with some teams spontaneously acting out their cards. This shift indicated growing comfort and engagement with the activity, suggesting that initial encouragement might help prompt earlier enactment.

Finally, help was punctually requested at the beginning of the session regarding clarifications on card selection, the relationship between cards, and the use of modifiers. The session facilitator provided support to remind and clarify these rules. Participants were initially unsure whether to focus on the theme, the flow of the card session, or the connections between cards. Frequent clarifications helped participants navigate these uncertainties, though initial confusion highlighted areas for potential improvement in instructions.

4.2 Questionnaires

Participants were asked to fill a questionnaire after each design flow was presented and experienced to gather their opinions on the sessions both as designers and participants, and at the end of the design session to gather the participants thoughts on the design process and the card-game based facilitation method.

In this paper, we focus and report on the latter questionnaire as we are interested in the participant's opinions in the design process (the questionnaire is included in Appendix A). 6 out of 8 participants in the design session answered the questionnaire.

In general, the answers to the questionnaires match the observations made during the session. Participants thought that the approach to select cards was good and interesting, but somewhat confusing and constraining at first and as a first design session. One participant said "'Slightly confusing at first but gradually understood." (P1) and another pointed out that "... if I did it a second time now, I'd come up with much more interesting ideas" (P4).

The main critic highlighted by participants relates to the short amount of time to design and enact the cards to get a good grasp of their designed session and the amount of information per card. Participants would have liked more time to discuss (P1), to work around the constraints (P2), and to explore and enact the cards (P2, P3, P4, P5). Nevertheless, participants reported that they all got a sense of and understood very well the purpose of the cards after participating in the session.

5 Discussion

As expected, toolboxes are content-heavy and not quite accessible for beginners. Previous studies have shown that this stagnates the bodystorming process and negatively impacts the adoption and flow of design with these method cards. Our results indicate that the proposed approach with card game inspired mechanics mitigates this issue by initially exposing players to a limited, randomly selected number of cards. This method offers a smoother learning curve, allowing players to familiarize themselves with the card structure and content gradually. By the second turn, players approach new cards more efficiently, and by the third turn, they naturally engage with the cards and each other, explaining and enacting the contents, and suggesting combinations. The whole session took place in a remarkably playful mood, as participants felt like players playing a boardgame rather than thoroughly designing an activity.

The turn-based structure maintained steady session progress, and the simultaneous card selection mechanic challenged players to make relevant choices quickly. Although it was difficult when multiple interesting cards were available, the round mechanism allowed some discarded cards to reappear, giving players a second chance to incorporate them. Setting a time limit for card selection is recommended to keep the session flowing smoothly, though it may result in some players not fully reading their cards.

The study confirms an issue observed in past experiments: strict rules can cause misunderstandings, leading designers to focus on the rules rather than the game's goals or ignore problematic parts. In this study, misunderstandings about modifier cards led to their minimal use. Despite this, the card-game method integrated well with the toolbox, suggesting its applicability to other card-based toolboxes.

Playing while seated around a table had mixed outcomes. Positively, it facilitated card reading, handling, and understanding, with all materials within easy reach. This setup enabled a quick start and smooth gameplay. However, sitting did not encourage designers to enact movement-based activities as effectively as standing. Designers needed motivation to stand up and engage in the methods. Finally, the fact that participants were experts in interaction and embodied design, with two already familiar with the toolbox, limits the results' applicability to other cases with more diverse backgrounds.

6 Conclusions and Future Work

The four targeted design flows were designed and experienced by all the participants. Overall, they fit to the overarching theme of *care* and *sustainability*, and present various interesting combinations of mood setting and movement cards, and modifiers to a lesser extent, leading to four well differentiated embodied and social activities. These design flows were separately evaluated by participant questionnaires and observations notes. Such results are going to be used by the authors as the base materials to create the workshop to be run at the festival, which happens in a series of extended design sessions.

The design process followed during these sessions from the initial four design flows to the eventual workshop design will be documented with notes and a comparative analysis. Observation notes will also be gathered during the festival, and its participants will be asked to answer questionnaires that place the focus on the impact of the designed embodied and social activities on the target sustainability topic. Our future goals encompass iterating and using the proposed card-game based facilitation method for participants, designers, and interested community to develop design flows that helps them communicate ideas and goals within their own field or interest through role-playing, embodied interaction, and experience learning. Our case study highlights that this method gives a clearer how to use and better understanding of otherwise hard-to-use cards such as Mecamind. As discussed in related work, teaching and articulating embodied ideation methods is challenging. In future work, we also hope to explore more methods of introducing newcomers to these interaction design concepts.

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